INSTRUCTIONAL FUNCTIONS OF SPEECH AND GESTURE IN THE L2 CLASSROOM

A Dissertation in
Applied Linguistics

by
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ABSTRACT

Recent decades have seen a surge of interest in the pedagogical functions of gesture and their implications for student learning. While an impressive amount of work has been done in general educational contexts, fewer studies have investigated the role of gesture in the language classroom. Moreover, the vast majority of these studies focus either on the ways learners mediate their thinking with gesture or the manner in which teachers employ gesture in instructional interaction. There is also lack of longitudinal studies of gesture in the language classroom, which would allow for tracking the impact of teacher-student gesturing on learning. The present study 1) investigates the instructional/learning functions of teacher and student gesturing coordinated with speech in the process of classroom L2 learning; 2) provides evidence of student learning as a consequence of gesture-based mediation; and 3) documents how teacher and student use of gesture in the ESL classroom changes over time.

The primary data for the study are comprised of 32 hours of video recordings of classroom interactions collected over six weeks at a U.S. university Intensive English Communication Program. The data also include the teacher’s PowerPoint slides and the textbook employed during classroom activities as well as responses from an instructor questionnaire, student questionnaire, and an instructor follow-up interview. Framed within Vygotskian sociocultural theory (Lantolf & Thorne, 2006), the study also adopts theoretical frameworks and methodologies of gesture analysis developed by McNeill (1992, 2005) and Kendon (2004).

The findings indicate that teacher and student gestures employed in their classroom interactions served important instructional and learning functions in the process of mastering different aspects of language. Thus, the teacher’s gesture 1) facilitated student learning of vocabulary, pronunciation, and grammar; 2) enhanced teacher/student affective alignment and
encouraged student participation; 3) externalized teacher cognition, which became accessible to students and had important social/instructional consequences. Similarly, student gesturing fulfilled important learning functions, as it allowed them to: 1) express their understandings of L2 concepts through gesture before they were able to verbalize the concepts; 2) appropriate the teacher’s gesture and employ it as a learning tool; 3) mediate their own thinking in L2 through private gesture; 4) use gesture in peer interactions to facilitate their fellow students’ understandings of L2 meanings.

In most of the research literature that has examined gesture in the L2 classroom focus has been either on the teacher’s or on the students’ use of gesture. The present study demonstrates the value of considering the use of gesture in the pedagogical interactions between the teacher and students and among students. It considers teacher and student gesturing as a dialogical co-constructed process unfolding in real-time interaction. Such an approach combined with the longitudinal perspective allowed for tracking of student responsivity to the teacher’s gestural strategies and identifying which of these were more conducive to learning. The study also points to significant instructional functions of teacher and student catchments as manifestations of dialogicity in classroom L2 learning. The study has important implications for SLA pedagogy, indicating that language teachers need to become aware of the pedagogical benefits of gesture in developing their student understandings and verbalizations in L2. Teachers also need to be sensitized to their student gestures as an important source of information about their current levels of language development. The study offers recommendations to teacher education programs on ways of incorporating instructional gesture into teacher preparation. Finally, it makes a contribution to the methodology of gesture research by elaborating the notions of catchment, growth point, beat, and gestural hold.
# TABLE OF CONTENTS

List of Figures ............................................................................................................. ix

List of Tables .............................................................................................................. xviii

Acknowledgments ..................................................................................................... xix

Chapter 1 Introduction .............................................................................................. 1

1.1 Aims and Scope of the Study .............................................................................. 1

1.2 The organization of the dissertation ................................................................... 5

Chapter 2 Review of the Literature ........................................................................... 6

2.1 Introduction ......................................................................................................... 6

2.2 Gesture as a Tool for Learning .......................................................................... 7

   2.2.1 Gesture in problem-solving ...................................................................... 7

   2.2.2 Gesture as miniature action .................................................................... 9

   2.2.3 Effect of gesture on memory .................................................................. 13

   2.2.4 Gesture helps focusing attention ........................................................... 15

   2.2.5 Student uptake of teacher gesture .......................................................... 17

   2.2.6 Gesture as a tool for graduated assistance .............................................. 18

2.3 Gesture as a Tool for Language Learning .......................................................... 21

   2.3.1 Gesture in the methods of language teaching ......................................... 21

   2.3.2 Gesture in L2 comprehension .................................................................. 25

   2.3.3 Gesture in teaching and learning L2 vocabulary ................................... 27

      2.3.3.1 Gesture in vocabulary explanations .............................................. 27

      2.3.3.2 Gesture Promotes Retention of L2 vocabulary ................................. 30

   2.3.4 Gesture in teaching grammar ................................................................... 33

   2.3.5 Gesture in teaching pronunciation .......................................................... 37

   2.3.6 Student perceptions of teachers’ gesture ................................................. 41

   2.3.7 Student gesture ....................................................................................... 45

   2.3.8 Catchments ............................................................................................. 49

2.4 Summary ............................................................................................................. 54

Chapter 3 Methodology ............................................................................................. 57

3.1 Introduction ......................................................................................................... 57

3.2 Research Questions ............................................................................................ 57

3.3 Theoretical Framework ....................................................................................... 58

   3.3.1 Vygotskian perspective on learning ...................................................... 58

   3.3.2 What is “gesture”? ................................................................................. 63

   3.3.3 Gesture-speech interface ....................................................................... 66

3.4 Data Collection ................................................................................................... 73

   3.4.1 Context .................................................................................................... 73
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.2 Participants</td>
<td>75</td>
</tr>
<tr>
<td>3.4.3 Data Collection Procedures</td>
<td>77</td>
</tr>
<tr>
<td>3.5 Data Analysis</td>
<td>80</td>
</tr>
<tr>
<td>Chapter 4 Teacher Gesture and Student Responsivity in Vocabulary Explanations</td>
<td>84</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>84</td>
</tr>
<tr>
<td>4.2 Student Imitations of Teacher Gesture</td>
<td>85</td>
</tr>
<tr>
<td>4.2.1 Introducing teacher and student catchments</td>
<td>85</td>
</tr>
<tr>
<td>4.2.2 Multiple teacher catchments</td>
<td>91</td>
</tr>
<tr>
<td>4.3 Student Interpretations of Teacher Gesture</td>
<td>105</td>
</tr>
<tr>
<td>4.3.1 Student verbal and gestural interpretations</td>
<td>105</td>
</tr>
<tr>
<td>4.3.2 Differences in teacher and student catchments</td>
<td>116</td>
</tr>
<tr>
<td>4.4 Summary and Conclusions</td>
<td>130</td>
</tr>
<tr>
<td>Chapter 5 Teacher-Student Gesture in Obuchenie of Synonymy</td>
<td>139</td>
</tr>
<tr>
<td>5.1 Introduction</td>
<td>139</td>
</tr>
<tr>
<td>5.2 Catchment in Depicting Shared Meaning</td>
<td>140</td>
</tr>
<tr>
<td>5.2.1 Catchment in eliciting synonyms</td>
<td>140</td>
</tr>
<tr>
<td>5.2.2 Catchment in using synonyms in a new context</td>
<td>149</td>
</tr>
<tr>
<td>5.3 Metaphorical Catchment in Depicting Synonymy</td>
<td>157</td>
</tr>
<tr>
<td>5.3.1 Teacher’s use of the Synonymy Catchment</td>
<td>158</td>
</tr>
<tr>
<td>5.3.2 Students’ use of the Synonymy Catchment</td>
<td>166</td>
</tr>
<tr>
<td>5.4 Summary and Conclusions</td>
<td>175</td>
</tr>
<tr>
<td>Chapter 6 Gesture in Obuchenie of Formulaic Expressions</td>
<td>181</td>
</tr>
<tr>
<td>6.1 Introduction</td>
<td>181</td>
</tr>
<tr>
<td>6.2 Teaching a Proverb: Bridging the Form and Meaning through Gesture</td>
<td>182</td>
</tr>
<tr>
<td>6.2.1 Introducing the proverb</td>
<td>182</td>
</tr>
<tr>
<td>6.2.2 Contextualizing the proverb</td>
<td>186</td>
</tr>
<tr>
<td>6.2.3 Embodying the rhythm of the proverb</td>
<td>194</td>
</tr>
<tr>
<td>6.2.4 Discussion</td>
<td>200</td>
</tr>
<tr>
<td>6.3 Gesture in Teaching a Metaphorical-Emotive Meaning of an Idiom</td>
<td>206</td>
</tr>
<tr>
<td>6.3.1 Introducing the idiom</td>
<td>207</td>
</tr>
<tr>
<td>6.3.2 Non-verbal recast</td>
<td>211</td>
</tr>
<tr>
<td>6.3.3 Character Viewpoint</td>
<td>215</td>
</tr>
<tr>
<td>6.3.4 Student responsivity</td>
<td>218</td>
</tr>
<tr>
<td>6.3.5 Discussion</td>
<td>221</td>
</tr>
<tr>
<td>6.4 Summary and Conclusions</td>
<td>226</td>
</tr>
<tr>
<td>Chapter 7 Teacher and Student Gesture in Obuchenie of Pronunciation and Grammar</td>
<td>231</td>
</tr>
<tr>
<td>7.1 Introduction</td>
<td>231</td>
</tr>
</tbody>
</table>
7.2 Gesture for teaching pronunciation .................................................. 231
  7.2.1 Gesture in obuchenie of syllabification ...................................... 232
  7.2.2 Gesture in obuchenie of word stress ........................................ 241
7.3 Gesture in Obuchenie of Grammar .................................................. 246
  7.3.1 Demonstrative pronouns .......................................................... 246
  7.3.2 Teacher’s gesture in explaining progressive aspect ....................... 256
  7.3.3 Adjectives: Degrees of Comparison ......................................... 268
  7.3.4 Word Order ............................................................................ 286
7.4 Summary and Conclusions ............................................................... 296

Chapter 8 Student Gesture and Teacher Responsivity .............................. 302
  8.1 Introduction .................................................................................. 302
  8.2 Student Gesture in Seeking Confirmation ...................................... 303
  8.3 Student Gesture in Resolving Confusion ........................................ 315
    8.3.1 Resolving multilayered confusion .......................................... 315
    8.3.2 Differentiating homonyms ...................................................... 326
  8.4 Summary and Conclusions ............................................................ 338

Chapter 9 Student Gesture in Peer Interactions ..................................... 341
  9.1 Introduction .................................................................................. 341
  9.2 Gesture in Student Discussions of Word Meaning ........................... 342
    9.2.1 Reaching agreement ............................................................... 342
    9.2.2 Identifying a gap .................................................................... 351
    9.2.3 Clarifying the meaning .......................................................... 354
  9.3 Gesture in Student Discussions of Semantic Relationships .............. 359
    9.3.1 Discussing Opposition ........................................................... 360
    9.3.2 Discussing Similarity ............................................................ 368
  9.4 Summary and Conclusions ............................................................ 390

Chapter 10 Conclusion ........................................................................... 394
  10.1 Discussion of Findings ................................................................. 394
    10.1.1 Mediation functions of teacher gesture ................................... 395
    10.1.2 Mediation functions of student gesture and evidence for learning . 398
    10.1.3 Changes in teacher and student gesture over time ................... 400
  10.2 Contributions, Implications, and Future Directions ....................... 402
    10.2.1 Contributions to research on gesture in language learning .......... 402
    10.2.2 Implications for L2 pedagogy and teacher education ............... 407
    10.2.3 Contributions to gesture research ......................................... 415
    10.2.4 Future Directions ................................................................. 418
  10.3 Limitations of the Study ............................................................... 420
  10.4 Concluding Remarks .................................................................... 423
List of Figures

Figure 3.1. Teacher View. ........................................................................................................79

Figure 3.2. Student View. ........................................................................................................79

Figure 3.3. Space Manikin. ...................................................................................................81

Figure 4.1 Lines 20-21: “toward” ........................................................................................93

Figure 4.2 Line 29-31: “direction” ......................................................................................93

Figure 4.3 Lines 33-34: “direction?” ....................................................................................94

Figure 4.4 Lines 51-53: “toward” .........................................................................................96

Figure 4.5 Lines 62-63: “that” ...............................................................................................96

Figure 4.6 Lines 89-91: “toward” .........................................................................................99

Figure 4.7 Line 7: “power” ...................................................................................................106

Figure 4.8. Line 20: “power” ...............................................................................................107

Figure 4.9. Line 29: “more?” ...............................................................................................109

Figure 4.10. Line 29: “more?” .............................................................................................109

Figure 4.11. Line 32: “turn on” ...........................................................................................109

Figure 4.12. Line 32: “turn on” ...........................................................................................109

Figure 4.13. Line 35: “turn on” ...........................................................................................110

Figure 4.14. Line 40: “power” .............................................................................................112

Figure 4.15. Line 45: “turn” ................................................................................................112

Figure 4.16. Line 47-49: “on” ..............................................................................................112

Figure 4.17. Lines 14-17: “and you see” .............................................................................118

Figure 4.18. Lines 18-19: “waves” .......................................................................................118

Figure 4.19. Line 20: “waves” .............................................................................................118
Figure 5.12. Lines 7-10: “those are synonyms” .................................................................160
Figure 5.13. Lines 1-3: “that context” .................................................................162
Figure 5.14. Lines 6-7: “senior” .................................................................164
Figure 5.15. Lines 8-9: “citizens” .................................................................165
Figure 5.16. Lines 1-3: “is a” .................................................................167
Figure 5.17. Lines 6-7 .................................................................167
Figure 5.18. Student C producing the Synonymy Catchment ........................................170
Figure 5.19. Lines 34-35: “bottom” .................................................................171
Figure 5.20. Lines 46-47: “above” .................................................................172
Figure 5.21. “Homonyms” .................................................................172
Figure 6.1. Lines 4-6: “away” .................................................................183
Figure 6.2. Line 19 .................................................................184
Figure 6.3. Line 19 .................................................................184
Figure 6.4. Line 13: “away” .................................................................187
Figure 6.5. Line 13: “away” .................................................................187
Figure 6.6. Lines 46-47: “always” .................................................................191
Figure 6.7. Lines 56-59: “away” .................................................................192
Figure 6.8. Lines 56-59: “away” .................................................................192
Figure 6.9. Lines 64-66: “doctor” .................................................................193
Figure 6.10. Lines 37-39: “an apple a day” .................................................................197
Figure 6.11. Lines 37-39: “an apple a day” .................................................................197
Figure 6.12. Lines 43-44 “doctor away” .................................................................197
Figure 6.13. Lines 47-51 .................................................................199
Figure 6.14. Lines 47-51 ................................................................. 199
Figure 6.15. Lines 1-3: “top of the world” ......................................................... 207
Figure 6.16. Lines 9-11: “what the world is” ..................................................... 208
Figure 6.17. Lines 28-31: “really” ................................................................ 210
Figure 6.18. Lines 42-44: “graduate” ............................................................... 212
Figure 6.19. Lines 68-70: “top of the world” ..................................................... 216
Figure 6.20. Lines 86-87: “top of the world” ..................................................... 217
Figure 6.21. Lines 112-113: “yeah” ................................................................. 219
Figure 6.22. Line 3: “of the world” ................................................................. 220
Figure 7.1. Lines 11-12: “spe” .................................................................. 233
Figure 7.2. Lines 18-19: “spe” .................................................................. 235
Figure 7.3. Lines 21-23: “spe” .................................................................. 235
Figure 7.4. Lines 21-23: “spe” .................................................................. 235
Figure 7.5. Lines 3-4: “vi” .................................................................... 238
Figure 7.6. Lines 13-14: “visual” ................................................................. 239
Figure 7.7. Lines 13-14: “visual” ................................................................. 239
Figure 7.8. Lines 1-2: “per” .................................................................... 241
Figure 7.9. Lines 1-2: “per” .................................................................... 241
Figure 7.10. Lines 8-9: “ex?” .................................................................. 242
Figure 7.11. Lines 14-16: “per” ................................................................. 242
Figure 7.12. Lines 14-16: “per” ................................................................. 242
Figure 7.13. Lines 30-31: “pe” ................................................................. 244
Figure 7.14. Lines 30-31: “pe” ................................................................. 244
Figure 7.15. Lines 9-10: “this” ................................................................. 247
Figure 7.16. Lines 31-32: “these” ......................................................... 249
Figure 7.17. Lines 31-32: “these” ......................................................... 249
Figure 7.18. Lines 38-39: “those” ......................................................... 250
Figure 7.19. Lines 47-48: “this” ............................................................. 252
Figure 7.20. Lines 55-56: “these” ......................................................... 252
Figure 7.21. Lines 64-65: “plural” ......................................................... 253
Figure 7.22. Lines 7-9: “while” .............................................................. 257
Figure 7.23. Lines 13-15: “reading” ....................................................... 257
Figure 7.24. Lines 22-23: “things” ......................................................... 259
Figure 7.25. Lines 30-32: “one thing” ..................................................... 260
Figure 7.26. Line 2 ............................................................................. 263
Figure 7.27. Lines 3-7: “at the same time” ........................................... 263
Figure 7.28. Lines 3-7: “at the same time” ........................................... 263
Figure 7.29. Line 10 ............................................................................ 264
Figure 7.30. Line 11 ............................................................................ 264
Figure 7.31. Lines 19-20: “this” ............................................................ 269
Figure 7.32. Lines 24-25 ................................................................... 270
Figure 7.33. Lines 28-29: “this” ............................................................ 271
Figure 7.34. Lines 31-32: “better” ......................................................... 272
Figure 7.35. Lines 33-36: “two” ............................................................ 272
Figure 7.36. Lines 43-44: “better” ......................................................... 272
Figure 7.37. Lines 47-49: “best” ............................................................ 274
Figure 7.38. Lines 54-55: “more” ................................................................. 274
Figure 7.39. Lines 64-66 ................................................................. 275
Figure 7.40. Lines 67-68: “best” ................................................................. 275
Figure 7.41. Lines 71-73: “best” ................................................................. 275
Figure 7.42. Lines 2-4: “good” ................................................................. 278
Figure 7.43. Lines 8-10: “better” ................................................................. 279
Figure 7.44. Lines 13-15: “best” ................................................................. 279
Figure 7.45. Lines 19-21: “one” ................................................................. 281
Figure 7.46. Lines 33-35: “two apples” ................................................................. 282
Figure 7.47. Lines 33-35: “two apples” ................................................................. 282
Figure 7.48. Lines 40-41: “two apples” ................................................................. 282
Figure 7.49. Lines 51-53: “four” ................................................................. 283
Figure 7.50. Lines 54-55: “hundred” ................................................................. 283
Figure 7.51. Lines 62-63: “is the” ................................................................. 283
Figure 7.52. Lines 1-3: “was” ................................................................. 287
Figure 7.53. Lines 6-8: “re” ................................................................. 287
Figure 7.54. Lines 12-13: “relationship” ................................................................. 288
Figure 7.55. Lines 18-20: “cats” ................................................................. 288
Figure 7.56. Lines 21-22: “cats” ................................................................. 288
Figure 7.57. Lines 23-27: “owners” ................................................................. 289
Figure 7.58. Lines 31-34 ................................................................. 291
Figure 7.59. Lines 38-39: “cat” ................................................................. 292
Figure 7.60. Lines 42-44: “owners” ................................................................. 292
Figure 7.61. Lines 42-44: “owners” ................................................................. 292
Figure 7.62. Lines 49-51: “yeah” ................................................................. 293
Figure 7.63. Lines 49-51: “yeah” ................................................................. 293
Figure 8.1. Lines 1-4: “is uh uh” ................................................................. 304
Figure 8.2. Lines 15-18: “is uh uh” ................................................................. 304
Figure 8.3. Lines 6-7: “uh” ................................................................. 308
Figure 8.4. Lines 8-12: “here” ................................................................. 308
Figure 8.5. Lines 29-33: “stay” ................................................................. 312
Figure 8.6. Lines 4-7: “thought” ................................................................. 316
Figure 8.7. Lines 8-10. ................................................................. 316
Figure 8.8. Lines 11-13: “cater” ................................................................. 316
Figure 8.9. Lines 33-34: “through” ................................................................. 319
Figure 8.10. Lines 39-40: “thought?” ................................................................. 320
Figure 8.11. Lines 41-43: “thought thought” ................................................................. 320
Figure 8.12. Lines 41-43: “thought thought” ................................................................. 320
Figure 8.13. Lines 61-62: “tense ov” ................................................................. 322
Figure 8.14. Lines 65-66: “verb” ................................................................. 323
Figure 8.15. Lines 73-75: “think” ................................................................. 323
Figure 8.16. Lines 1-2 ................................................................. 327
Figure 8.17. Lines 4-6: “hole” ................................................................. 327
Figure 8.18. Lines 4-6: “hole” ................................................................. 327
Figure 8.19. Line 12: “hole” ................................................................. 328
Figure 8.20. Lines 14-16: “hole” ................................................................. 328
<table>
<thead>
<tr>
<th>Figure</th>
<th>Lines/Words</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.21</td>
<td>25-26</td>
<td>“whole”</td>
</tr>
<tr>
<td>8.22</td>
<td>25-26</td>
<td>“whole”</td>
</tr>
<tr>
<td>8.23</td>
<td>34</td>
<td>“every”</td>
</tr>
<tr>
<td>8.24</td>
<td>39-42</td>
<td>“every”</td>
</tr>
<tr>
<td>8.25</td>
<td>43-45</td>
<td>“all the parts”</td>
</tr>
<tr>
<td>9.1</td>
<td>14-15</td>
<td>“grow”</td>
</tr>
<tr>
<td>9.2</td>
<td>6-10</td>
<td>“wet”</td>
</tr>
<tr>
<td>9.3</td>
<td>10</td>
<td>“poll”</td>
</tr>
<tr>
<td>9.4</td>
<td>15-16</td>
<td>“pull”</td>
</tr>
<tr>
<td>9.5</td>
<td>6-7</td>
<td></td>
</tr>
<tr>
<td>9.6</td>
<td>24</td>
<td>“I want to carry your pencil to the table”</td>
</tr>
<tr>
<td>9.7</td>
<td>3</td>
<td>“pass this semester”</td>
</tr>
<tr>
<td>9.8</td>
<td>10</td>
<td>“pass”</td>
</tr>
<tr>
<td>9.9</td>
<td>10</td>
<td>“pass”</td>
</tr>
<tr>
<td>9.10</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>9.11</td>
<td>14</td>
<td>“go to”</td>
</tr>
<tr>
<td>9.12</td>
<td>16</td>
<td>“level two”</td>
</tr>
<tr>
<td>9.13</td>
<td>20</td>
<td>“level one”</td>
</tr>
<tr>
<td>9.14</td>
<td>24</td>
<td>“two”</td>
</tr>
<tr>
<td>9.15</td>
<td>12</td>
<td>“top”</td>
</tr>
<tr>
<td>9.16</td>
<td>15-16</td>
<td>“top”</td>
</tr>
<tr>
<td>9.17</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>9.18</td>
<td>23</td>
<td>“synonym?”</td>
</tr>
</tbody>
</table>
Figure 9.19. Line 31: “opposite opposite u::h” .................................................................365
Figure 9.20. Lines 34-35: “bottom” .................................................................................365
Figure 9.21. Lines 37-38: “top” ......................................................................................365
Figure 9.22. Line 44: “bottom” ......................................................................................366
Figure 9.23. Lines 22-25: “above” ..................................................................................371
Figure 9.24. Lines 27-29: “below” ..................................................................................371
Figure 9.25. Line 47: “above” ......................................................................................373
Figure 9.26. Lines 51-53: “(e et et xxx)” .........................................................................373
Figure 9.27. Lines 55-56: “below” ..................................................................................373
Figure 9.28. Lines 61-63 .................................................................................................374
Figure 9.29. Lines 69-70: “under” ..................................................................................374
Figure 9.30. Line 10 ........................................................................................................379
Figure 9.31. Line 12: “over” ..........................................................................................380
Figure 9.32. Line 14: “above” ........................................................................................380
Figure 9.33. Lines 40-42: “below” ................................................................................382
Figure 9.34. Lines 47-48: “above” ................................................................................382
Figure 9.35. Lines 47-48: “above .................................................................382
Figure 9.36. Lines 2-3: “between” ................................................................................386
Figure 9.37. Lines 7-8: “then” ........................................................................................386
Figure 9.38. Lines 27-28: “i:: (0.4)” ................................................................................387
Figure 9.39. Lines 36-37: “then” ..................................................................................387
Figure 9.40. Line 45: “similar” ....................................................................................388
List of Tables

Table 3.1. Participant information .................................................................76
Table 3.2. Data Sources .................................................................................77
Table 4.1. Instructional functions of catchments in Excerpt 4.1: “Five Senses” ...............90
Table 4.2 Instructional functions of catchments in Excerpt 4.2: “Toward” .........................103
Table 4.3. Instructional functions of catchments in Excerpt 4.3: “Power Up” .................115
Table 4.4. Instructional functions of catchments in Excerpt 4.4: “Waves” .........................130
Table 5.1. Instructional functions of catchments in Excerpt 5.1: “Spot” .........................156
Table 6.1. Instructional functions of catchments in Excerpt 6.1: “An Apple a Day Keeps the
Doctor Away” and Excerpt 6.2: “Nice Sound” (NS) ........................................205
Table 6.2. Instructional functions of catchments in Excerpt 6.3: “On Top of the World” (T),
Excerpt 6.4: “Yeah” (Y), and Excerpt 6.5: “Did you get it?” (DG) .......................225
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Chapter 1

Introduction

1.1 Aims and Scope of the Study

The nature of gesture as a pervasive phenomenon that accompanies speech has intrigued and inspired thinkers throughout the centuries, from Classical Antiquity to the present time (Kendon, 2004). Ever since the Roman rhetorician, Marcus Quintilian first used the term “gesture,” there have been numerous attempts to use gesture consciously in order to create a specific communicative or emotional effect: manuals for orators, religious speakers, and stage actors have been around since Greek and Roman times. Gesture as a tool purposefully employed for accomplishing instructional goals has only recently begun to receive its due in the teaching profession.

Although gesture is most often spontaneously produced and people are rarely aware that they use gestures when they speak, researchers and educators have come to recognize that interactions between teachers and students are not just verbal-centric events. Analyses of every-day teaching practices in actual classrooms show that teachers, particularly good teachers (Moskowitz, 1976), employ gesture pervasively in helping students with different instructional tasks. Indeed, educational research shows that teachers’ use of gesture in pedagogical activity is different from what is observed in ordinary conversations (Tellier, 2005; Hudson, 2011). Language instructors often use gesture to make their classroom talk in the second language more comprehensible and therefore more learnable; however, they are not fully aware of how and when they use gesture to achieve this outcome. Students themselves report that they appreciate teachers’ use of gesture, commenting that it helps them to focus their attention on the relevant aspects of a lesson, to
enhance their comprehension of the teacher’s speech in the second language, to understand abstract concepts, and finally, to engage them affectively in a more relaxed and animated atmosphere (Sime, 2006; 2008).

The benefits of teacher and student gesturing in the process of learning have been confirmed by extensive research in different fields of education. Due to its spatio-motoric and imagistic qualities, gesture is shown to be an effective attention-getter, it enhances students’ working memory (an indispensable component of learning) and problem-solving skills. An impressive series of experimental studies conducted by Goldin-Meadow (2003) and colleagues in math education has shown that hand movements can make learners’ thinking process visible, with correct solutions often emerging in gesture before the students are able to verbalize their understanding of a concept. Students also appropriate correct problem-solving strategies from teachers’ gestures through imitation.

While an impressive amount of work has been done in general educational contexts in a relatively short period of time, fewer studies have investigated the role of gesture in the second language classroom. In the area of second language learning, teachers’ use of gesture along with student imitation of instructor hand movement are shown to be beneficial for students’ listening comprehension, memorization and recall of L2 vocabulary, understanding abstract/metaphorical meanings, and appropriating concepts related to L2 academic writing. However, a significant problem with the current research is that it predominantly fails to take account of how students respond to teacher instructional gesture and overlooks the ways teachers orient to student gesturing in shaping their instruction. This applies to all aspects of language, including grammar, pronunciation, vocabulary, and the creation and understanding of coherent texts, such as
narratives. In this respect, there is also lack of studies examining gesture in the language classroom from a longitudinal perspective.

The purpose of the current study is to investigate how gesture is employed as a pedagogical and learning tool in the process of second language instruction. It examines both teacher and student gesturing in naturally occurring classroom interactions over a period of six weeks with the aim of identifying the instructional and learning functions of gesture and possible changes over time. In accomplishing the goal outlined above, the study examines data comprising 32 hours of video recordings of classroom interactions in an intensive program in English as a Second Language at an American university. The participants were a group of beginning-level students and their instructor, who is a native speaker of English. The study adopts the sociocultural theoretical view of learning as a collaborative dialogical process mediated through a range of symbolic artifacts, among which gesture and speech play a crucial role (Lantolf & Thorne, 2006). The instructional use of gesture is investigated through the lens of gesture theory developed by McNeill (1998; 2005), which posits that gesture coordinated with speech not only plays a communicative role, but it also reflects on-going thinking processes, which is particularly important for instructional settings. In other words, the simultaneous occurrence of speech and gesture reveals “thinking in flight.”

The analysis shows that gesture can be employed as an effective teaching and learning tool in promoting student control over a variety of aspects of a second language, including vocabulary, pronunciation, and grammar. Students sensitively oriented to the teacher’s hand movements by converting the information conveyed in her gesture into their verbal expression. They also appropriated the teacher’s gestures as tools for their own thinking and speaking in the second language. In this way, the teacher’s gestures facilitated developing student understandings and
verbalizations in the L2. Students also employed gesture as a mediational tool in their peer interactions, assisting each other in the learning process. The teacher carefully attended to the students’ gestures as externalization of their L2 understandings and employed this “diagnostic” information in shaping and adjusting her mediational strategies.

The study contributes to current research of the role of gesture in L2 learning by bridging the gap in examining teacher instructional gesture and student responsivity. It also expands the focus of current studies to include the ways a teacher orients to student gesture in forming her mediation. Importantly, findings reveal the crucial role of teacher and student catchments, a specific use of gesture identified by McNeill (2005) as a way of creating discursive cohesion through repetitive gesture. The study’s longitudinal perspective allowed for examination of student catchments as a form of uptake of the teacher’s gesture-based explanations. The study also contributes to gesture research in L2 learning with respect to: the learning functions of gesture in student peer interactions; the role of gesture in grammar instruction; gesture as a tool for teaching emotive meanings and building affective alignment; and gesture as externalization of instructor thinking-for-teaching, which sheds light onto how a teacher’s instructional strategies are formed and how they can be possibly improved.

The study has significant implications for L2 pedagogy, suggesting that language teachers need to be made aware of the value of their gestures as an instructional tool and of the importance of interpreting students’ gesture as a window into their thinking as they respond to instruction. The study also provides recommendations for incorporating embodied aspects of teaching into teacher education and professional development programs, whereby videos analyzed in the dissertation can be employed as instructional materials. Finally, the study contributes to the methodology of gesture research by elaborating the notions of catchment,
growth point, beat, and gestural hold as defined by McNeill (1992; 2005). More broadly, the study calls for the expansion of second language classroom research to include the non-verbal aspects of interaction as an important component of meaning-making rather than as a decorative accessory.

1.2 The organization of the dissertation

Including the introduction, this dissertation comprises ten chapters. Chapter 2 provides an overview of current literature on the role of gesture in teaching and learning in general education contexts as well as in language instruction specifically. The theoretical framework adopted in this study is described in Chapter 3 with the major focus on the sociocultural view of learning (Lantolf & Thorne, 2006) and McNeill’s (1992; 2005) theory and methodology of gesture analysis. The chapter also describes the participants and data collection procedures. Chapters 4 through 9 constitute the analytic portion of the dissertation. Findings related to the teacher’s use of gesture in vocabulary explanations and the students’ responsivity to it are reported in Chapter 4. Next, Chapter 5 delves into the role of teacher and student gesture in discussing semantic relationships of synonymy and antonymy. The analysis of the teacher’s gesture in her instruction focused on formulaic expression is presented in Chapter 6 while Chapter 7 focuses on the role of gesture in mastering pronunciation and grammar. Chapter 8 reports on the findings related to student gesture and the ways the teacher orients to it. Finally, Chapter 9 presents the analysis of student-student gesture employed in classroom peer interactions. The dissertation concludes with Chapter 10, which discusses the findings of the study in relation to its research questions, the contributions and implications of this research, along with its limitations, and directions for future investigations.
Chapter 2

Review of the Literature

2.1 Introduction

Recent years have seen a surge in interest towards the role of gesture in the process of learning in general and L2 learning in particular. Findings of research conducted in different areas of education indicate that teacher and student gesturing can be a potent “tool for thinking and for learning” (Goldin-Meadow, 2010). Most of the research in this area was carried out outside the field of SLA; however, many of its findings are relevant to second language learning. Therefore, this chapter begins with the review of studies conducted in general education and focusing on the role of gesture in learning math and different types of problem-solving. Gesture as a precursor for learning; gesture as miniature action; gesture as a mnemonic; and gesture as an attention-getter are considered in these studies. Research reviewed in this section also reports on student uptake of teachers’ gesture and the graduated nature of instructors’ assistance involving gesture.

The chapter continues with the section that reviews studies of the instructional functions of gesture in the field of language learning. It first discusses the role assigned to gesture in the methods of language teaching. The section next outlines what the studies report on the importance of gesture-based instruction in mastering such language aspects as listening comprehension, vocabulary, grammar, and pronunciation. This is followed by the review of research focusing on learner gesture used for self-regulation and elicitation of other-regulation as students complete language learning tasks. The section concludes with the discussion of studies that examine the use of repetitive gestures (catchments) and their instructional functions.
2.2 Gesture as a Tool for Learning

2.2.1 Gesture in problem-solving

The most extensive and detailed research on the instructional functions of teacher and student gesturing has been conducted outside the field of second language learning, specifically in the area of math education. Particularly illuminating are the findings of Goldin-Meadow and colleagues (see overview in Goldin-Meadow, 2003) as they conducted a number of experimental studies involving math-problem-solving tasks. These findings point to the importance of student gesture, which visualizes certain aspects of the learning processes, which otherwise would have remained obscure. Thus, Breckinridge Church and Goldin-Meadow’s (1986) study, in which children had to perform number conservation tasks, found that they conveyed two different problem-solving strategies in speech and in gesture. The strategy conveyed in gesture was often the one that was correct even though the children were unable to formulate it verbally. The students were not even conscious of the correct solution expressed in gesture: “Speakers can reveal in gesture information that they may not know they have” (Goldin-Meadow, 2003, p. 55). The author made an important conclusion that the learner must have the necessary solution in mind at some level but has not developed the necessary “knowledge framework over developmental time…or a discourse framework over conversational time…within which those pieces can be fitted together” (Goldin-Meadow, 2003, p. 29). Thus, student gesture can serve as a precursor for learning, where the students’ correct understanding may first only appear on their hands before they develop the necessary framework for verbal formulations. An important question would be whether gesture can play a similar role of precursor for learning in the context of the language classroom, for example, whether the students’ correct understandings of L2
meanings and concepts would first manifest in gesture before the students master their verbal forms.

Gestural modality can become a platform for experimentation, as Goldin-Meadow and Alibali’s (1995) study showed. Looking for solutions to math problems, children tried out different problem-solving strategies in gesture, generating new, and abandoning some of the older, strategies. Thus, variability of strategies manifested in gesture can be conducive for learning. Goldin-Meadow (2003) put forward that claim on the basis of multiple theoretical frameworks (e.g., Piaget, 1975; Keil, 1984; Bidell and Fischer, 1992) all of which point to the resolution of internal conflict emerging due to inconsistencies between different strategies as a mechanism for cognitive change. In these “moments of cognitive instability” where students’ “undigested, thoughts” come out in gesture, as Goldin-Meadow (2003) argued, a variety of modalities in which the strategies are expressed can also be beneficial for learning. Thus, gesture does not merely reflect the students’ thinking process but is rather the “mechanism that brings about cognitive change” (Goldin-Meadow, 2003, p. 117). These findings suggest that teachers have to learn “appreciating students’ hands” (p. 107) and treating them as an important source of information that allows for “discovering thoughts that are on the edge of student’s competence—what L. S. Vygotsky (1978) called the child’s “zone of proximal development” (Goldin-Meadow, 2003, p. 104).

Instructors, in fact, can sensitively orient to student gesturing by picking up the information conveyed solely in the gestural modality and reshaping their mediation accordingly (Goldin-Meadow & Singer, 2003). In this case, as Goldin-Meadow (2003) suggested, gesture influences the process of learning in an indirect way. It can also have a more direct influence on student learning. Studies in mathematical problem-solving have shown that children receiving
instruction conducted in both speech and gesture modalities had significantly better learning outcomes than when instruction was only conducted through speech (e.g., Church, Ayman-Nolley, & Mahootian, 2004; Valenzeno, Alibali, & Klatzky, 2003). Students in turn were likely to imitate teachers’ instructional gestures, which had a positive effect on their learning (Cook & Goldin-Meadow, 2006). Moreover, students’ gesturing as they were developing problem-solving strategies made their knowledge last longer. Thus, children who were instructed to gesture during a math lesson had significantly higher rates of retaining the knowledge gained during the instruction on the follow-up test four weeks later (Cook, Mitchell, & Goldin-Meadow, 2008). Gesture also allowed children to bring out implicit knowledge and to generate new ideas (Broaders, Cook, Mitchell, & Goldin-Meadow 2007). One of the mechanisms that Goldin-Meadow (2010) indicated as an explanation for the learning functions of gesture was that it “can change speakers’ thoughts by introducing action information into their mental representations of a problem, which then impacts how they solve the problem” (p. 11). The role of gesture as action in the learning process is discussed in the next section.

2.2.2 Gesture as miniature action

Gesture as action and a spatio-motoric mode of thinking was posited by Kita (2000) as crucial for enhancing speaking and thinking: “Spatio-motoric thinking, which underlies representational gestures, helps speaking by providing an alternative informational organization that is not readily accessible to analytic thinking” (p. 163). Through their interactions with the environment, humans develop certain “action schemas,” which can be modified in accordance with the changes in the environment. Gestures can reflect these schemas in a symbolic way. Being abstracted from the actions in the real world, they constitute “actions in the virtual environment”
(Kita 2000, p. 165). In this way, gestures help to structure the information about the environment in spatio-motoric form, which has a beneficial effect on thinking and speaking.

The advantages of gestures as “miniature actions” (Lozano & Tversky, 2006, p. 48) for learning and problem-solving have been confirmed by a number of empirical studies (e.g., Chu & Kita, 2008; Chu & Kita, 2011; Lozano & Tversky, 2006). These advantages can be explained by the intrinsic link between “motor actions and conceptual tasks” (Lozano & Tversky, 2006, p. 48). Thus, for example, Glenberg & Kaschak’s (2002) study showed that the participants were faster with their responses when the direction of their motor action correlated with the one described in the verbal statement. For example, they responded faster to a sentence “Open the drawer” when they had to move a hand toward their body to push the button. Similarly, they responded faster to “Close the drawer” when they had to move a hand away from the body. Importantly, this compatibility between action and meaning was also observed in relation to abstract statements such as “Liz told you the story,” which correlated with a hand movement toward the body, and “You told Liz a story,” which correlated with a hand movement away from the body. These examples show how motor action is intrinsically connected with related concepts and their verbalizations.

Due to its spatio-motoric qualities, gesture has been shown to be beneficial for solving problems involving spatial visualization (Ehrlich, Levine, & Goldin-Meadow, 2006; Chu & Kita, 2008; Chu & Kita, 2011; Hostetter, Alibali, & Kita, 2007). Thus, Chu & Kita (2011) examined gestures produced by their participants as they were thinking silently through tasks of mental rotation and paper folding. The study labeled these hand movements as “co-thought gestures” (p. 103). The participants tended to gesture more often when they experienced difficulties in solving the problems. In other words, facing cognitive hardships, “people spontaneously seek help from
gesture” (p. 106). According to the findings, the group of participants that was encouraged to gesture was more successful in problem-solving, showing higher rates of correct solutions than the groups that were just allowed to gesture or were prohibited from gesturing. Interestingly, the better the participants of the first group became in solving the problems, the less gesturing they produced. Furthermore, the advantage of the first group persisted into further visual spatialization tasks where hand movement was prohibited. The study concludes that people tend to start gesturing spontaneously when they encounter challenges in solving problems, which in turn enhances their performance. As they internalize the gesture-supported “spatial computation,” the gesture becomes less frequent. They transfer these skills onto other types of tasks involving mental spatial transformations.

Chu & Kita (2011) suggest that co-thought gestures enhance spatial problem-solving through two processes—“facilitating spatial working memory” and improving “internal computation” (p. 103). This seems to conform with the advantages of gesture as a motor modality: “Gesture, as a simulated action (Hostetter & Alibali, 2008), can provide a rich sensori-motor representation of the physical world and pick up organization of information that is less readily available to visuo-spatial processes” (Chu & Kita, 2011, p. 114). Another advantage of gesture is that it is an action abstracted from manipulation of real objects. Due to this, “adults’ knowledge about a physical event can be constructed through imagined actions on the physical object” (p. 114). In relation to language teaching, it is important to consider what role teacher and student gesturing plays in discussing L2 meanings related to spatial relationships and actions with objects in the real world.

Advantages of gesture as a carrier of action information in the learning process are also examined in Lozano and Tversky’s (2006) study. In their experiment, one group of participants, “communicators,” had to explain to the other group, “recipients,” how to assemble a TV cart. In
their explanations, the first group of communicators could use both speech and gesture while the
second group could use only gestures. The study revealed the benefits of gesturing both for
communicators and recipients. Thus, the communicators learned the assembly better when they
provided explanations exclusively in gesture rather than in the speech-plus-gesture condition.
The recipients’ success assembling the cart was higher when they received gesture-only
explanations compared with speech-only explanations. Since gestures that demonstrated actions
were critical to the instruction and learning in this task, the authors concluded “that superiority of
gestures to speech may reside, at least in part, in compatibility between gesture and action”
(Lozano & Tversky, 2006, p. 47).

In their explanations, communicators often modeled the structure of the carts as well as the
actions that had to be produced. In doing so, they used “gestural models”—a series of gestures
“coordinated to portray either structure or action” (Lozano & Tversky, 2006, p. 52). Such
gestural models were also observed in another study conducted by Emmorey, Tversky, and
Taylor (2000), where they were used for describing and modeling different environments. The
participants in that case employed hand movement to outline a map of the space or draw a route.
According to Lozano & Tversky (2006), results of their study support the “direct embodiment
hypothesis” (p. 57), which posits that gestures enhance communication by directly conveying
information related to action rather than enhancing communication indirectly by facilitating
speech. The study implies that gesture conveys important motor information by enabling its
performer to not only envision but also to simulate an action while speech allows one to focus on
descriptive characteristics rather than on action. Lozano & Tversky (2006) concluded that the
major advantage of gesture over speech is that gesture is “embodied knowledge” (p. 58) in the
sense that we learn about the world by acting upon it.
2.2.3 Effect of gesture on memory

The beneficial effect of gesture on learners’ memory has been reported in a number of behavioral studies (e.g., Kelly, Barr, Church, & Lynch, 1999; Stevanoni & Salmon, 2005). This effect held true even when gesture referred to the content that did not convey visuospatial information. Thus, Wagner, Nusbaum, & Goldin-Meadow (2004) examined the effect of gesture on verbal and visual memory with the purpose of determining whether gesture has propositional or visuospatial representations underlying it. The study involved a dual-task experiment, where participants had to accomplish two tasks simultaneously—one to test their verbal memory and the other to test their visual memory. The participants were asked to solve a mathematical equation and then explain the solution. Simultaneously with the explanation, they had to remember a list of items and then recall them (pairs of consonants for verbal working memory and configurations of dots for visuospatial memory). According to the results, the participants’ recall rate was significantly higher (both for the verbal and visuospatial items) when they gestured during their explanations than when they did not gesture.

The study concluded that its results point to significant benefits of gesturing for both verbal and visuospatial memory. The findings indicated that gesturing had the same effect on verbal working memory as on visuospatial working memory refuting the claims of other studies that visuospatial representation was unique or isomorphic to gesture. The study also confirmed the correlation of gesture with propositional content even when the information conveyed in the verbal modality was not spatial (recall was higher when gesture and speech conveyed similar information rather than a mismatching one). While McNeill (2005) saw the benefits of gesture in conveying the same information as in speech but in a different form, Wagner et al. (2004) specified that due to its holistic nature, gesture is able to provide “an overarching framework that
serves to organize the propositions in speech, in effect chunking mental representations to reduce the load on working memory” (p. 406). Thus, according to this study, gesture enhances working memory by complementing and organizing speech.

An interesting aspect of the effect of gesture on memory was examined in Kelly et al. (1999), who focused on the role of gesture for comprehending and remembering pragmatic aspects of an utterance. The participants viewed a video of a woman relating life events in two conditions either accompanied by gesture or reduced to verbal expression only. They were then asked to write down what they remembered. The gestures in the video conveyed information complementary to speech (for example, the woman would say: “My brother went to the gym” and picture the “shooting of a basketball” in her gesture, p. 586). Findings indicated that in their written responses participants incorporated information conveyed through gesture even though they were not aware of the channel through which they obtained it. Moreover, gesture helped to recall the verbal part of the utterance. The recall was significantly higher in the speech-plus-gesture condition than in the verbal condition. The authors concluded that gesture significantly contributed to the comprehension of the speaker’s intended meaning and had a positive effect on verbal memory.

Employing gesture as one gives an account of past events appears to enhance recall. This effect was observed in Stevanoni & Salmon’s (2005) study, which examined children’s gesturing as they recalled past events. The participant children attended an event and were asked to recall it two weeks later. They were assigned to four conditions: gesture-instructed, gesture-modeled, gesture-allowed, and no-gesture conditions. In the first condition, the children were required to employ gesture while talking. It is in this condition that gesture had the most significant effect on children’s recall compared to the other three conditions. They also conveyed more information in
their gesture that was absent from their verbal expression. The authors explained this effect on two grounds: 1) gesture facilitates recall “by reinstating the originally encoded experience in memory, thereby providing nonverbal retrieval clues” (p. 218); 2) gesture can also enhance the process of communicating the event by giving more structure to the narrative and thus raising its quality. This seems to coincide with the conclusion made in Wagner et al. (2004) that due to its holistic nature, gesture helps to chunk and organize the analytical information conveyed in speech and in this way enhances memory.

2.2.4 Gesture helps focusing attention

Being performed in a spatio-visual modality, gesture can act as an effective highlighter and attention-getter. This role of gesture was one of the foci of Wang, Bernas, & Eberhard’s (2004) study, which examined the role of gesture in scaffolding 7-year-old children with Attention-Deficit/Hyperactivity Disorder (ADHD) as they were solving puzzles. The children usually failed to accomplish a task due to difficulties in maintaining their focus of attention. In the study they were asked to solve several sets of puzzles as the teachers mediated them through the task. The analysis was focused on three types of speech/gesture modalities for scaffolding: speech-only, gesture-only, and speech-plus-gesture. Results showed that the teachers’ use of gesture significantly increased the time of students’ focus on the task: from an average of 13 seconds in speech-only scaffolding to 35 seconds in the gesture-only condition and 56 seconds when speech was combined with gesture.

Wang et al.’s (2004) study next looked at the specific types of gesture that appeared to be most effective in scaffolding. The results showed that iconic and pointing gestures were the most efficient types of hand movements that elicited more responses from the students, maintained
their focus of attention on the task for a longer period of time, and resulted in a higher rate of success in accomplishing the task. The study also examined the reasons for the effectiveness of iconics and deixis. Wang et al. (2004) suggested that the advantage of iconic gestures is that they “bear a close resemblance to the shape or motion of an object” and convey the image in a dynamic way (p. 225). Thus, they vividly depict the real object and attract the children’s attention more easily than abstract verbal descriptions. As for the deictic gestures, they were used for focusing the students’ attention and providing directions as in a teacher’s pointing to the pieces of the puzzle that could be matched.

Similarly, Valenzeno, Alibali, & Klatzky’s (2003) study pointed to the important role of deictic and tracing gestures in focusing learners’ attention. In explaining the concept of symmetry to children, the instructor used deictic and tracing gestures to point to the shapes, outline the center of a shape or compare the sides of a shape. The results showed that in the verbal-only condition, children turned their heads away from the screen more often than when watching the verbal-plus-gesture lesson. The study concluded that gestures help to “capture and maintain students’ attention,” signaled by children’s head movements, by grounding speech in concrete, physical environment (Valenzeno et al., 2003, p. 200).

The role of gestural modality as an “attention getter” (Goldin-Meadow, 2003, p. 92) in mathematical problem-solving was one of the foci in Goldin-Meadow, Kim, & Singer’s (1999) study. According to their findings, children were more likely to repeat the teacher’s correct problem-solving strategy when the teacher matched his speech with the gesture than when his speech was not accompanied by an appropriate gesture. The study concluded that such matching gestures increased students’ attention to the teacher’s speech. The salience of gesture as an attention getter can also have its repercussions. As a caution to teachers, Goldin-Meadow et al.
(1999) indicated that children readily picked up the incorrect teacher strategies conveyed in gesture disregarding the correct one expressed in speech. Thus, teachers’ gesture is not merely an attention getter but an important source of information often overpowering the speech modality: “when there was a conflict between the information conveyed in gesture and speech, the children went with gesture” (Goldin-Meadow et al., 1999, p. 92).

2.2.5 Student uptake of teacher gesture

As students attend to teachers’ gesture, to what extent are they able to uptake the information conveyed through gestures? This question is crucial for understanding the impact of instructional gesture on student learning. It was the central focus of Goldin-Meadow et al.’s (1999) study that examined the instructor’s spontaneous use of gesture in teaching mathematical equivalence to 8-10-year-old children in one-on-one tutorials. According to the results, 40 per cent of the problem-solving strategies were conveyed by instructors in gestural modality. Regarding the children’s uptake of the teacher’s gesture (when a student’s verbal or gestural response contained the strategy introduced by the teacher), the results showed that it was significantly higher when the problem-solving strategy was presented in two modalities—speech accompanied by a matching gesture—than when the strategy was only presented in verbal modality. The authors concluded that gesture appeared to enhance children’s comprehension when it matched the speech; conversely, when speech was accompanied by gesture that conveyed a different strategy, the uptake was lower than when speech was accompanied by no gesture at all. Thus, mismatching gesture seemed to impede children’s comprehension. Moreover, the authors concluded that the children did not mimic the teacher’s gesture mindlessly, without understanding, but were able to convert into speech the strategies previously introduced by the
teacher exclusively in gesture. Thus, children were not only able to pick-up problem-solving strategies expressed solely in the teacher’s gesture but also transferred them into their verbal production. As discussed in Goldin-Meadow (2003), the results of Goldin-Meadow et al.’s (1999) study align with the findings of McNeill, Cassell, and McCullough (1994) that showed that the “decoders” who observed mismatching speech-gesture units in narrations of a cartoon, tended to pick up the information expressed exclusively in gesture and even to transfer it into their speech.

While mismatching gesture can impede the comprehension of information expressed in speech, it can be a rich source of information in and of itself and in this way, serve as a powerful teaching tool. Thus, Singer and Goldin-Meadow’s (2005) study of teaching mathematical equivalence showed that when two problem-solving strategies were conveyed in different modalities in the form of a speech-gesture mismatch, they turned out to be effective. Thus, “Mismatching gesture was significantly better as a teaching device than no gesture…and was also better than matching gesture” (Singer & Goldin-Meadow, 2005, p. 87). The authors concluded that gesture can serve as an effective teaching tool when it conveys information which is absent from speech or “the same information packaged differently” (p. 88). In other words, gesture offers children alternative ways of solving a problem or approaching a task. The benefit of having one strategy in speech and another in gesture is that they appear simultaneously and not sequentially as when they are presented in speech, highlighting the interconnectedness of two different problem-solving strategies.

2.2.6 Gesture as a tool for graduated assistance

Students’ sensitivity to the information conveyed in teachers’ gesture assigns particular importance to the necessity of shaping mediation that involves gesture in ways most conducive
to learning. In designing such gesture-based instructional strategies, it seems important to be aware of, and orient towards, students’ gesturing as externalization of their on-going thinking. Thus, Goldin-Meadow & Singer’s (2003) study showed that learners’ gesturing in the process of learning can impact the instruction provided by the teachers. Observing the ways teachers provided spontaneous individual instruction to children who were unable to solve mathematical equivalence problems, the researchers found that the instructors modified their input depending on children’s gesturing. Thus, for example, they offered more problem-solving strategies to children who produced mismatches and in that case, produced more mismatches themselves.

When students express their struggles through the verbal channel, teachers often respond with gesture-based mediation. In observing how teachers of math employed gesture, objects, pictures, and writing for instructional purposes, Flevares & Perry (2001) found that they were more likely to respond with those nonverbal representations when the students experienced confusion. For example, the teacher would ask a question verbally and in case the student was not able to respond, she would point to the image, which elicited the correct answer. Thus, gesture combined with other visual representations could serve as a “catalyst for resolving student confusion” (Flevares & Perry, 2001, p. 340). Moreover, the results showed that if the teacher’s use of non-verbal resources in response to the student’s confusion did not result in the correct answer, the teacher employed a more specific gesture, which elicited the student’s correct response. Thus, when the teacher asked a student “How many leftovers?”, and he was not able to respond, she first pointed to the whole group of eight leftover beans. When this prompt failed to elicit the student’s response, the teacher repeated the question and pointed at each of the eight beans one by one. This action received the correct response, “Eight,” from the student. These
data show that in addressing students’ difficulties, teachers flexibly shape their use of gesture in accordance with the students’ needs.

A similar pattern of gesture used for providing graduated assistance was observed by Radford (2010). Conducted in the context of special education, the study looked at the ways teachers used verbal and non-verbal resources in assisting students with word searches. With regard to the gestural prompts provided by the instructors, the study identified two interesting patterns of graduated assistance. In the first one, the teacher first used a non-verbal prompt unaccompanied by speech. She pointed at the picture of Santa, which did not elicit the correct response. The teacher then added a verbal component by asking “Who’s this?”, which received the student’s correct response, “Santa?” (Radford, 2010, p. 91). In the second prompting pattern, the teacher used two non-verbal prompts also unaccompanied by speech. Describing who lived in the house, the student said, “there was a dad and…” experiencing difficulties in retrieving the item “baby” (Radford, 2010, p. 90). To prompt the necessary item, the teacher first pointed at the picture of a baby. Orienting to the lack of the correct answer, she switched to iconics by rocking her cradled arms from side to side, which elicited the student’s correct response, “baby.” This phenomenon, labeled by the authors as “varying degrees of assistance” (Radford, 2010, p. 98) can in some respect be paralleled to graduated assistance in the SCT framework (Lantolf & Thorne, 2006). The implication is that teachers should sensitively orient to the student’s reaction to their prompts and assess the amount of necessary mediation in order to decide how specific their gestures need to be for eliciting correct responses. The ways in which teachers reshape their instructional gesture orienting to the students’ needs in the language classroom still need to be researched.
2.3 Gesture as a Tool for Language Learning

2.3.1 Gesture in the methods of language teaching

Despite the benefits of teacher and student gesturing for learning discussed above, gesture and body movement have not been assigned a significant role in language teaching. However, throughout the centuries of language teaching, there have been several attempts to incorporate kinesics into classroom instruction. These attempts and their relevance to current language teaching will be discussed below.

Kelly’s (1969) classic overview 25 centuries of language teaching opens (somewhat surprisingly) with a section named “Gestures and objects.” It relates that as early as in the 17th century a Moravian educator Comenius attempted to persuade language teachers to focus their classroom activities on teacher demonstrations followed by student imitations. According to Kelly (1969), this principle was then followed by Pestalozzi in his language schools for children with learning problems. Demonstrating a direct connection between a word and the real thing in the environment as a basis for learning lexical meanings became one of the major principles of the Natural Method practiced in the second half of the 19th century and based on the assumption that the process of L2 learning is parallel to L1 acquisition. The method was met with skepticism on the part of adherents of traditional methods. Teacher demonstration followed by student miming were also at the core of Gouïn’s (early 19th century) method of teaching French to English speakers, where he accompanied descriptions of simple processes with actions miming them while students were expected to imitate the teacher. According to Kelly (1969), Gouïn’s method was found beneficial by early 20th century research in psychology, which showed that
“the link between meaning and activity was stronger if the action was being described while it was being performed” (p. 12).

The idea of demonstrating a new meaning as a way of avoiding the use of the target language was at the basis of the later Direct Method introduced officially in schools of France and Germany in the late 19th—early 20th century (Richards & Rodgers, 2001). Popularized in the U.S. by Sauveur and Berlitz, who implemented the method in their private language schools, the direct method instructed language teachers to “Never translate: demonstrate. Never explain: act” (as cited in Richards & Rodgers, 2001, p. 12). Thus, the teacher’s demonstration involving the use of body movement, pictures, and objects was the necessary component of introducing concrete vocabulary. Another proponent of Direct Method, Palmer & Palmer (1925), considered that a word meaning has to be tied to the place in which it is learnt. Thus, in order to prevent learner confusion regarding two meanings, the meanings have to be introduced in separate “places.” These can be represented not just pictorially but also through objects and actions. Demonstrating word meanings through the teacher’s actions became an important part of the “show” phase in Palmer’s method of instruction.

Drawing on Palmer & Palmer’s (1925) pedagogy as well as several other traditions in psychology and language teaching, Asher (1982) developed a method known as Total Physical Response (TPR). Teacher and student motor activity was at its core. Working on the assumption that the process of second language development is similar to that of the first language learning, Asher (1982) built upon the claim that the major part of caretakers’ speech addressed to children consists of imperatives. Thus, language instruction can be centered around the verb in the imperative, which when taught skillfully can open access to most of the grammatical phenomena and vocabulary items of a language. Importantly, children are able to understand and react to
commands through physical action before they are able to respond verbally. Thus, in TPR the meaning of L2 words and phrases was interpreted through bodily movement. Asher also believed that teaching-learning involving body movement performed as a game reduces learner stress associated with accurate verbal production. Asher’s method also drew from research related to human memory, particularly “trace theory” (Katona, 1940), which posited that retracing done in the form of repetition (either verbal or motor) creates stronger connections in memory and improves recall. Asher hypothesized that a combination of verbal rehearsal and physical action increases successfulness of recall.

Asher believed that it is through physical activity in response to commands that children come to comprehend them. A typical TPR lesson involved learners listening and responding with physical action to the teacher’s commands. Thus, their listening skills had to be developed first through multiple exposures to the input combined with physical response to these commands. Once the necessary level of listening comprehension is achieved, verbal production comes naturally. In other words, similar to children, adults need to engage the right hemisphere of their brain through motor activity before the left hemisphere becomes ready for language production.

While TPR certainly has its downside, some of its tenets appear to be relevant today and can carry certain benefits to language learning. Its foundational assumptions that the process of L2 learning is similar to that of L1 acquisition, that listening comprehension has to precede speaking, and that language learning can be limited to teaching commands have proved to be problematic. However, some aspects of TPR, if applied properly, can be beneficial for language instruction. Thus, the idea that the learners’ motor activity can be a useful tool for understanding L2 meanings finds its support in recent studies in math education (e. g., Goldin-Meadow, 2003) as well as in language learning (Allen, 1995; Tellier, 2008). These two studies also empirically
attest the idea that bodily movement leaves richer traces in the learners’ memory in vocabulary retention. The importance of mimicking the teacher’s gesturing for understanding the meaning is also substantiated by the recent research on mirror neurons (e.g., Rizzolatti & Craighero, 2004).

Another language teaching method that assigned some importance to teacher and student physical movement was Silent Way (Gattegno, 1972). Under conditions where the teacher was required to be silent as much as possible, the role of non-verbal cues and manipulation of objects as instructional tools increased. As Richards and Rodgers (2001) described it, the teacher had to be “facile and creative as a pantomimist and puppeteer” (p. 86) in presenting the new material and eliciting student responses. Apart from using charts and other visuals, instructors employed Cuisenaire rods of different lengths and colors to link L2 words and structures to their meanings and in this way avoid using L1 for explanations. The teacher would first employ the rods while introducing words and structures and then allow the students to manipulate them as they practiced and produced their own utterances. Engaging multiple modalities including the visual and motor ones (body movement and gesture as part of them) may also have been beneficial to student learning.

Such major approaches to language teaching as Audiolingual Method and the most recent Communicative Method have only focused on the teacher and students’ verbal production without considering body movement (and gesture as part of it) as a potent pedagogical tool. It is only recently that gesture-based pedagogies have been designed and applied in the area of math education (Gerofsky, 2010). In the field of language teaching, the major focus has been on engaging the verbal modality as an instructional tool with the exception of a few experimental studies that involved using gesture as part of their interventions (Allen, 1995; Tellier, 2008; Nakatsukasa, 2013) and Acton’s (2013) haptic-based pedagogy for teaching pronunciation.
Research findings related to the instructional functions of teacher and student gesturing in the language classroom will be discussed in the following sections.

2.3.2 Gesture in L2 comprehension

Research in language learning has shown that the use of gesture by teachers and learners can be beneficial for mastering different aspects of the new language. The importance of kinesics in mastering L2 listening comprehension was first discussed by Kellerman (1992). Referring to research on the importance of non-verbal cues in comprehending auditory messages in L1, she indicated that this significance is even higher in relation to listening comprehension in L2. In Kellerman’s (1992) opinion, the use of audio tapes for listening comprehension tasks deprives the learners of the necessary kinesic information. The use of gestures can disambiguate a message, for example, clarifying the referents. It also helps comprehension by building visual redundancy and reducing learner fatigue experienced in the unnatural situation of listening without visual context. Kellerman (1992) suggested that L2 teachers as well as learners should be made aware of the importance of kinesics in comprehending L2 messages and that the current practice of using audio tapes for teaching and testing listening comprehension needs to be changed.

An experimental study addressing the issues raised by Kellerman (1992) was conducted by Sueyoshi & Hardison (2005). It investigated the effect of gesture and facial cues on L2 listening comprehension in Korean and Japanese learners of English of low-intermediate and advanced levels of proficiency. The participants were presented with a lecture “Ceramics for Beginners” in three conditions: 1) audio-only; 2) audio-visual involving gesture and face; 3) audio-visual involving only face. The lecturer was gesturing naturally without any instructions on specific
usages of gesture. All the participants were then asked to complete a multiple-choice task and were interviewed about their perceptions of the visual cues provided in the task. The results differed depending on the participants’ level of proficiency. Both, higher and lower proficiency students performed better in the audio-visual condition than in the audio-only condition. However, low-intermediate students performed better in the face-gesture condition than in the face-only condition while advanced students were more successful in face-only condition. These results coincided with the questionnaire answers that showed equal ratings of facial and gestural cues in advanced learners and preference for gesture over facial cues in low-intermediate students. The authors speculated that one of the reasons why lower-proficiency students benefited more from observing gestures was because they did not establish a proper connection between L2 sounds and articulation. They also needed more help with semantic content related to iconic gestures and prosodic organization often marked by beats. Thus, Sueyoshi & Hardison’s (2005) findings point to the positive effect of gesture on L2 listening comprehension; however, this effect can differ, depending on the learners’ level of proficiency.

Kelly, Barr, Church, & Lynch’s (1999) study took the issue of language comprehension to a new level by examining how speakers’ gestures helped the interlocutor to identify the pragmatic meaning of an utterance in terms of the speaker’s intent. Even though participants (undergraduate students) were exposed to utterances in their native language, the study has important implications for L2 learning. Results indicated that the speaker’s deictic gestures helped the listeners to disambiguate the message and identify indirect requests. In the first experiment the participants watched a video where actors staged different situations, which ended with an utterance that could be interpreted both as a literal statement or as an indirect request. In one condition, these utterances were produced only verbally while in the other
condition, they were accompanied by a deictic gesture pointing to the object that was the target of the requested action. Results demonstrated a striking difference between the two conditions. In the speech-plus-gesture condition, the participants were able to identify the intent behind the utterance 71 per cent of the time, while in the speech-only condition they were able to do so only 42 per cent of the time. The authors concluded that pointing gestures helped to disambiguate the pragmatic meaning of an utterance and understand the speaker’s intent. They claimed that the common complaint in pragmatics that “speech underdetermines meaning” (Kelly et al., 1999, p. 578) is due to the fact that prior studies only accounted for the information conveyed verbally without considering the multiplicity of such non-verbal cues as eye gaze, facial expression, and gesture.

2.3.3 Gesture in teaching and learning L2 vocabulary

2.3.3.1 Gesture in vocabulary explanations

One of the few qualitative studies that examined the role of teacher gesture in L2 vocabulary explanations was Lazaraton (2004). It investigated the gestural moves employed by an ESL teacher during her unplanned vocabulary explanations as she was teaching grammar. Through microanalysis of classroom interactions, the study showed that body movement, including gesture, constituted a significant part of the instructor’s spontaneous vocabulary explanations. The author concluded that those non-verbal moves enhanced the input by making it more comprehensible. The study did not examine, however, the ways students oriented to the teacher’s gesture. In addition, students’ non-verbal moves were not included in the transcript.

A study that did consider the ways students oriented to their teacher’s gesture in explaining and cuing L2 vocabulary meanings was conducted by Taleghani-Nikazm (2008). The
participants were English-speaking university students mastering German and Persian. Using methods of CA analysis, the study investigated how the teacher’s gesture helped to initiate students’ self-corrections. The results showed that the teachers employed gesture: 1) to facilitate understanding of FL vocabulary; 2) to elicit correct vocabulary items from the students; and 3) to provide a gestural clue for student self-correction.

The use of iconic and deictic gesture allowed the teacher to avoid more explicit feedback in the form of direct translation, allowing the students to infer the meaning on their own. In providing such gestural clues, a teacher could modify the gesture orienting to the student’s contingent needs. Thus, in explaining the meaning of the Persian phrase, “he went towards the car” (Taleghani-Nikazm, 2008, p. 231), the instructor first used an iconic gesture that contained manner picturing the “strokes” of movement (p. 233). However, when the student provided a response with an incorrect preposition, the teacher produced a recast and modified his gesture to highlight the directionality. The student then repeated the correct answer imitating the teacher’s gesture as a confirmation of understanding. Iconic gesture was also used as pantomime illustrating the meaning of an item and served as a clue/invitation to self-correct. Thus, when a student provided an incorrect response to the question “what does the taxi driver get?”, the teacher produced a “money” gesture rubbing her fingers (p. 233). After she repeated it silently several times, the student generated the correct response.

The author concluded that the teachers tailored their gestures in accordance with specific pedagogical purposes arising in response to students’ emergent learning needs. They emphasized the importance of considering students’ utterances to gain insights into how they oriented to and were influenced by teachers’ gesture. The study, however, was still framed within the input—
output paradigm and did not give due consideration to the students’ imitation of the teacher’s gestures even though at least two instances of that were present in the data.

A study by Smotrova & Lantolf (2013) investigated the mediational function of teacher gesture used for vocabulary explanations in conjunction with student responsivity. Providing microanalysis of video excerpts from FL classrooms, where L1 Russian/Ukrainian college students were learning English, the study focused on the ways teachers employed gesture for clarifying English vocabulary meanings. In the first part of the study, students signaled their confusion about the contextual metaphorical meaning of the verb “look outward” through their gesture. Even though they correctly identified the translation of the verb, their gesture exhibited misunderstanding further confirmed verbally. Sensitively orienting to student confusion, the teacher in turn employed a series of metaphorical gestures to visualize the contextual meaning of “look outward.” This information was appropriated and elaborated by one of the students, who mimicked and modified the teacher’s gesture. The student then transferred her new understanding into speech, producing a correct verbal conjecture. These results correlate with Goldin-Meadow’s (2003) studies that show that students can express their understandings in gesture and that they pick up the information conveyed in teachers’ gesture and transfer it into speech.

The second part of the study analyzed the role of iconic gesture in visualizing the action-related meanings such as “take off” (as in “the plain takes off”). It also examined how the teacher’s gesture helped to make a contrast between the collocating nouns by generating humor. Thus, the teacher coupled two contrasting phrases about the plain taking off and the train taking off with the same gesture—an upward movement of the hands. The mismatching image of a train taking off immediately elicited laughter on the students’ part. Importantly, this gesture was
imitated by a student later as part of her private speech and a confirmation that “take off” does not fit into the category “Train.” She thus appropriated the teacher’s gesture as a tool for thinking about an L2 meaning.

The authors concluded that gestural modality allowed the visualization of the aspects of meaning invisible in the verbal expression. Moreover, gesture helped to disambiguate the contextual meaning of a word not covered by dictionary definitions. In this process, metaphorical gesture illuminated the metaphorical aspects of contextual meaning, while iconic gesture depicted action-based meanings. In case of “take off,” the iconic enactment helped to disambiguate the meaning of the particle. The authors attributed particular importance to the fact that the students creatively imitated the teacher’s gestures in mediating their thinking since imitation is a powerful tool for learning (Vygotsky, 1986). The students’ creative imitation of the teacher’s gesture indicated their improved understanding of the new concepts and therefore served as evidence for the positive effect of teacher gesture. The study considered learning as a dialogical activity of collaborative meaning-making rather than a one-way process of students’ absorbing teacher-provided input. In this process, the use of gesture did not just enhance the input but became part of the joint thinking process that was manually mediated.

2.3.3.2 Gesture Promotes Retention of L2 vocabulary

Most of the few existing experimental studies of the effect of gesture-based instruction on language learning have focused on the role of gesture in memorization of L2 words and phrases. Thus, Allen’s (1995) study considered the learning outcomes of the use of gesture in teaching French phrases to adult speakers of English. Specifically, it investigated the effect of teacher and students’ emblematic gestures (i.e., conventionalized gestures, such as the thumbs-up that do not
require verbal accompaniment) on the recall of French sentences. The study recruited a sample of 112 English-speaking learners of French assigned to three groups: 1) experimental group saw the gestures in the video recording and repeated them; 2) control group did not see or repeat the gestures; 3) comparison group saw the gestures but did not repeat them. The instructional video included the use of fifty emblematic gestures conventional for the French culture. Each gesture was linked to a sentence in French with a corresponding meaning, where most of the sentences were idioms. Results showed that Group 1 performed significantly better on the posttests than the other two groups. Moreover, the results of the final recall test indicated that students in the control group forgot considerably more sentences than the students in the experimental and comparison groups. Thus, Allen’s (1995) study provided empirical evidence for the facilitative role of gesture in learning L2 lexis in terms of enhancing its retention in memory.

The issue of the role of gesture in promoting memorization of L2 vocabulary was also the focus of experimental studies conducted by Tellier (2005; 2008). She built upon Allen’s (1995) study by measuring not only receptive but also productive knowledge of FL vocabulary. The participants, 20 French native-speaking children were assigned to two groups: Group 1 watched an instructional video where eight English words were accompanied only by pictures while Group 2 watched a video where the words were accompanied only by gesture. In both groups the children were asked to repeat the words five times but only in Group 2 were they instructed to gesture while reiterating the words. The instruction included the use of iconic gestures, such as, mimicking the act of swimming for “swim” and imitating opening and closing a book for “book.”

The first assessment measured the receptive knowledge of the vocabulary. The children listened to the items and had to point to the related pictures in Group 1 and produce the related
gesture in Group 2. According to the results, both groups performed equally well on this test. In
the second test, which measured the children’s productive knowledge of the vocabulary, they
were shown pictures in Group 1 and gestures in Group 2 and were asked to produce the English
words. The results showed that the second group was able to produce more words correctly (3.7
on average) than the first group (2.6 words). Even though the gesturing group was only able to
remember one more word correctly, the difference was statistically significant. A similar result
was obtained in the last assessment that tested long-term memorization and was conducted a
week after the instruction. This test included the assessment of both receptive and productive
knowledge of the vocabulary. The gesturing group outperformed the visual group by one word in
the production task, while there was no difference between the groups in performing on the
receptive knowledge test.

Tellier (2008) concluded that the “enactment encoding”—the children’s use of gesture as they
memorized FL vocabulary did enhance their recall and long-term memorization by engaging the
motor modality and leaving richer traces in memory (p. 221). The author acknowledged that the
effect was not as pronounced as one might have expected since the level of memorized words
was still low: 3.8 out of 8. The researcher made a good point that the words were presented out
of context and were not included in a variety of usual classroom activities. Among the other
factors that could influence vocabulary memorization, Tellier (2008) indicated the syllabic
structure of a word. While most studies consider multi-syllabic words more difficult to memorize,
this study showed that three-syllabic words were easier to remember than the mono-syllabic ones.
Tellier (2008) explained this effect by referring to Dat’s (2006) study that showed that children
tended to memorize long words more easily if they sounded “more distinctive or more pleasant” (Tellier, 2008, p. 233).

An important aspect of Tellier’s (2008) and Allen’s (1995) studies was that not only L2 words and phrases were accompanied by gesture when introduced by the teacher but also the students were instructed to mimic the teacher’s gesture, which appeared to be beneficial for the students’ vocabulary learning. This seems to partially align with the principles of TPR, where students were also asked to mimic the instructor’s actions and reproduce them during retention tests (Asher, 1969). Thus, engaging gesture as not only visual (observing teacher’s gesture) but also motor (performing the gesture) modality can be beneficial for vocabulary learning.

2.3.4 Gesture in teaching grammar

The role of gesture in teaching grammar appears to be one of the least explored areas in L2 learning. The studies that did consider how teachers employed gesture in grammar instruction assign a particularly important role to metaphorical gesture. This is due to its ability to portray abstract grammatical relationships in a concrete visual and kinesic form. According to the studies discussed below, metaphorical gesture can serve instructional functions by portraying the concepts of tenses, locative prepositions, degrees of comparison, and syntactical slots in a sentence.

One of the common metaphorical gestures employed to refer to the past, present, and future tenses is abstract deictic (Gullberg, 1998) with the tense placed on the front-to-back sagittal axis or on the left-to-right horizontal axis. Thus, in Hudson’s (2011) study of teacher gesture in a university level ESL classroom, the NS instructor consistently referred to the past by pointing

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1 One might wonder about the examples of pleasant and unpleasant words; however, those were not provided in Tellier (2008) while Dat’s (2006) dissertation is in French, which made it difficult for the author of the current study to access.
with her thumb to the space behind her. This gesture produced from the observer perspective reflects a commonly used metaphor, where abstract time relationships are mapped onto a more concrete space (Lakoff, 1987). It also portrays the Western spatial conceptualization of time, where the past is located behind the speaker, the present coincides with his/her location, and the future is in front of the speaker. Sometimes, the teacher in Hudson’s (2011) data also stepped backward while pointing behind her for more emphasis. This gesture conflated two perspectives: the observer and the participant one. The teacher also took a participant perspective in picturing time relationships, demonstrating more involvement with the topic. This occurred when she put three words, “trousers,” “slacks,” and “pants” on a timeline to indicate which ones were used in the past or later, stepping backward on “trousers,” slightly forward on “slacks,” and further forward on “pants.” Similarly, according to student accounts in Sime’s (2008) study, the teacher employed metaphorical gesture to create a horizontal timeline as she placed the present in front of herself and the past—at the far left. In student’s words, “The present is close to you, the past is far away, and this line helps you understand that and remember it” (p. 269). These metaphorical gestures, involving abstract deixis as well as movement of the whole body, allowed for the presentation of abstract time relationships in a concrete and visible form.

The role of gesture in learning such aspects of L2 grammar as past tense and prepositions was investigated in Nakatsukasa (2013). This experimental study considered the effect of instructor gesture-based recasts on student learning of locative prepositions and regular verbs past tense. The participants, 80 low-intermediate ESL learners, had to accomplish several communicative tasks and received corrective feedback either verbally or accompanied by gesture. The positive effect of gesture-based recasts became apparent in the delayed test results but only in relation to the learning of locative prepositions. Thus, the group that received verbal recasts accompanied
by gesture significantly outperformed the control group and the group that received purely verbal recasts. As for specific gestures employed in verbal-plus-gesture recasts, the instructor used the gesture borrowed from Hudson’s (2011) study—pointing back with her thumb to indicate the past. In recasting the non-target use of locative prepositions (such as “on,” “in,” “under,” etc.), the instructor employed iconic gestures commonly used by native speakers of English as described in Tutton (2011). The author hypothesized that the differences in the impact of gesture-based recasts on the learning of regular past tense morphology versus locative prepositions could be explained by the following factors: it may be easier for the learners to retrieve item-based knowledge (related to prepositions) than the rule-based knowledge involving internal computation; due to the nature of the tasks, the motivation for the learners to use correct prepositions was stronger than in the case of regular past tense verbs.

Other studies consider the role of metaphorical gestures in the form of tracing and deictic in visualizing the syntactic structure of a sentence. According to Taleghani-Nikazm’s (2008) study, an abstract tracing gesture can serve as a prompt for student self-correction. Thus, when a student uttered a phrase in L2 German and misplaced the verb, the teacher reiterated it using the correct order and stopped to let the student complete the phrase. As he stopped, the teacher used an abstract tracing gesture moving his right hand to indicate that the verb needed to be moved to the end of the phrase. After the teacher repeated the incomplete phrase, the student complemented it with the correctly placed verb. This tracing gesture allowed the student to visualize the utterance in a more concrete graphic form (although imaginary), which facilitated the proper placement of the verb.

A similar function of a metaphorical deictic gesture that “pointed” to a syntactic slot that had to be filled with a preposition was documented in van Compernolle & Smotrova’s (2014) study.
conducted in a Beginner level ESL reading class. In the analyzed excerpt, the teacher provided corrective feedback to a student, who omitted a preposition in his phrase: “ninety-six per cent cat owner.” In her recast, the teacher highlighted the missing preposition “of” with a pinching gesture—a combination of nomination deictic and precision grip that metaphorically inserted the missing preposition into the proper syntactic slot. The student appropriated the idea of a slot that needed to be filled by first attempting to place “and” in front of the noun “cat.” This time, the teacher made a recast twice highlighting the preposition with a pointing gesture, which was followed by the student’s uptake as he produced the correct structure and accompanied it with the pointing gesture appropriated from the teacher. This example demonstrates how metaphorical deictic gesture can be an effective instructional tool in dealing with the issues of syntactic structure.

The role of teacher and student metaphorical gestures in learning superlatives was considered in Rosborough (2011). The study documented how an ELL elementary-school teacher instructed her students to employ gesture as they were learning mathematical notions related to superlatives “most” and “fewest.” She marked the quantity with prosody by elongating the vowel in “most” and instructed her students to mimic her gesture as she moved her hands apart as much as possible. The teacher and students then brought their hands back together as they said, “fewest.” The gesture for “most” was then repeated and synchronized with “greatest.” Similarly, bringing the hands together was reiterated as the class said, “least.” Rosborough (2011) concluded that these iconic gestures allowed the teacher to visualize the meanings that pertained to the same “conceptual category” (p. 184). It seems important to add that the similarities of meaning were made visible through reiterative gestures—catchments that helped to maintain coherence among the meanings referring to large quantity (most and greatest) on the one hand and small quantity
(fewest and least) on the other hand. Using gesture for picturing the superlatives also allowed the teacher to introduce an element of play, where she was naming the words and the students had to employ the appropriate gesture. The instances when students produced an incorrect gesture, for example, moved their hands apart for “least” were perceived by the rest of the class as humorous and elicited laughter on the students’ part.

2.3.5 Gesture in teaching pronunciation

The idea of engaging body movement in teaching L2 pronunciation as implemented in systematic gesture-based pedagogies is only beginning to find its way into the language classroom. At the same time, gesture studies unambiguously point to the intrinsic relationship between the production of verbal sounds and body movement. Thus, Kendon’s (1972) study showed that the hierarchies of sounds and gesture are parallel, where lower level speech units such as syllables are synchronized with lower level kinesic units such as gesture strokes. Similarly, such higher level speech units as tone units correlate with higher-level kinesic units such as gestural units. In Kellerman’s (1992) view, this correlation is particularly salient in the English language, where you can identify English speakers by the rhythmical movement of the body as they are speaking.

One of the few studies that considered the role of body movement in teaching-learning pronunciation was conducted by Acton (1984), who proposed a “somewhat unorthodox” pedagogy aimed at changing fossilized pronunciation in adult speakers of English (p. 71). He claimed that where traditional methods were not effective for that category of learners, instructors had to employ innovative strategies such as engaging bodily movements of teachers and students. Acton (1984) suggested that during their L2 verbal production, students had to
carry out “kinesthetic monitoring” (p. 76), that is, focusing on “how the sound ought to “feel”—not on how it ought to sound” (p. 78). One example of this was feeling the vibration of the vocal cords in the throat and jaw areas. In Acton’s (1984) view, this type of embodied monitoring can be significantly more effective than auditory monitoring because “The ear is often the last to know. Visual and kinesthetic modalities seem more accessible and ‘cooperative’ in many instances” (p. 77). Acton also pointed out that kinesthetic monitoring can be particularly useful when learners have difficulty in distinguishing two sounds by ear. In this case, they may first learn how different the sounds feel when being produced before they start to perceive the difference in auditory modality.

Acton (1984) assigned particular importance to the correlation between body movement and suprasegmentals such as, for example, marking rhythm with upper body movement. He suggested two major strategies for mastering these aspects of pronunciation—tracking and mirroring, where a learner has to repeat the speaker’s utterances with focus on intonation, rhythm, and other suprasegmental features. According to Acton (1984), such tracking appears impossible without mirroring the speaker, which involves mimicking not just the verbal expression and its prosodic features but also the body movement and facial expressions. In other words, to be successful in mastering pronunciation, a learner has to achieve “locking in” to the total expressive system of the “other” (Acton, 1984, p. 78).

Acton’s (1984) ideas resonate with those espoused by Haught and McCafferty (2008), who view mastering a language as an embodied process of creating and inhabiting a new discursively constructed social identity. Their findings show that the use of drama activities in mastering L2 fluency enabled the participants to prolept themselves into sounding and acting as fluent speakers of English, which, so far, they were not. This process occurred through the students’
imitation of the instructor’s prosody and body movement, which conveyed conceptual and emotive meanings relived and appropriated by the students. Importantly, the study showed that in their imitations of the instructor’s models, the students creatively deployed his gestures in synch with other verbal items and added their own gestures in their interpretations of the acquired meanings.

The self-regulatory role of gesture in monitoring prosody during L2 speech production was considered in McCafferty (2006). Its findings revealed that an L1 Chinese speaker of English extensively employed beats to materialize the syllabic structure of L2 words as a means of gaining control over it and the stress-timed rhythmic pattern of the language. In McCafferty’s (2006) view, bodily movement allowed the L2 speaker to gain a “physicalized (kinesic) sense of the rhythm, stress, and intonation of the language in concert with vocalization, and 2) created metaphoric representations/action schemas, images, of prosody…” (p. 205). Such embodiment, in the author’s view, may lead to developing a better understanding of English prosody given Galperin’s (1989) claim that abstract conceptualizations are always formed through activities on the material plane.

One of the few investigations that provided a glimpse of the way language teachers employ body movement in pronunciation instruction was Hudson’s (2011) dissertation study. She documented how an instructor engaged kinesics and haptics in teaching segmental and suprasegmental features of English pronunciation to university level ESL students. In teaching segmentals, the teacher produced gestures that pictured phonetic symbols and explicitly instructed the students to identify the symbols. For example, she pronounced the word “taught” and pictured the sound [ɔ] in her gesture as a reminder of its graphical form for the students. Gesture also allowed the teacher to mark vowel length, where she portrayed long vowels by
moving both hands laterally apart and short vowels by bringing into contact thumb and index finger on both hands. The teacher also used her whole body to picture vowel length by leaning forward to mark a long vowel and slightly backward to mark a short vowel. Haptic and deictic gestures allowed the instructor to mark the difference between voice and voiceless consonants. Touching or pointing to her throat, the teacher focused the students’ attention on the vibration generated during the production of voiced consonants. She also used a combination of haptics and deictics to highlight the proper shape of the lips necessary for correct sound production (as in pulling the sides of her lips with the index fingers into a smile while saying “sheep”). Gesture also served as an instructional tool in teaching suprasegmentals. The teacher employed beats and clapping to mark stressed syllables, used her fingers to count syllables, and produced downward and upward movements of the hand to visualize the related intonation patterns. Importantly, the study reported on several instances where students imitated the teacher’s gestures such as the ones for phonemic symbols and haptic gestures for feeling vibration in the throat.

The use of gesture for teaching and learning sound combinations was reported in Rosborough (2011). Specifically, the teacher employed gesture in teaching the phonemic phenomenon of blending, where two sounds, such as [kr] and [br], come together. To highlight the sounds [k] and [r] as pronounced separately, the teacher marked them with a beat. However, when picturing the process of blending them into [kr], she brought her hands together and clapped, instructing the students to mimic her. Thus, each hand symbolically represented the sound, picturing the abstract phenomenon of blending in an observable kinesic form. The studies discussed above showed that gesture can be employed for teaching a variety of aspects of L2 pronunciation. What remains unclear is what impact these instructional body movements had on students’ learning since learners’ reaction and long-term effect were not documented.
One of the few full-fledged pedagogies built upon the idea of engaging body movement in teaching pronunciation in a consistent and systematic way has been designed by Acton (2013) after decades of teaching pronunciation to learners of English. Referred to as the “haptic-integrated English pronunciation (EHIEP) framework” (Acton, Baker, Burri, & Teaman, 2013, p. 234), this approach involves using body movement along with touch to mark and portray such pronunciation phenomena as quality of vowels and consonants, word and phrasal stress, intonation, and rhythm. The choice of the aspects of pronunciation to focus on in the EHIEP instruction is motivated by prioritizing intelligibility over native-likeness as the purpose of instruction. The “anchoring” of sounds and prosody in body movement is intended to improve student recall of these features and their integration into speech in authentic environments. The major pedagogical tool in EHIEP instruction are “pedagogical movement patterns” (PMPs) consisting of a word or phrase accompanied by a bodily/gestural movement involving touch. The PMPs are presented in the form of video clips created by Acton himself and hence their use by other instructors (as claimed) does not require extensive training in producing the pre-designed instructional body movements. The students are expected to mimic the PMPs both in class and on their own as they work with the videos at home. According to Acton (2013), the students pick up the patterns even if they are not explicitly instructed to mimic them.

2.3.6 Student perceptions of teachers’ gesture

One of the ways of finding out how learners orient to teachers’ gestures is to ask students themselves. This is what Allen (2000) and Sime’s (2006; 2008) studies set out to accomplish by investigating how students perceive instructor’s hand movements and what importance they
assign to them. Student accounts analyzed in these studies revealed the aspects of teachers’ hand movements that learners consciously attend to and that carry potential benefits for learning.

Allen (2000) provided a detailed classification and description of the teacher’s non-verbal behavior observed throughout six classroom sessions and then asked the students to respond in writing whether the teacher’s non-verbal moves helped them to understand (L2) Spanish. Findings indicate that the teacher employed diverse categories of gesture for different instructional purposes. Emblems such as the thumbs-up sign were employed for evaluating student responses. Illustrators such as batons were employed for emphasizing a particular word while underliners were used for highlighting groups of words such as clauses and sentences. Another illustrator—kinetographs—were particularly useful in picturing an action and were widely used for illustrating the meaning of a verb, such as playing the guitar, eating, dancing, etc. The teacher’s vocabulary explanations were also accompanied by pictographs, such as drawing a square in the air to picture a room. The teacher used spatialis to visualize spatial relationships, such as moving her hand upward for “high.” Deixis allowed the teacher and students to make a connection between L2 words and their referents, for example, as they reviewed the names of body parts by pointing to the relevant places on their bodies. Gestures were also used as affect displays for picturing the vocabulary of emotions, such as ”sad” or “nervous.” Finally, regulators were employed by the teacher for maintaining turn-taking, keeping the pace of the class, asking a student to repeat a phrase or speak louder, etc.

In their written responses, the majority of students indicated that the teacher’s gesture helped them to understand Spanish better. One of them found it particularly important in situations when the teacher used only L2 for classroom communication. Thus, in the absence of L1 explanations, gesture allowed for making meaningful connections in comprehending L2 speech.
Another function of gesture indicated by the students was helping them to maintain the focus of attention. Moreover, in their view, the gesturing teacher made the class more engaging and fun, creating a “relaxed and casual atmosphere” (Allen, 2000, p. 169). The author arrived at an important conclusion that pre-service teachers should be made aware of the pedagogical functions of their non-verbal language. Moreover, they should be trained in using such gestures as emblems in the target culture; illustrators for vocabulary explanations; and regulators for managing classroom interaction.

A more detailed study of students’ perceptions of the teacher’s use of gesture in a foreign language classroom was conducted by Sime (2006). The participants, adult L2 learners of English attending a summer course at a Scottish university, were shown a video clip from their class and were asked to comment on the teacher’s nonverbal moves. The most significant result was that the students treated the teacher’s gesturing as meaningful moves that could impact learning by serving a range of instructional functions: 1) cognitive—facilitating the process of learning; 2) emotional—significant for “a learners’ emotional engagement” (Sime, 2006, p. 217); and 3) organizational—employed for managing the classroom interaction.

Considering the cognitive function of the teacher’s gesture, most of the participants positioned themselves as active meaning makers rather than as passive observers. In their view, gestures assisted in clarifying the meaning of an utterance, providing clues, maintaining focus of attention, remembering an item, acknowledging a response or inviting a correction. Thus, for example, some participants indicated that metaphorical gestures (such as using half-cupped palms to place two contrasting concepts at the left and the right sides of the body) helped them to differentiate between ideas that otherwise would be confusing. The students also pointed out that the use of concrete gesture helped them to disambiguate an abstract concept. Thus, for example,
the teacher used an iconic “catching” gesture to disambiguate the meaning of the metaphorical expression “and your ear picks up the sound” (Sime, 2006, p. 220).

Considering the emotional function of gesture, the students appreciated when the teachers conveyed their enthusiasm through active gesturing. The students also indicated the importance of gesture as an acknowledgment of their responses, for example, when the teacher acknowledged the student’s correct response by pointing at her/him and smiling. Such appreciation in front of the group gave students a “good feeling” and enhanced their confidence (Sime, 2006, p. 222).

The student participants also acknowledged the importance of teacher gesture for organizing classroom interaction. They described the teacher’s deictics as instrumental for nominating the next speaker, organizing group work, and assigning roles to particular students. The emblematic gestures were found important for turn management such as “wagging the index finger and head shaking” to stop a student and prevent his/her completing a turn (Sime, 2006, p. 224).

In the later study, Sime (2008) provided a more detailed account of teacher gestures that were found important by the students due to their cognitive functions. One such gesture was metaphoric, used for showing intricate relationships between synonymous concepts: being similar but not identical. Thus, in the students’ view, in comparing “the cost of living” and “standard of living,” the teacher’s metaphorical gesture of “weighing” the two concepts helped to avoid confusing the two synonymous terms.

Importantly, students indicated that teachers chose to illustrate the meaning of a particular vocabulary item with gesture when they considered that it posed particular difficulties for the students. Thus, learners believed that in using gesture, teachers oriented to the student’s current level of understanding. Addressing the students’ challenges, the teachers used pantomime to
provide a clue to the lexical meaning and elicit the student’s correct response. For example, the teacher would flex her arms to picture the word “physical” and invite the student’s response.

Moreover, some students considered gesture to serve as a mnemonic device helping them to retain the gestural image of the concept in their memory. Thus, one of the participants referred to the teacher’s gesture of picturing past stories in the form of boxes as a reminder for using the past tense. Another student pointed out: “I am the visual type, I remember things if I see them” so remembering the gestural image helps him to remember the word (Sime, 2008, p. 273).

To conclude, the participants’ self-reported perceptions of teachers’ gestures indicated that students were highly conscious of, and attended to, the teacher’s hand movements. They actively interpreted the teacher’s gestures and attributed the functions to them that were relevant for learning. The learners’ recognition of the diverse pedagogical functions of the teacher’s hand movements may have created favorable conditions for learning.

2.3.7 Student gesture

Compared to the research literature focusing on the role of teacher gesture in classroom language learning, studies focusing on student gesture in this context are scarce. Some insights into the role of students’ gesturing and its implications for L2 learning were provided in Zhao (2007), Rosborough (2011), and Smotrova & Lantolf (2013). Their findings revealed that students’ gesture can make their understandings of L2 meanings visible and allow the teacher to shape her mediation accordingly; that students creatively imitate teachers’ gesture as a sign of improved understanding; and that they can appropriate teachers’ gestures and employ them as a tool for thinking and talking about L2 concepts.

One of the few studies in the instructional context that made student gesturing its central
focus was van Compernolle and Williams (2011). It examined how L2 learners of French employed gesture in a small-group activity with an expert mediator as they were accomplishing the task of raising awareness about stylistic variation in L2. As the students formulated their hypothesis about stylistic value of particular linguistic phenomena in French, their gestures provided unique insights into their understandings, which otherwise would have remained unobservable. Thus, one of the student’s gestures conveyed important information about her understanding of sociopragmatic usage of the informal and formal *vous*. As she was uttering “formal *vous*,” she produced a deictic pump gesture directed at the mediator. This hand movement indicated that formal *vous* can only be singular—the information that was absent from the student’s verbal expression. If not for the gesture, the student’s understanding of the sociopragmatics of *vous* would have remained obscured. This instance showed that gesture can be an important mediational tool for expressing students’ understanding under the circumstances when they lack linguistic metalanguage for expressing their correct conceptualizations. Such use of gesture seems to be particularly relevant at earlier stages of language learning for the students’ lack of linguistic L2 resources.

The study also considered the uses of student gesture when its multiple functions intertwined. In one such case a student employed gestures to demarcate two separate meanings of the pronoun “on” by placing them into two different spatial domains. One of those gestures was directed at the group mate who initially provided examples for one of the meanings of “on.” This gesture served as an anaphoric reference to the source of the information. The student also employed a gestural hold in seeking confirmation for her hypothesis on the mediator’s part and only retrieved her gesture after the correctness of her conjecture was confirmed. The authors interpreted the gestural hold as signaling the student’s uncertainty and the retrieval as marking an
important shift from “hypothesis testing to understanding” [italics in the original] (Van Compernolle and Williams, 2011, p. 213). Similar to the learner’s microgenetic path in Lantolf’s (2010) study, the student here was next able to produce the verbal explanation of the two meanings of “on” without resorting to gesture as she gained more control over the concept. The authors concluded that the teachers’ attending to student gestures is important for obtaining insights into their language knowledge as it is externalized and developed in flight (to paraphrase Vygotsky, 1986).

As confirmed by Goldin-Meadow and colleagues’ studies discussed earlier (e.g., Goldin-Meadow et al., 2009), gestures do not merely allow students to externalize the ongoing thinking process but they in fact contribute to developing new knowledge. Learners often employ gesture as a self-regulatory mediational means as they struggle through language related tasks. In McCafferty’s (1998) data, as learners attempted to overcome cognitive and communicative challenges of narrating a story in L2, their struggles were expressed in private speech and its non-verbal accompaniment in the form of gesture, facial expression, and gaze direction. L2 learners’ effort to gain control over the task was externalized through their gesture in different ways. In some cases it took the form of beats accompanying every word of an utterance. In other cases learners resorted to iconic gesture that was particularly helpful in their word searches. It was often combined with a shift in gaze direction, where “the subject related to his own iconic gestures, looking at them as if they would lead him to the lexical items he was seeking” (McCafferty, 1998, p. 82). At some points, gesture seemed to facilitate retrieval of an item from memory as when a student asked “How can I say?” and accompanied it with an iconic gesture picturing the searched-for-item. Having repeated the gesture several times, the student finally generated the correct verb. The author concluded that the process of self-regulation in L2
production is of embodied nature and has to be studied as such.

The self-regulatory role of gesture in dealing with grammar issues in an L2 narrative was examined in Lantolf’s (2010) study. It documented how an advanced learner of French effectively gestured her way through the problematic use of verbal aspect in her narration of a film episode. The gestures produced by the learner as part of her self-regulatory effort reflected the diagram distributed to the students by her instructor four months prior to the discussed interaction. While in the verbal channel the student was still committed to the imperfective aspect (which was erroneous), her hands portrayed perfective aspect (the correct variant) as they moved along the points on the imaginary timeline reflecting the one in the diagram. Similar to Breckinridge Church and Goldin-Meadow’s (1986) findings, the students’ correct problem-solving strategy first appeared in gesture before she was able to formulate it verbally. Lantolf (2010) also pointed out that as the student announced the choice of the correct aspect, she produced the “perfective” gesture multiple times, which played a two-fold function of conveying the message to the mediator and reinforcing her choice of aspect. Importantly, when the student produced the correct version of the sentence, she ceased performing the timeline gesture as a sign that she had gained control over the task. Lantolf’s (2010) example depicted the microgenetic process, where the correct strategy first appeared only in gesture, then both in gesture and speech and then remained only in speech as the student gained more control over the task. The author underscored the importance of imagistic information in appropriating an abstract grammar concept since “learners proceed to internalization of the concept through this type of information more readily than they do through purely verbal explications of a given concept” (Lantolf, 2010, p. 146).
L2 learners initiate gesturing not only as part of their self-regulation but also as solicitation of other-regulation from a more expert other such as a teacher or a researcher. One such case was reported in Rosborough’s (2011) study, where a student employed gesture for eliciting a lexical item from the teacher. As the teacher was checking the student’s reading comprehension, the student had difficulty in finding an appropriate L2 vocabulary item in responding to the teacher’s question and resorted to gesture for conveying the meaning to the teacher. Thus, instead of saying “shaking hands,” he demonstrated the action with his hand movement directed at the teacher. That elicited the correct item “shaking” on the teacher’s part, who aligned with the student by shaking his hand. Importantly, the student later produced the item spontaneously in a different context, showing the signs of learning the L2 item. Similarly, in McCafferty’s (1998) study, a student extensively employed gesture for soliciting other-regulation. Specifically, s/he elicited the correct items from the researcher by employing gestural holds and iconic gesture picturing the meaning of the item that s/he was not able to verbalize.

The studies discussed above suggest that examining student gesture in the language classroom is an important direction that requires much more attention from L2 researchers. The area that is missing from this domain is the study of gesture in student-student interactions. While this has received close attention in research in science education (Roth & Lawless, 2002; Roth, 2011), student-student gesture is not well-documented in the context of the language classroom.

2.3.8 Catchments

The dialogical nature of teacher and student gesturing is reflected in the notion of *catchment* (considered in detail in Chapter 3). According to McNeill (2005), catchments are repetitive gestures that share one or more features of form. In the view adopted in this study, they also
share some features of meaning. Catchments play a significant role in discourse by visually maintaining its coherence and highlighting the main topics. An important question in relation to the use of catchments in the language classroom context is whether they play a role in the learning process. While studies in the L2 classroom show that teachers and students often mimic each other’s gestures in their instructional interactions (Zhao, 2007; Rosborough, 2011; Hudson, 2011; Smotrova & Lantolf, 2013; van Compernolle & Smotrova, 2014), very few of them made the use of catchments the central focus of their studies.

The most detailed investigation of catchments employed in the classroom setting was conducted in the field of science education by Pozzer-Ardenghi & Roth (2008). In this study, a biology teacher synchronized the catchment, which iconically portrayed a contraction of the cardiac muscle, with different verbal elements such as systole, heartbeat, and surge of blood, all of which referred to the process of contraction of the cardiac muscle. Employed consistently throughout several classes, the catchment allowed the teacher to maintain “topical cohesion” and build upon the scientific concepts introduced and discussed in the previous lessons (Pozzer-Ardenghi & Roth, 2008, p. 390). The study viewed catchment as a case of “sign iteration” (p. 389) and a dialectical unit of repetition and variation, referring to the same overarching topic while synchronizing with variable verbal elements. As for its pedagogical functions, the authors concluded that catchment allowed for maintaining the “continuity of the content” and should be considered as a possible “ground” for students’ transitioning from their everyday “vernacular” to scientific language (Pozzer-Ardenghi & Roth, 2008, p. 400). The study, however, did not examine the way students oriented to the teacher’s catchment to see whether it had an impact on their learning.
A study that did consider the ways students reacted to the teachers’ reiterative gesture as well as the ways teachers oriented to students’ catchments was reported in the previously mentioned paper by Smotrova & Lantolf (2013). In this study, two students employed the same catchment to externalize their understanding of the metaphorical meaning of “look outward.” The consistency with which they employed the same gestural image picturing their erroneous understanding of the meaning pointed to the significance of the problem. In this case, the instructional role of the catchment was to highlight the similarity of the students’ cognitive state (an incorrect understanding of the meaning) as a signal for the teacher to address the issue. This was precisely how the teacher oriented to the students’ embodied hypothesis. In resolving the confusion, she in turn employed catchments that helped to maintain coherence of her explanation. The continuity of teacher discourse extended into the student’s utterance, in which she imitated the teacher’s catchment as a confirmation of her new understanding. In this case, the student picked up the teacher’s catchment as a tool for her own thinking about an L2 meaning.

The authors indicated that the coherence was also observed in the form and meaning of different catchments. Thus, a new catchment appeared as a continuation of the previous one, building upon its features. In this sense, “a previous catchment can function as the theme for the next catchment, which functions as the rheme” the way cohesion is constructed in written discourse (Smotrova & Lantolf, 2013, p. 408). The authors also suggested that such interconnected catchments are similar to the “gestural models” as identified by Lozano & Tversky (2006), where several coordinated gestures are formed into a scheme portraying a structure or action. In Smotrova & Lantolf’s (2013) view, such continuity in a series of gestures has been overlooked in the previous studies of gesture, constituting a fruitful direction for future research.
The study also examined a case where a teacher’s catchment helped to create humor. The humorous effect was generated by a mismatch, where a gesture—the upward movement of the hands illustrating a plane taking off—became synchronized with the word “train.” The students were quick to perceive the dissonance and reacted with laughter. Thus, a catchment, as a dialectic of contrast and similarity can be instructionally useful not only to create coherence but also incoherence that highlights the crux of the instructional matter in question. The effectiveness of this strategy was further demonstrated in the actions of one of the students, who picked up the teacher’s mismatching catchment and produced it privately, thinking about the L2 meaning discussed. Thus, a catchment can serve as an instructional tool in L2 meaning explanations and can be appropriated as a mediational tool by students to regulate their own thinking. Such dialogical use of catchments across teacher-student discourse allows for the building of alignment between interlocutors, which can be viewed as a significant condition for learning (Atkinson, Churchill, Nishino, & Okada 2007).

Students’ appropriation of teachers’ catchments as a tool for learning was in focus of Zhao’s (2007) dissertation study. Even though the study did not categorize teacher and student repetitive gestures as catchments, it provided valuable insights into the instructional functions of this type of gesture. The analysis of video recorded interactions in a university level ESL writing classroom showed that the students reiterated six out of the twelve gestural metaphors related to conventions of North American academic writing introduced by the teachers. Thus, the students pictured a well-organized essay as having a linear structure, imitating the teacher’s movement of the hands from a higher to a lower position. They also employed a “hierarchy” gesture introduced by the teachers, which pictured the thesis statement as a roof at the top of the essay (Zhao, 2007, p. 110). A back and forth movement of the hand along the line from side to side in
front of the body signified that one should relate each topic sentence back to the thesis statement. Moreover, in their interviews, the students were able to elaborate on the appropriated catchments and create new gestural metaphors for the American essay and contrast them with gestural metaphors reflecting divergent essay patterns in their native cultures, such as a gestural image of a tree or a pyramid. These findings indicated that the repetitive gestural patterns (catchments) had an instructional function of maintaining coherence of teacher-student discourse, facilitating the students’ development of the understandings of North American academic writing and possibly, contributing to the creative elaboration of these understandings.

Rosborough (2011) documented a case where a catchment was introduced by a student and was subsequently appropriated by the instructor and employed as a pedagogical tool. When the teacher initiated a discussion of the meaning of “crab,” one of the students contributed by saying that a crab can snip one’s nose. He accompanied the verb “snip” with a pinching gesture, bringing the tips of his fingers into contact. The teacher aligned with the student by mimicking his gesture as he was speaking and the two ended up gesturing synchronously. The teacher next supported her gestural expression of alignment with a verbal empathetic response: “I would so not want a crab to snip my nose” (Rosborough, 2011, p. 166). She then employed the catchment introduced by the student in asking another student about the meaning of “crab.” At this point the two students that had previously talked about a crab reproduced the catchment (maybe even as a prompt for their classmate). Even though the classmate responded positively, he did not accompany his answer with the gesture, which motivated the teacher to check the student’s understanding by asking for the (L1) Spanish equivalent of the word. It appeared in fact that the student did not know the meaning and only added gesture to his utterance about a crab once he
understood the meaning, having read the translation. Thus, a catchment initially produced by a student can also serve as an instructional tool when attended to and reiterated by the teacher.

2.4 Summary

In this chapter, I have shown that investigations of gesture in general education and second language learning have revealed a range of important benefits of gesture-based mediation for learning. These studies also pointed to the aspects of the instructional functions of teacher and student gesture that require a more extensive investigation and will be closely examined in the present study.

Student gesturing constitutes an important focus of studies that consider the impact of gesture on learning. Prior research has shown that hand movements can make learners’ thinking process visible with correct solutions often coming out in gesture before their verbal formulations become possible. What is missing from such studies in the L2 learning context is how teachers orient to students’ self-regulatory, but publicly accessible, gestures and whether they use this information for assessing students’ potential knowledge—the understandings of L2 concepts that have not yet found their way into verbal expression. Tailoring their mediation accordingly, language teachers may be able to create ZPDs and make their instruction more effective.

The reviewed studies also point to the beneficial effect of students’ imitation of teachers’ gestures as a way of learning new L2 concepts as well as appropriating teachers’ hand movements as a tool for learning. The benefits of student enactments of new L2 concepts whether as imitation or self-initiated gesture are related to gestures’ ability to provide alternative ways of organizing information in a spatio-visual and actional form. Due to these qualities, gesture is also found to enhance working memory and verbal memory. In the language-learning
context the positive effect of student gesture as imitation of the instructors’ hand movements is only found in relation to mastering vocabulary. It remains to be investigated whether it holds true for learning other language aspects such as grammar and pronunciation.

Another under researched area in student gesturing is related to the microgenetic paths that student gesture-based learning takes. Studies showed that gestures generated by students when task-related challenges arose gradually disappeared as they gained more control over the task. Learners also transferred their skills acquired with the help of gesture onto similar tasks. It is important to see whether similar microgenetic paths occur in students’ classroom language learning and whether they result in the ability to transfer language skills onto similar tasks in a different context. The latter would serve as reliable evidence for learning. Another major gap in the research focusing on the instructional functions of student gesture is the lack of studies examining the role of gesture in student-student interactions, such as occurring during group work.

Teachers’ gesturing has also been shown beneficial for student learning. Apart from being an effective attention-getter, teacher gesture conveys relevant instructional information divergent from the one expressed in speech. Teachers are also able to sensitively orient to students’ behavior and reshape their mediation accordingly, providing graduated assistance. In the language learning context, instructors’ gesture has shown to be beneficial for mastering different aspects of the second language: it enhances listening comprehension; facilitates vocabulary learning; contributes to grammar explanations and improves the learning of such aspects as prepositions; and makes an important part of pronunciation instruction. What is often missing from the L2 classroom studies is consideration of teacher and student gesturing as a dialogical process, unfolding in real time interaction. Looking at gesture use interactively would allow for
tracing of the gestural moves sequentially to see the nature of teacher’s assistance (graduated or other type), to track the learners’ microgenetic development, and identify the most effective types of gesture-based mediation. It would also allow for throwing some light on the intriguing role of mismatches in language learning.

Finally, catchments as a reflection of the dialogicity of the teaching-learning process in the language classroom also require a more extensive and thorough investigation. Thus, prior studies in education have confirmed McNeill’s (2005) claim that catchments help to maintain coherence of classroom discourse, however, it appears that in an instructional context they can accomplish more than that. On the students’ part, they can be signs of understanding and appropriating the meaning conveyed through the teacher’s gesture. On the teacher’s part, catchments may contribute to creating instructional patterns. What other instructional functions can be fulfilled by catchments in the language classroom? These issues will receive thorough consideration in the data analysis chapters.
Chapter 3

Methodology

3.1 Introduction

In this chapter, I outline the procedures, theoretical framework, and analytical methods I used to seek answers to the research questions listed below. I start by outlining the purpose of the study and research questions that it is guided by. I then present a description of the theoretical frameworks that this study draws from. I begin with the sociocultural theoretical perspective that provides the basis for defining learning as occurring in the context of the L2 classroom. I then discuss McNeill’s (1992, 2005) tenet of speech-and-gesture co-expressivity and synchronicity as fundamental to the analysis of gesture as a mediational tool for thinking and speaking presented in this study. The study also draws from several methodologies for analyzing gesture that provide categories for specific gestural dimensions and functions. Next, I provide background information about the site, the course, and the participants. Finally, I describe data collection procedures and analytical procedures employed in this study.

3.2 Research Questions

The purpose of this study is to investigate instructional functions of speech and gesture in the naturally occurring L2 classroom interactions. Specifically, the study focuses on how the teacher and students employ speech-gesture units as well as gestural movements in the absence of speech to accomplish their instructional purposes. The study is particularly interested in tracking the signs of microgenetic development in the students’ L2 knowledge and in uncovering the teacher and students’ mediational strategies involving gesture by which this development is achieved.
Overall, it aims at identifying whether and how gesture can be employed as a pedagogical and learning tool in the process of classroom L2 learning and offering recommendations for teacher educators on incorporating embodied aspects of teaching into teacher education and professional development programs. The study intends to accomplish these goals by seeking answers to the following research questions:

1) What are the mediational functions of teacher and student gesturing in the process of classroom L2 learning?

2) Is there evidence of student learning as a consequence of gesture-based mediation?

3) Are there any changes in teacher and student gesturing over the course of the observed classroom interactions? If yes, what is their relevance for the teaching-learning dialectic, that is, obuchenie?

3.3 Theoretical Framework

3.3.1 Vygotskian perspective on learning

Central to the Vygotskian perspective on cognition and learning is the idea of mediation, which posits that the human mind is organized on the basis of the person’s interactions with the social environment through culturally constructed artifacts. Thus, our mental functions, such as thinking, memory, attention, and emotion, are formed through our participation in social and cultural activities mediated by the use of culturally constructed symbolic and material artifacts. While physical tools, such as a hammer or a shovel, can only extend the human impact upon the physical world in the outward direction, symbolic mediational means, such as speech and gesture, are simultaneously directed inward and outward. Thus, for example, an utterance produced by a
speaker can not only impact the addressee, but importantly, can change the nature of the
speaker’s own mental functioning. In this sense, such symbolic artifacts as speech and gesture
can simultaneously serve other-regulation— influencing the mental functioning of the
interactants and self-regulation— gaining control over and changing the speaker’s own mental
functioning. Symbolic artifacts can thus function as “cultural amplifiers” (Lantolf & Thorne,
2006, p. 60) that “increase the capacity to organize and communicate information and
knowledge” (Scollon, 2001, p. 116). This amplification effect is achieved through the process of
internalization that can be explained using L1 acquisition as an example (Lantolf & Thorne,
2006). At the start, the child’s mental and physical activities are controlled externally by
caregivers’ speech. In the process of social interaction with them, the child begins to employ
speech for controlling her own mental functioning. At the point where the child gains voluntary
control over her own psychological operations through speech, we can say that speech as a
mediational tool has been internalized as inner speech.

Thus, in Vygotskian psychology, learning occurs through the internalization of symbolic
mediational means, which results in “the capacity to mediate and regulate his or her own activity
through culturally organized mediational means” (Lantolf & Thorne, 2006, p. 69). From this
perspective, learners are viewed as monistic “person-environment” systems engaged in the
socially mediated process of reorganizing their relationships with the world and themselves in
the world through the bidirectional internalization-externalization process. In this process, the
role of environment is crucial, where it has to be treated as “the source of development and not
its setting” (Vygotsky, 1994, p. 349). This is due to the fact that the “ideal” or the target level of
the child’s development (in the form of the second language, for example) is already present in
the environment. Apart from being present, this ideal interacts with the rudimentary form of the
child’s development through a plethora of symbolic/mediational means in the process of internalization, “and what results is a certain form of activity which then becomes a child’s internal asset, his property and a function of his personality” (Vygotsky, 1994, p. 353). In this respect, the evidence for learning can be viewed as students’ externalization of knowledge internalized in the process of mediation. In the context of second language learning, this translates into learners’ spontaneous use in new contexts of L2 meanings and forms appropriated as a result of mediational activities.

In the process of mediation, the learners’ use of cultural artifacts allows them to “transform externals into personally meaningful experience” (Lantolf & Thorne, 2006, p. 153) on the one hand and on the other hand, to objectify their mental activity for influencing “the material activity of the self and others” (p. 154). In this process, the use of symbolic artifacts allows the learner to visualize and objectify abstract ideas, which in turn enables the learner to bring them into consciousness and act upon them. Thus, for example, metaphorical gesture allows for presenting abstract and elusive ideas in a concrete and tangible form, which enables the learner to visualize them, act upon them, and ultimately appropriate them (see Zhao, 2007).

In the classroom context, learners appropriate more efficient symbolic tools through social interaction with the expert other—the teacher. Such external assistance (if carried out properly) allows the learners to perform cognitive tasks they otherwise would be unable to perform on their own. Thus, learner development advances through jointly created ZPDs: “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). Such collaborative assistance is a bidirectional dialogical process, where the learner’s goal-directed effort in mastering
knowledge is as important and necessary as the teacher’s guidance. The joint, two-way nature of the teaching-and-learning process is encompassed by the Russian term *obuchenie* employed by Vygotsky in his original text and translated in the English versions either as “learning” or “instruction,” which reflects only one side of the process. In fact, what Vygotsky was referring to was “a double-sided process, one side of which does indeed refer to learning (a change in the psychological processes and knowledge of the child), but the other of which refers to the organization of the environment by the adult, who...is a teacher in a formal school with power over the organization of the children’s experience” (Cole, 2009, p. 292).

The vital elements in the dialogical joint activity of *obuchenie* are “graduation and contingency,” where tailoring the teacher’s assistance is contingent upon “continuous assessment of the learner’s ZPD” (Lantolf & Thorne, 2006, p. 277). The way the teacher puts semiotic resources to pedagogical use should be in accordance with the “mechanisms of effective help” within the ZPD with “no more help provided than is necessary, for the assumption is that over-assistance decreases the student’s agentive capacity” (Lantolf & Thorne, 2006, p. 277). Such other-regulation should be aimed at enhancing learners’ self-regulation, where the more control the learner gains over the task, the less reliance on external artifacts and expert others is needed. Thus, in the process of other-regulation, “control of mental functions shifts from the environment to the individual, resulting in voluntary regulation over mental activity” (Lantolf & Thorne, 2006, p. 79). Such development is not viewed as a smooth and linear process, but as a revolutionary process that progresses in an uneven and often unanticipated way (Vygotsky, 1978).

The primary mechanism of development in the Vygotskian framework is imitation, which is viewed as a selective, creative, and transformative process rather than mere replicating and copying. Thus, contrary to the assumption that a child is able to imitate anything, Vygotsky
(1997) states that “imitation is possible only to the extent and in those forms in which it is accompanied by understanding” (Vygotsky, 1997, p. 96). Thus, the ability to imitate depends on the dynamics of the child’s intellectual development: “the child can imitate only what lies within the zone of his own intellectual potential” (Vygotsky, 1987, p. 209). In other words, imitation is only possible where there is a potential for moving from what a child was able to accomplish to what he is not. This new level of development is achieved through imitation in the process of collaboration with an expert other, which makes imitation the central mechanism of instruction and “the source of instruction’s influence on development” (Vygotsky, 1987, pp. 210-211).

Vygotsky’s view of imitation as intellectual and meaningful rather than automatic is confirmed by recent developmental studies reviewed in Tomasello (1999). These studies show that children imitate only intentional actions performed by an adult, which posits children’s perception of an adult as an “intentional agent” as the necessary prerequisite for imitative learning (Tomasello, 1999, p. 516). Thus, the process of imitative/cultural learning occurs through understanding, sharing, and internalizing the adult’s perspective on the situation.

The neurological basis for imitation has recently been unveiled in the studies on mirror neurons (e.g. Rizzolatti & Craighero, 2004; Rizzolatti & Arbib, 1998), which serve as the mechanism for understanding the other’s actions in imitative learning. Thus, “when individuals observe an action done by another individual, their motor cortex becomes active, in the absence of any overt motor activity” (Rizzolatti & Craighero, 2004, p. 174). Importantly, the observer’s motor system is only excited when the observed actions possess features already present in the observer’s own motor repertoire. Understanding the goal of the action even when it is presented statically as a picture can be sufficient to trigger the mirror neurons. This mechanism is also involved in forming an action, which coincides with the hypothesis of “covert imitation”
Thus, when we observe the initial stage of an action, “our brains generate imitative motor programs,” which “allow us to adapt to this action before we have fully perceived it and before it runs its course” (p. 82). This predictive neural mechanism provides an explanation for unique interactional synchrony achieved by humans in their communication. Finally, mirror neurons are responsible for creating new motor patterns as observed actions become decomposed and recombined in the process of imitation. Rizzolatti & Craighero (2004) conclude that the mirror neuron mechanism plays a crucial role in understanding the other person’s actions and serves the necessary basis for imitative learning. The findings concerning the role of the mirror neuron system in imitation appear particularly relevant to the appropriation of such symbolic mediational means as gesture.

In the context of the theoretical framework discussed above, the current study investigates the ways gesture as a symbolic mediational tool (in collaboration with speech) is employed by the teacher and students in the L2 classroom for the purposes of other- and self-regulation in the activity of teaching-learning. Specifically, the study examines how gesture enables the teacher and students to illustrate and objectify new L2 concepts and whether/how it can facilitate the appropriation of these concepts.

3.3.2 What is “gesture”?

In its definition of the category of gesture, this study draws from two major methodologies of gesture analysis—those of McNeill (1992; 2005) and Kendon (2004). As discussed in detail in the next section, the major concern of McNeill’s (1992; 2005) theoretical framework is psychological functions of gesture with specific focus on gesture synchronized with speech. According to McNeill (2005), his analysis embraces gestures as “spontaneous,
unwitting, and regular accompaniments of speech that we see in our moving fingers, hands, and arms” (p. 4). This is the type of gesture that he labels “gesticulation”—a spontaneous movement that conveys meaning co-expressive with co-temporal speech (McNeill, 2005, p. 5). The author indicates that this motion can be produced mainly with arms and hands “but is not restricted to these body parts” (p. 5). In cases when hands are engaged, other body parts such as the head, the legs, and the feet can compensate for the lack of hand motion by moving in a gestural mode.

Other gesture researchers assign importance to body movement that is not restricted to hand motion. Thus, in his seminal ethnographic study, Efron (1972) underscores the significance of head-gestures in the interactions that occur among “traditional” Jews. According to his observations, in such conversations, head movements often served as a substitute for the hand gestures, particularly beats, where “the head alone appears to reenact the pauses, accents and inflections of the corresponding speech process” (Efron, 1972, p. 81). We can conclude from this description that such head-gestures played the role of beats that mark the prosodic contour, particularly, the rhythm of speech.

Unlike McNeill’s (1992; 2005) framework, Kendon (2004) highlights communicative functions of gesture, where it is defined as “visible action”—a part of an utterance, which is conceptualized as the “ensemble of action that counts for others as an attempt by the actor to ‘give’ information of some sort” (p. 7). In constructing such communicative units, the speaker gives preference to one of the two modalities or flexibly combines verbal and gestural resources to serve their communicative purposes in a most effective and economical way. Thus, speech and gesture act as partners in constructing the utterance as the “final product” (Kendon, 2004, p. 5). This idea can be interpreted in a broader sense: that the speaker can employ semiotic resources other than gesture to put together an utterance. Similarly, gestures other than hand movements
can be part of that process as soon as they serve the speaker’s communicative purposes. Thus, in the present study hand gestures can be combined with body movement produced by other parts of the body (head, shoulders, torso, etc.) as well as facial expressions and objects in the surround. The criterion for identifying them as gestures is that they have to act in concert, serving a particular communicative purpose in a meaningful way. In the classroom context, those would be instructional and learning purposes of the participants. Thus, for example, a gesture where a teacher touches her chin with her hand to count the number of syllables would not fall under McNeill’s (2005) category of gesture co-expressive with speech. However, this gesture is definitely employed to serve a concrete instructional purpose of teaching suprasegmentals and therefore is of interest for this study.

To conclude, what falls under the umbrella of gesture in this study are hand gestures as the major focus of analysis but also their combinations with motion produced by other body parts and object manipulation, where they become particularly relevant to the instructional or learning purposes at hand. Acknowledging the importance of the speech-gesture bond in the process of thinking and speaking, the study does not intend to separate the analysis of its functioning from other relevant aspects of classroom interaction. The study aligns with Goodwin’s (2003) warning that gesture research should not inherit a restrictive approach of language studies, dominant for decades, which “ignores the structural diversity of multiple semiotic fields by isolating relatively independent, self-contained subsystems for study (e. g., language, space, gesture, etc.)” (p. 238). In light of this orientation, the current study aims to consider gesture used in the classroom as part of the complex of multimodal resources that are created and recruited by the participants in the process of interaction such as: body posture, eye gaze, facial expressions, and objects in the environment. The study will consider distinctive functions of gesture as part of the multiple
semiotic fields acting in concert and feeding into each other in the process of the teacher and students’ joint accomplishment of instructional tasks.

3.3.3 Gesture-speech interface

Among multiple semiotic modes that contribute to conveying meaning, the major focus in this study, is on the gesture-speech interface and its significant relationship with the thinking process. According to McNeill’s (1992, 2005) theory, grounded in Vygotsky’s notion of inner speech, gesture merges with speech in a dialectical relationship. Gesture is multifunctional, serving “both a cognitive and a communicative function, given that the mental function of speech is grounded in its communicative (i.e. social) function” (Lantolf & Thorne, 2006, p. 97). Thus, in the classroom setting, gesture can be used both for students’ self-regulation as well as for other-regulation in the dialogical process of instructional interaction between teachers and students as well as among students.

As far as the cognitive, self-regulatory, function is concerned gestures can be viewed as externalized inner speech or “material carriers of thinking” (McNeill & Duncan, 2000, p. 155). Such gestural enactments of meaning conveyed by inner speech make the thinking process visible, at least in part. Tightly bound to thoughts and meanings, gesture communicates them in a way crucially different from speech. Being holistic and dynamic, it merges with sequential and relatively static speech in a dialectical relationship, which works like “fuel” for expressing different aspects of meaning (McNeill, 2005, p. 4).

The point at which the gesture-speech dialectic unfolds in the flow of interaction is called the “growth point” (McNeill, 2005, p. 82). It is a psychological predicate that is unpacked and enacted through gesture-speech synchrony and therefore blurs the boundaries between inner and
social speech. Such an embodied psychological predicate foregrounds “a new verbal idea unit,” shaping it to meet the demands of a particular social interaction (p. 82). This foregrounding creates a contrast between the rest of the context, which then serves as background for the salient information unpacked through the growth point. The growth point occurs in the main phase, or stroke, of a gesture, which is the highest point of both physical and meaning-making effort. Thus, for example, in McNeill’s (2005) data, a speaker describing a cartoon character climbing a drainpipe from the outside (“he climbs up the drain”, p. 109) places the stroke of gesture on the verb “climb up” highlighting the action. In his next utterance, the speaker uses the same prepositional phrase to describe the ascent from the inside (“he tries to climb up in through the drain inside the drainpipe,” p. 109). However, the stroke is shifted onto the words “through” and “inside” to profile the idea of interiority. Thus, in each case the gesture-speech growth points served to foreground “contextually newsworthy content” (p. 109).

In general, the production of gesture can involve the following phases: 1) preparation; 2) stroke; 3) retraction; and 4) hold. In the preparation phase, the speaker starts moving the gesturing hand “away from the rest position into the gesture space where it [the hand] can begin the stroke” (McNeill, 2005, p. 31). This movement indicates that the imagistic content intended for the gesture stroke has already started to shape up in the speaker’s mind. The preparation terminates with the stroke of gesture, which is the culmination of a gestural move, constituting the highest physical and meaning-making effort. Following the stroke, the hands can return to the rest position in the retraction phase, signaling that “the meaning of the gesture has been fully discharged” (McNeill, 2005, p. 33).

Alternatively, the speaker can skip the retraction phase by either transitioning to a new stroke or suspending the “frozen” gesture as a gestural hold. McNeill (2005) distinguishes between
“stroke holds” and “poststroke holds,” where the former constitute motionless strokes (gesture suspended at its culmination) while the latter occur in the final position of the stroke before retraction. A poststroke hold, which is optional, signals that “the speech co-expressive with the stroke continues to roll out” and thus the meaning foregrounded in the stroke continues to unfold (McNeill, 2005, p. 33). A gestural hold can also precede the stroke in case there is a need to wait for the necessary verbal element (intended for accompanying the stroke) to be shaped and articulated. Such holds are referred to as “prestroke holds.”

Although gestural holds and their significance in conversation has not received as much attention in McNeill’s (2005) framework as strokes, they in fact can play a significant role in interaction as demonstrated in Sikveland & Ogden (2012). In their analysis of dyadic conversations between adult native speakers of Norwegian, the authors found that when speakers expressed their understanding of some problematic referent, they often terminated the turn with a gestural hold, maintaining it through the interlocutor’s following turn until they received confirmation. The authors concluded that such “gesture holds provide a visible means for marking something out as ‘not yet quite dealt with’ and their retraction as a way of displaying (literally) that the issue has been resolved” (Sikveland & Ogden, 2012, p. 194). In this way, gestural holds can serve as embodied means of achieving shared understanding and intersubjectivity in the flow of interaction.

Apart from the phases of gesture, another important aspect to consider in the analysis of its form and meaning is the viewpoint or perspective adopted by the speaker as the hand/body movement is produced. According to McNeill (1992, 2005), gesturing allows the speaker to inhabit two different viewpoints: the observer viewpoint (OVPT) and the character viewpoint (CVPT). If the speaker’s hands symbolize some entities from the narrative, which coincides with
the third person singular in the verbal expression, the speaker takes the observer viewpoint. In this case, the gesturing is performed in the space in front of the speaker as if on stage. If the speaker’s hands act as the character’s hands, s/he takes the character viewpoint, which coincides with the verbal first-person singular narration. These two viewpoints can also be brought together in a single gesture. Importantly, the shift in the gestural perspective results in a change of “symbolic/psychological distance” from the subject of conversation or a narrative (McNeill, 2005). In adopting OVPT in a narrative, for example, the speaker positions the self at some distance from the story, while in adopting CVPT, the speaker immediately places the self inside the narrative, dramatically shortening the distance between the self and the story. Moreover, the change of distance is related to differences in centrality, saliency, and significance of the described event: the smaller the distance, the more central, salient, and significant the event.

Importantly, gestural viewpoints can carry important pedagogical functions as demonstrated by Gerofsky’s (2010) study, where CVPT gesturing was employed as an instructional tool for teaching graphs in 8/11-grade math classes. In their interviews, the students reported a deeper personal engagement with the graph, which resulted in their higher awareness of the salient features of the polynomial graphs. This was supported by the posttest results, which showed that teachers’ CVPT-based gesture served as a potent instructional tool for raising the students’ engagement with the topic, deepening their understandings, and improving retention of the acquired concept in their memory.

Catchments

The new idea unit introduced as a growth point can be reiterated in the form of “catchments”—repetitively occurring gestural features that share one or more common quality such as “handedness, shape, movement, space, orientation, dynamics, etc.” (McNeill, 2005, pp.
Such recurrent images that have partially or fully coinciding features usually reflect a common theme and provide clues to “cohesive linkages” in discourse serving as “a kind of thread of visuospatial imagery that runs through a discourse to reveal the larger discourse units that encompass the otherwise separate parts” (McNeill, 2005, pp. 116-117). Thus, catchments allow the listener to decide, which ideas are viewed by the speaker as related or unrelated providing a “window into discourse cohesion” (p. 117). Most importantly, catchments seem to play an important role in achieving alignment between interlocutors by helping to establish a common ground, much in the way linguistic features accomplish this through spoken and written modalities.

According to McNeill (2005), a catchment serves as an imagistic equivalent of a coherent discourse segment. It is often marked by distinctive prosodic characteristics and has “its own distinctive boundary tone” (p. 170). Moreover, catchments reflect a hierarchy of discourse purposes where “each catchment has its own purpose level or levels, not shared by the other catchments” (p. 172). Consequently, according to McNeill (2005), the structure of discourse can be mapped onto the use of catchments where each of them is created as a discourse segment intended for particular discourse purposes.

Thus, discursive functions of catchments find a fairly clear description in McNeill’s framework. Issues concerning criteria for identifying catchments, however, remain somewhat obscure. Thus, for example, McNeill’s (2005) definition of catchments as gestures sharing exclusively the features of form may sound incomplete if not misleading. Adopting form as the only reliable criteria for identifying catchments would fail to deal with such semantic phenomena as polysemy and homonymy, which are as common in gesture as in speech (see de Jorio, 2000). For example, according to Smotrova (2013), a gesture such as the index finger extended upward
can convey at least three different meanings: metaphorical, “Wait!” or “Attention!”; emblematic, “one” or deictic “this.” Despite the identical shape, these gestures have different meanings and therefore, would form three different catchments.

McNeill (2005) does, however, point to the presence of semantic connections between gestures identified as catchments in his claim that catchments refer to the common theme and connect related ideas. In line with this observation and based on the findings of prior investigations (Smotrova & Lantolf, 2013; Smotrova, 2013; Kataoka, 2010) as well as the discussion above, it is reasonable to suggest that the other important criteria for identifying a catchment is shared meaning. This meaning is identifiable through the gesture’s semantic relationship with the co-expressive speech or, in cases where speech is absent, through the local context of the ongoing interaction. Thus, for this study the working criterion for identifying a catchment embraces both the form and the meaning of gesture in the local context. In other words, to be labeled as a catchment, two or more gestures have to share at least one element of form and meaning. In the instructional context, this element of shared meaning, as shown in Arnold (2012), constitutes the element most crucial for tackling the instructional task at hand. These criteria can only serve as a point of departure rather than a definitive principle since more in-depth investigation of catchments is required in this respect. In fact, this study aspires to generate more specific and reliable criteria for identifying catchments. In this way, it hopes to make a contribution to the methodology of studying gestural catchments.

Classifying gesture

The study employs McNeill’s (2005) classification of gestural dimensions: 1) iconic gesture, the form of which resembles the aspects of the actual event or entity; 2) metaphoric gesture, which presents abstract ideas or entities as concrete images; and 3) deictic gesture, which allows
for “locating entities in space vis-à-vis a reference point” or serves a metaphorical function by referring to abstract entities (p. 40). In relation to this, Kendon (2004) identifies a type of abstract pointing that is labeled as “nomination deictic,” which points to the component of an utterance “that deserves particular attention” (p. 158). For example, when saying “This is the most ancient building in town,” the speaker would mark the word “ancient” prosodically and gesturally by pointing upward with his extended index finger. Finally, beats constitute “flicks of the hand(s) up and down or back and forth that seem to beat time along with the rhythm of speech” (McNeill, 2005, p. 40). Apart from marking prosody, beats can convey subtle aspects of meaning such as highlighting the importance of something “with respect to the larger discourse..., the equivalent to using a yellow highlighter on a written text” (McNeill, 2005, pp. 40-41). Thus, for example, a beat can accompany an introduction of a new character or another referent in the discourse or “add new information about an already introduced topic” (McNeill, 1992, p. 195). In this way, beats mark the movement from the narrative level of discourse to a metanarrative one, increasing the distance between the speaker and the narrated story.

Kendon’s (2004) classification of gestural functions complements McNeill’s categories by covering dimensions that go beyond contributing to the “referential content” of an utterance (Kendon, 2004, p. 158). Thus, categories offered by Kendon (2004) embrace “pragmatic functions” of gesture, where it reflects a “speaker’s attitude to the referential meaning” (p. 159). Pragmatic functions of gesture comprise three types: “modal”—intensifying an evaluation, etc., “performative”—offer, denial or question, and “parsing”—marking the aspects of discourse structure (p. 159). According to Kendon (2004), gesture can also serve “interactive or interpersonal functions,” such as regulating turns at talk, giving someone the floor, indicating the addressee of an utterance, etc. (p. 159). The present study adopts a broad definition of the
interactive function of gesture as also including pragmatic function. In other words, in this study, the interactive function includes all the functions of gesture that do not deal with the referential content of an utterance or, translated into the classroom context, do not contribute to explaining a concept in the L2.

Concerning instructional functions of gesture, a useful classification is provided in Sime (2006): 1) cognitive—facilitating the process of learning; 2) emotional—significant for “a learner’s emotional engagement” (p. 217); and 3) organizational—employed for managing the classroom interaction. Thus, Kendon’s (2004) category of interactive function coincides with Sime’s (2006) organizational function. Similar to McNeill’s (2005) gestural dimensions, the diverse functions identified by Kendon (2004) and Sime (2006) will not be considered independently from each other. Gesture will be examined as a multidimensional phenomenon that fulfills a range of functions, which enhance and feed into each other.

3.4 Data Collection

3.4.1 Context

The data were collected in an Intensive English Communication Program at a large American university. This is a program for unenrolled international students that aim to improve their English, with the major focus on preparing for standardized tests such as TOEFL. The instruction is centered on the following four skills: Reading, Writing, Grammar, and Oral Communication. The students are grouped into four levels of proficiency from one as the lowest to four as the highest. They can be promoted to a higher level of proficiency at the end of each semester according to their academic achievement, based on “promotion criteria” specific to each skill.
(See Appendix A). The choice of the program as the site of this research is motivated by the focus of instruction on more diverse aspects of language learning than in the university level ESL program, which primarily centers on academic writing.

The study was conducted in Level One Reading class. Prior to making this choice, the researcher observed a number of classes that focus on other skills such as Grammar and Oral Communication. The observations have shown that it was the Reading class where the instruction covered the most diverse range of language issues including, apart from reading, grammar, spelling, and pronunciation. This appeared to be a promising opportunity to observe gesture used in teaching and learning diverse aspects of language. Moreover, it became apparent from the observations that the instructor in this particular class employed gesture in meaningful and diverse ways to serve her instructional purposes. In addition, this appeared to be a relatively diverse group including students of different ages, genders, and cultural backgrounds.

Curriculum

As far as the content of the course is concerned, the instructor used For your information: Reading and vocabulary skills by Blanchard and Root (2007) as a course book. The textbook consists of eight units each of which is split into three chapters. During the period of data collection, the class has covered Unit 3: Animals in our Lives and Unit 4: Setting Goals and Facing Challenges. The chapters that make up a unit have similar structure. Each of them opens with pre-reading activities: A—discussing questions related to the topic of the text; B—matching new vocabulary from the text with the definitions; C—marking the statements related to the text as True or False. This section is followed by the text, where vocabulary words introduced in the pre-reading activity are marked in bold. The chapter continues with a wider range of activities that start with “Comprehension Check.” It is followed by “Identifying the Main Idea of a
Paragraph,” which is one of the promotion criteria. The chapter proceeds with “Vocabulary Practice” and concludes with some grammar and/or morphology practice.

The teacher organizes her instruction so that each class has a similar structure. She also consistently employs PowerPoint as a visual support. Thus, the class starts with the teacher going through the agenda displayed on the screen. The students next take a “Three-minute Quiz,” after which the teacher familiarizes them with the goals for the class listed in the PowerPoint. This is followed by reading and discussing the weather forecast. The teacher next introduces an American idiom, which is followed by another regular activity—working on the list of “500 Most Frequently Used Words” in English (Kress, 1993). These words are introduced each class in portions of 25. The students are asked to look up their meanings at home and think about their synonyms, antonyms, homonyms, phrasal verbs, and rhyming words. In class, they first revise the previous portion of the words and have a spelling quiz. The teacher next introduces a new portion of the words and organizes students into groups of three or four to discuss their meanings as well as synonyms, antonyms, homonyms, phrasal verbs, and rhyming words. The major part of the class that follows is usually devoted to working on a chapter from the textbook or a text from children’s literature.

### 3.4.2 Participants

The participants were recruited on a voluntary basis in adherence with current guidelines of the Office of Research Protection (ORP) at the university in question. None of the participants was aware of gesture as the focus of the ongoing research since that would have changed the way they employed gesture in observed interactions. For that reason, the purpose of research was formulated in a more general way: “to study the ways teacher and students’ usage of such
affordances as personal backgrounds, speech, body movement, technology, and textbooks facilitate or constrain the teaching/learning process.” Gesture as the focus of this study was announced to the instructor at the beginning of the follow-up interview after the classroom video recordings were completed.

In order to obtain background information from the instructor, a brief questionnaire (see Appendix B) was administered via email at the beginning of data collection. This information including language and cultural background as well as teaching experience provided more context for the ways the teacher mediated her students in the classrooms observed.

A student questionnaire (see Appendix C), aimed at collecting background information was given to the students as a hard copy at the outset of data collection. This information including language and cultural background as well as motives for learning English provided more context for students’ actions in the mediation process. The questionnaire was distributed at the beginning of the first video recorded class. The students returned the completed questionnaire to the researcher by the end of the class.

The instructor was an experienced teacher with thirteen years of experience teaching ESL and ten years of experience teaching Spanish. She was considered to be one of the best instructors in the program both by her colleagues and her students. Twelve non-matriculated students were enrolled in the course, seven female and five male. Nine of the students were from Saudi Arabia, one was from Brazil, one from Colombia, and one from Vietnam (See Table 3.1).

**Table 3.1.** Participant information.

<table>
<thead>
<tr>
<th>Initial</th>
<th>Gender</th>
<th>Country of origin</th>
<th>First Language</th>
<th>Length of stay in the U. S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Female</td>
<td>Brazil</td>
<td>Portuguese</td>
<td>1 year</td>
</tr>
<tr>
<td>G</td>
<td>Female</td>
<td>Colombia</td>
<td>Spanish</td>
<td>5 years</td>
</tr>
<tr>
<td>Sr</td>
<td>Male</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>5 years</td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>--------------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>F</td>
<td>Male</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>5 years</td>
</tr>
<tr>
<td>B</td>
<td>Male</td>
<td>Vietnam</td>
<td>Vietnamese</td>
<td>4 months</td>
</tr>
<tr>
<td>A</td>
<td>Male</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>4 months</td>
</tr>
<tr>
<td>Ar</td>
<td>Female</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>3 months</td>
</tr>
<tr>
<td>W</td>
<td>Male</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>3-4 years</td>
</tr>
<tr>
<td>R</td>
<td>Female</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>4 years</td>
</tr>
<tr>
<td>By</td>
<td>Female</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>2-3 years</td>
</tr>
<tr>
<td>Rb</td>
<td>Female</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>3 years</td>
</tr>
<tr>
<td>N</td>
<td>Female</td>
<td>Saudi Arabia</td>
<td>Arabic</td>
<td>1 month</td>
</tr>
</tbody>
</table>

### 3.4.3 Data Collection Procedures

Data were collected during Spring 2012 over a period of six weeks closer to the end of the semester. The class met two/three times a week (alternating weeks). Each class consisted of two 50-minute sessions with a 10-minute break. This totaled approximately 32 classroom contact hours over the period of six weeks. The data collection involved conducting video recordings of classroom interactions, obtaining artifacts relevant to the analyzed classroom activities (syllabus; textbooks; teacher PowerPoints; quiz results), instructor questionnaire, student questionnaire, and a follow-up interview with the instructor (see Table 3.2 below).

#### Table 3.2. Data Sources

<table>
<thead>
<tr>
<th>Course:</th>
<th>Level 1 Reading Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>1 Instructor – NS</td>
</tr>
<tr>
<td></td>
<td>12 international non-matriculated students</td>
</tr>
<tr>
<td>Data Sources</td>
<td>- Classroom contact hours</td>
</tr>
<tr>
<td></td>
<td>- Artifacts relevant to classroom activities</td>
</tr>
<tr>
<td>Duration</td>
<td>Spring 2012</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
<td>6 weeks, 2-3 days per week, 110 minutes per day</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>32 Classroom contact hours</strong></td>
</tr>
</tbody>
</table>

The video recordings of the classroom sessions were conducted using two digital cameras. One camera, which ran autonomously, was placed statically in the corner of the classroom to the right of the teacher’s desk and captured most of the students. The other camera, operated by the researcher or her assistant, was placed in the opposite corner of the classroom and recorded the behavior of the teacher and the remainder of the students. Two students who did not give their consent to be video recorded were placed outside the camera view (See Figure 3.1). During the instructor follow-up interview, one camera was placed in the corner of the room to capture the instructor and the researcher.
Figure 3.1. Teacher View.

Figure 3.2. Student View.
A semi-structured follow-up interview was conducted with the instructor after the classroom videos had been analyzed by the researcher (see Appendix D for planned interview questions). Non-scripted interview questions emerged after the researcher had watched and analyzed the video excerpts. During the interview, the instructor was encouraged to freely share any comments on her own or students’ actions. The interview session with the instructor, which took place in her office, was video recorded.

3.5 Data Analysis

The video recorded classroom interactions were first viewed and annotated. Then, excerpts of interest were identified and transcribed in detail using transcription conventions adopted from CA (Have, 2007) and McNeill’s (2005) gesture notation. Both of these types of conventions were modified to fit the purposes of this particular study (see Transcription Symbols in Appendix E). Thus, in full accordance with the transcription conventions offered by McNeill (2005), the stroke of gesture was marked in bold. The study also employs the labels for spatial areas of gesture production in relation to the speaker’s body presented in McNeill’s (2005) “Space manikin” (p. 274; See Figure 3.3). In this layout of gestural space, McNeill identifies three major areas: the center, periphery, and extreme periphery with further differentiation of each depending on the right/left and upper/lower orientation. In the present study, these gestural areas are only referred to where they become particularly relevant to the analysis; for example, when comparing the shape of the teacher’s gesture versus student gesture.

For more precision in identifying gesture-speech synchronization as well as the gesture strokes, the video excerpts of interest were viewed in slow motion using Quicktime player and iMovie software. To minimize subjectivity in identifying the gesture strokes, the selected
excerpts were viewed and discussed by the researcher and six members of the Dissertation Group in the Applied Linguistics Department at Penn State including graduate students and faculty, several of whom are experienced in gesture analysis. Any differences in the researcher and the group members’ perceptions were then reconciled through negotiation.

**Figure 3.3.** Space Manikin. Adopted from McNeill (2005, p. 274).

The video recording of the interview session was first annotated and then excerpts of interest were transcribed with as much detail as appeared relevant for the analysis. Classroom video recordings were viewed, transcribed, and analyzed to identify instructional functions of teacher gesture and learning functions of student gesture. The analysis was also aimed at uncovering certain patterns in the teacher and student instruction-related uses of gesture. This analytic procedure was guided by the categories of gestural functions based on Kendon (2004) and Sime’s (2006) classifications: 1) cognitive; 2) affective; and 3) interactive with the major focus on the cognitive function. Every gesture was also considered with regard to the dimensions identified by McNeill (1992, 2005): iconic, metaphorical, deictic, and beat. The analytic procedure did not involve coding for these categories because gestures are multidimensional phenomena, which makes it difficult to single out just one function. The analysis was aimed at
distinguishing patterns rather than static categories in the functioning of the teacher’s gestures.
The major focus of analysis was on identifying the types of mediational functions fulfilled by
teacher and student gesture in a particular context of a particular task. The focus of analysis also
included the ways the teacher modified her gestures depending on the students’ emergent needs
as part of her graduated assistance.

The pedagogical role of the teacher’s gesturing (combined with other kinds of body
movement as well as gaze, facial expression, and object manipulation) was analyzed in
conjunction with the ways students oriented to their instructor’s gesture-based mediation.
Therefore, each of the selected transcripts was analyzed sequentially to see which actions were
produced by the participants’ gesture in a particular context. Such sequential analysis allowed for
consideration of the instances of student imitation of teacher gestures and for the examination of
the mediational functions of such imitation. The analysis also focused on the instances of
student-initiated gestures and attempted to uncover the patterns in their functions as well as their
role in the process of mediation. The focus of analysis also included possible changes in
students’ gesturing as they gained more control over the task. Examining these instances, the
analysis considered the ways the teacher reacted to the gestures initiated by her students and
whether/how she reshaped her mediation orienting to the students’ hand movements. The
analysis also involved investigating the role of gesture in student-student interactions during
group work to see whether and how students employed gesture as a tool for mediating each other
in the learning process. In examining the teacher and student use of gesture, the analysis also
focused on catchments as imagistic devices that serve to maintain coherence of classroom
discourse as well as on other instructional functions of catchments. Such detailed, contextualized
sequential analysis allowed for tracing microgenetic development and identifying the mediational role of teacher-student gesture in the process of teaching-learning a second language.

The data were also analyzed from longitudinal perspective to see whether the nature and functions of teacher and student gesture changed over time. The analysis investigated whether some gestures became conventionalized in the context of this particular classroom or a particular task and if yes, what are the pedagogical implications of such conventionalization of gesture.

The analysis of the instructor follow-up interview primarily involved content analysis aimed at revealing the teacher’s perspective on her instructional actions, which provided more context for understanding the nature of mediation conducted by the teacher in the observed classroom interactions.
Chapter 4

Teacher Gesture and Student Responsivity in Vocabulary Explanations

4.1 Introduction

This chapter reports on the ways the teacher employed gesture in explaining L2 word meanings as well as on the ways students responded to the teacher’s gesture-based mediation and the implications of both for student learning. The analysis centers on two specific areas: 1) the instructional functions of the teacher’s gesture with particular focus on repetitive gestures labeled by McNeill (2005) as catchments; 2) student responsivity to the teacher’s mediation involving gesture in the form of gestural imitation (creating catchments) and verbal elaborations.

Teacher-student interactions discussed in the chapter occurred either in a whole-class format or during student group work. The latter involved discussions of vocabulary items from the list of “500 Most Frequently Used Words” in English (Kress, 1993) introduced by the teacher in addition to vocabulary from the textbook. In every class, the instructor introduced approximately 25 words from the list. She then organized the students into groups and asked them to discuss the meanings of the words and to generate their synonyms, antonyms, and homonyms.

The first section focuses on the ways students creatively imitated the teacher’s instructional gesture, revealing how catchments emerged in the dialogical process of teacher-student interaction. The second section considers the other type of student reaction to the teacher’s gesture-based mediation, that is, their verbal and gestural interpretations of the teacher’s multimodal explanations. The analysis focuses on the ways students reworked and incorporated the information conveyed in the teacher’s speech-gesture units in their own utterances. The
section also examines in detail the differences between the teacher and students’ catchments and their relation to the instructional activities that unfolded in the classroom.

### 4.2 Student Imitations of Teacher Gesture.

In teacher-student interactions discussed in this section, we observe how in response to the teacher’s gestural illustrations of unfamiliar or confusing L2 meanings, the students imitated the teacher’s gesture as a sign of their agreement and understanding. By reiterating the teacher’s hand movements, the students created catchments that helped to maintain coherence of classroom discourse and thinking across the participants. Similarly, the teacher herself employed catchments repetitively throughout her vocabulary explanations. These catchments served important instructional functions examined in detail in the section below.

### 4.2.1 Introducing teacher and student catchments

*Excerpt 4.1: “Five senses”*

This excerpt is an example of how gesture enabled the teacher and students to co-construct a list of five senses through a number of linked catchments. It also demonstrates the ways catchments emerged in teacher-student interaction centered on L2 word meanings. The interaction occurred in Class 11 as the teacher organized the students into groups of three or four and asked them to discuss the meanings of a new portion of words from the list of “500 Most Frequently Used Words.” The excerpt features a group of three students: B (male, L1 Vietnamese); G (female, L1 Spanish), and Ar (female, L1 Arabic).

Preceding the transcribed part of the interaction, the group was discussing the meaning of the word “senses.” After B mentioned that some people have six senses, and G expressed her doubts
about that, the teacher joins the conversation by mentioning the movie “Sixth Sense” (line 1).

Her comment elicits G’s question about what the sixth sense is. The teacher responds by listing five senses and visualizing them through deictic and haptic gestures. All the group members maintain their gaze on the teacher throughout the interaction.

*Excerpt 4.1: “Five senses”*

1  T:  there’s a movie called the sixth sense
2  G:  what is the sixth?
3  T:  well (0.3) the five are
4          {touching,}
5          { touches her LH palm with her RH palm }
6  B:  {yeah}
7          {nods head}
8  T:  {smelling,}
9          { touches her nose }    Smell C
10  B:  {yeah}
11          {nods head, touches his nose }    Smell C
12  T:  {seeing}
13          { counting gesture }
14  B:  {seeing}
15          { touches his eye brow }
16  T:  {tasting}
17          { touches her lips }    Taste C
18  B:  {tasting}
19          { touches his lips }    Taste C
20          { (0.2) }
21  T:  { rolls her eyes, makes a puzzled face }
22  B:  touches his ear and holds    Hearing C
23  T:  {hearing}
24          { touches her ear, shifts gaze to B, nods head }    Hearing C
25  B:  { hear°}
26          { nods head, retracts }
The teacher opens the list of the five senses with “touching” and illustrates it with a haptic gesture, touching her left hand with her right hand (lines 4-5). Her actions elicit signs of understanding from Student B as he produces a token of agreement, “yeah,” and a head nod. The teacher continues the list with “smelling” and touches her nose (lines 8-9). This deictic-haptic gesture links the name of the sense to the part of the human body responsible for it and in this way, makes the meaning concrete and visible. In reaction, B picks up the teacher’s gestural strategy by imitating her hand movement as he touches his nose, layering the gesture onto his previous signs of agreement (lines 10-11). By repeating the teacher’s hand movement, B turns it into a catchment referred to as the Smell Catchment, which seems to carry important pedagogical functions. First, it displays student understanding of the meaning in question. Second, it acts as a cohesive link in the teacher-student discourse, showing that at this moment their thinking is unfolding along similar lines.

When the teacher continues the list with “seeing,” she produces a counting gesture rather than the illustration of the word’s meaning, possibly considering that the students already know what “seeing” means (lines 12-13). Student B, however, maintains the gestural strategy appropriated from the teacher and performs a deictic-haptic gesture as he touches his eyebrow (line 15). By connecting “seeing” to the part of the body responsible for it, student B displays his understanding of the word’s meaning. Notice also that in this utterance, B’s repetitive “yeah” is replaced with the verbalization of the item in question. The teacher next resumes her gestural strategy as she names “tasting” and touches her lips (lines 16-17). Her actions elicit B’s speech-gesture imitation as he touches his lips and echoes the word. By repeating the teacher’s gesture,

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2 It is likely that the teacher has been producing the counting gesture with her right hand along with naming the other five senses as well. However, due to the fact that her right hand was mostly outside the camera view, that part of gesturing is not included in the transcript.
B turns it into another catchment—the Taste Catchment, which signals his understanding and serves as a bond between the teacher and student thinking and discourse.

The teacher experiences difficulties in generating the next item as she pauses, rolls her eyes, and makes a puzzled face (lines 20-21). In reaction, B silently produces a haptic gesture, touching his ear (line 22). Importantly, he holds the gesture rather than retracting it at once and maintains mutual gaze with the teacher. According to Sikveland and Ogden (2012), a gestural hold can indicate that the issue has not been resolved as the speaker seeks shared understanding on the part of the interlocutor. In the context of this instructional interaction, B’s gesture seems to fulfill a two-fold function. On the one hand, it acts as a gestural prompt for the teacher, who is struggling to retrieve a lexical item. On the other hand, it is a way for B to elicit the item from the teacher since he is not able to verbalize it. It is unclear whether the teacher could see B’s gesture (since her gaze was directed upward), but she next verbalizes the missing item, “hearing,” simultaneously touching her ear, shifting her gaze to B, and nodding her head (line 24). The teacher’s gesture, which is now turned into a catchment—the Hearing Catchment—is produced as part of her confirmation of the student’s gestural prompt. B orients to this accordingly by nodding his head, repeating “hear,” and retracting his gesture. His termination of the gestural hold signals that the issue has been resolved, and mutual understanding has been achieved.

Discussion

In this excerpt, the teacher employed deictic and haptic gestures to illustrate the meanings of L2 nouns denoting the five senses. These gestures portrayed the word meanings by connecting the names of the senses to specific parts of the human body responsible for perceiving them. Gesture as a tool for visualizing those meanings appeared to be a readily available and economical semiotic resource that allowed the teacher to efficiently illustrate the meanings in
synch with naming the senses. This seems particularly important under the circumstances where
the teacher and students do not share the native language. In addition, the student’s level of
proficiency does not leave much room for the teacher’s verbal explanations in their L2.

Importantly, the teacher’s gestures referring to the senses were imitated by the student as an
indication of his understanding of the meanings at issue. These gestural repetitions in the form of
catchments helped the teacher and student to co-construct the list of the five senses and served as
a visual bond, linking the teacher-student thinking and discourse into a coherent whole.
Throughout the interaction, the teacher and student employed three catchments: the Smell, the
Taste, and the Hearing Catchments. Each of them was produced twice and helped to maintain
coherence in the participants’ discourse. This function identified by McNeill (2005) in the
context of monologic narratives has to be expanded and elaborated when considering catchments
in the instructional context, specifically, with regard to their pedagogical and learning functions.
Thus, in the classroom interaction discussed above, each catchment in each of its instances
served specific instructional and learning functions as reflected in Figure 4.1 below. Thus, the
teacher’s Smell Catchment served as an illustration of the meaning while the student’s catchment
served as a display of understanding the meaning. Similar functions were carried by the Taste
Catchment, while the functions of the Hearing Catchment were different. The student’s
catchment served as a gestural prompt in facilitating the teacher’s word search. At the same time,
it can be viewed as the student’s attempt to elicit the item (that he had difficulties verbalizing)
from the teacher. Finally, the teacher’s Hearing Catchment served as a confirmation of student
understanding. Considering how the catchments were enacted in the flow of interaction, two
types of sequences of instructional and learning actions accomplished with the help of the
catchments were identified: 1) teacher illustration of meaning—student sign of understanding;
2) student gestural prompt reflecting his understanding—teacher acknowledgement/confirmation.

Table 4.1. Instructional functions of catchments in Excerpt 4.1: “Five Senses”

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smell C</td>
<td>1</td>
<td>Teacher</td>
<td>Illustration of meaning</td>
<td>Deictic-haptic</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Student</td>
<td>Sign of understanding</td>
<td>Deictic-haptic</td>
<td>11</td>
</tr>
<tr>
<td>Taste C</td>
<td>1</td>
<td>Teacher</td>
<td>Illustration of meaning</td>
<td>Deictic-haptic</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student</td>
<td>Sign of understanding</td>
<td>Deictic-haptic</td>
<td>19</td>
</tr>
</tbody>
</table>
| Hearing C     | 1          | Student | 1) Gestural prompt in teacher word search  
2) Eliciting the word (searched for by the student) from the teacher | Deictic-haptic         | 22     |
|               | 2          | Teacher | Confirmation of student understanding                                               | Deictic-haptic         | 24     |

The teacher’s mediational strategy involving gesture appeared to deeply engage student B in the process of jointly constructing the list of the five senses. Throughout the excerpt, we were able to observe how B’s reaction to the teacher’s mediation became more and more elaborate. Having started with a token of agreement “yeah” and a head nod, he then added a gesture in the form of a catchment, having appropriated the teacher’s gestural strategy. B subsequently replaced “yeah” with the name of the sense, maintained the gestural strategy even when it was abandoned by the teacher, and finally, provided a gestural prompt for the teacher to facilitate her word search. These actions show how in the collaborative process of naming the senses, gesture first introduced by the teacher became part of the student’s interational and learning strategy. Student imitation of teacher gesture is observed in the interaction discussed below as well; however, what becomes more salient in this exchange is the manner in which the teacher employs the same catchment multiple times for a range of instructional purposes.
4.2.2 Multiple teacher catchments

*Excerpt 4.2: “Toward”*

Excerpt 4.2 is an example of the teacher’s multiple uses of the same catchment in her vocabulary explanation and the student’s subsequent imitation of the catchment oriented to by the teacher as a signal to terminate her mediation. The discussion, centered on the meaning of the preposition “toward,” occurred at the beginning of the second session of Class 9. It involved a group of two students, N (female, L1 Arabic) and G (female, L1 Spanish), who were working through the new portion of the words from the list of “500 Most Frequently Used Words” in English.

The excerpt begins as N reads aloud the next word on the list, “toward,” with a rising intonation (line 1). After a noticeable pause, her partner, G, repeats the word with a similar intonation and then begins using her cell phone, most likely, to search for the translation in an online dictionary, a strategy frequently employed by students in this class. Meanwhile, N chooses to seek help from the teacher as she directs her gaze toward the instructor, who is talking to another group of students, and then summons her attention verbally. At this point, G seems to have found “toward’s” translation in the dictionary as signaled by “ah,” a marker of new understanding (Seo & Koshik, 2010) followed by “ok” (lines 9-10). Around that time, the teacher approaches the two students and reads aloud the problematic item “toward” from N’s notebook (line 15).

*Excerpt 4.2: “Toward”*

1  N:  {toward,}
2   {reads from her notebook}
3   (1.5)
4  G:  toward,
5       uses her cell phone to search for the word in a dictionary
The teacher chooses to explain the meaning of “toward” by using it in context and simultaneously performing the described action. As she utters: “I’m walking,” the teacher actually starts walking towards the door and marks the preposition with a deictic gesture, pointing to the door (lines 17-21, Figure 4.1). In doing this, she adopts the character viewpoint, demonstrating tight engagement with the meaning portrayed (McNeill, 2005; Gerofsky, 2010). By placing the stroke of the pointing gesture on “toward,” the teacher seems to highlight directionality as an important part of its meaning, which she later confirms verbally. Student N reacts with her own interpretation of the teacher’s illustration as she utters “across” with rising intonation and accompanies it with gesture by moving her right hand in the direction of the door.

Excerpt 4.2: “Toward” (continued)

17 T: {i’m walking}
18 {starts walking toward the door}
19 G, N: {gaze at T; N continues to gaze at T through line 70}
20  T:  {toward the door}

21  {continues to walk, bends RH at elbow and points to the door, holds}  Toward C

22  G:  {shifts gaze away from T into space}

23  N:  {like across,}

24  {moves RH, palm open, away from body in the direction of the door}  Toward C

25  G:  {shifts gaze to N}

26  T:  {not across}

27  {steps backward, retracts pointing}

28  G:  {nods head}

29  T:  {in the direction of.}

30  {moves RH @ waist away from body in the direction of the door,  Toward C

31  palm open, fingers slightly apart}

32  G:  {shifts gaze to door}
N’s gesture differs from the teacher’s hand movement. It involves pointing with all the fingers brought together rather than with the index finger alone. It does, however, retain the movement in the same direction (the door) as the teacher’s pointing. According to the criteria discussed in Chapter 3, gestures categorized as catchments need to share the elements of form and meaning crucial for the accomplishment of the instructional task at hand. In this case, the essential element is related to directionality (toward the door), which is shared by both the teacher and student’s gestures. Therefore, they constitute a catchment referred to as the Toward Catchment.

What follows on line 26 is that the teacher declines N’s interpretation and provides a verbal definition of the meaning of “toward:” “in the direction of.” She accompanies it with gesture that looks similar to the one produced by N, moving her right hand toward the door, fingers slightly apart (lines 30-31, Figure 4.2). In this sense, the teacher mirrors the student’s gesture, incorporating its elements into her own catchment as a means of aligning the two understandings of “toward.” Student N in turn mirrors the teacher’s definition, “direction,” along with the catchment. By doing this, she solicits further clarification, which is signaled by her rising
intonation and a gestural hold (lines 33-34, Figure 4.3). We can see how the same gestural image accompanying different verbal elements, “across” and “direction,” helps the student to maintain coherence of her thinking and speaking in an attempt to comprehend the new L2 meaning. The teacher follows up with a confirmation involving a more abstract, container-shaped gesture. She produces a beat at “direction” and returns to enacting her previous example with the door that did not seem to be effective, as signaled by N’s reaction. The teacher pronounces: “I’m walking toward…” and actually walks toward the door. She seems to have abandoned the Toward Catchment for now, still holding her right hand at waist with palm relaxed.

*Excerpt 4.2: “Toward” (continued)*

38 T: {i’m walking towa::rd,}
39 {walks toward the door, RH @waist, half-cupped}
40 G: {shifts gaze into space, then upward}

41 G: {toward washington?}
42 {turns toward T and gazes at her}

43 T: {the door}
44 {turns to face G}
45 hum?
46 G: toward washington?
47 T: like
48 {we’re driving}
49 {gazes in front of herself, BH @waist, closed fists as if holding a steering wheel, oscillating}
Figure 4.4 Lines 51-53: “toward”

51  {toward wa}

52  {moves RH forward, palm perpendicular to the floor, Toward C

53  fingers extended and drawn together}

54  T:  {-shington,}

55  {shifts gaze to G and holds gesture}

56  G:  {nods head}

57  {(0.4)}

58  T:  {maintains hold}

59  {it means}

60  {shifts gaze to BH, raises BH to chest, palms facing each other,

61  fingers extended and drawn together}

Figure 4.5 Lines 62-63: “that”

62  {in that di}

63  {moves BH forward, moving them closer to each other Toward C

64  {rection}

65  {shifts gaze to G, begins to retract}

66  {(2.5)}

67  G:  {gazes at T, nods head twice}
Throughout the preceding interaction, student N closely followed the teacher’s actions. Meanwhile, G’s eye gaze was first directed to the teacher’s movements but then shifted to the space in front of her body. She then moved her gaze to N, which indicates that she attended to her partner’s struggles (lines 22, 25, 35). As the teacher repeated her unsuccessful example with the door, G disengaged from her interlocutors again by shifting her gaze from in front of her body and then straight upward (line 40), which may be an indication of thinking (Lantolf & Yañez-Prieto, 2003; Lantolf, 2010). Finally, while the teacher walked toward the door, G offered a new example of the word by saying, “toward Washington” with rising intonation (line 41). Thus, G’s gaze aversion most likely reflected her thinking about an appropriate example of “toward” (recall that G already knew the word’s translation from an online dictionary). The teacher orients to this as a request for clarification and expands G’s example into a full sentence: “we’re driving toward Washington.” She also enacts the situation of driving by imitating the handling of a steering wheel (lines 49-50). In so doing, she maintains the previously adopted character viewpoint, which is enhanced with her gaze projected in the direction of the imagined movement of the car (lines 49-50). The teacher next reengages the Toward Catchment, making a stroke on the preposition “toward” (lines 52-53, Figure 4.4). She moves her right hand forward with her palm perpendicular to the floor as if pointing toward the goal of the journey. The
moment the teacher shifts her gaze to student G, she expresses agreement with a head nod (line 56).

The teacher continues her mediation by reiterating her previous definition of “toward:” “in that direction” (line 62-64). She makes a stroke on “that” with the bilateral version of Toward Catchment, where she moves her hands forward, bringing them closer to each other in the shape of an arrow, which points toward the imagined goal (lines 60-01, 63; Figure 4.5). The impression of precision produced by the gesture and enhanced by the teacher’s gaze directed at her hands aptly matches the deictical function of the verbal element “that.”

Student G nods her head in response (line 67), which is treated by the teacher as a sign of agreement as she nods her head in turn, bringing her hands together at the waist to complete the retraction (line 68). The teacher next checks for N’s comprehension, shifting her gaze from G to N. At this point, student N produces her first sign of understanding, uttering elongated “ah” in a breathy voice (line 70) and starts writing in her notebook. She continues writing through the remainder of the excerpt. The teacher, however, chooses to repeat her definition of “toward” and performs it in a similar way as in lines 62-64 with regard to speech, gesture, prosody, and gaze direction (lines 73-76). With the stroke on “that,” she moves her hands closer together creating the impression of precision in this version of the Toward Catchment. As she completes the catchment, the teacher shifts her gaze to G, indicating that the repetition is intended for her and making G’s response relevant. The student, who closely attended to the teacher’s gesture, orients to her actions as a bid for confirmation and produces several small head nods (line 79). This display of understanding does not seem sufficient for the teacher, as signaled by her gaze fixed on G and the gestural hold maintained at the waist with palms pointing forward (lines 80-81). The teacher’s actions seem to indicate that she seeks further signs of understanding on G’s part.
The teacher’s continued engagement with G may also be due to the fact that the student maintains her gaze on the teacher rather than shifting it to her notebook or disengaging in some other way. This is oriented to by the teacher as a display of engagement and co-participation, which motivates her further responses to the student (Goodwin, 1981; Sikveland & Ogden, 2012).

_Excerpt 4.2: “Toward” (continued)_

78        \{(2.0)\}
79  G:  \{gazes at T, nods head\}
80  T:  \{gazes at G, holds BH @ chest, palms together, fingers extended and drawn together\}
82  G:  \textit{shifts gaze to LH, moves LH away from her desk towards the desk in front of her}\n84  T:  \textit{[oke:y,}\n85  G:  \{\textit{toward}\}
86  \{moves LH forward along the desk, palm perpendicular to the desk, fingers extended and drawn together; continues through line 94\}

89  T:  \{\textit{toward}\}

\textbf{Figure 4.6} Lines 89-91: “toward”

90  \{shifts gaze in the direction of G’s gesture, moves LH in parallel with G’s LH\}
92  \{(1.5)\}
93  G, T:  \{gaze in front of themselves, retract, G raises LH before retracting\}
95  T:  \textit{nods\}
96  \textit{starts to move away from the group\}
In fact, G orients to the teacher’s actions as a request for confirmation and offers her understanding of “toward” visualized through gesture. Thus, in line 82, G shifts her gaze to her left hand and begins moving it towards the vacant desk in front of her. Unaware of G’s gesturing, the teacher produces another comprehension check, which confirms her uncertainty (line 84). Her elongated “okey,” pronounced with rising intonation, is overlapped by G as she utters “toward” and continues her gesture. She fully exploits the space of the vacant desk, moving her left hand forward along the desk, palm perpendicular to its surface (lines 86-88). By doing this, the student imitates the teacher’s Toward Catchment, retaining its main feature—the forward movement of the hand. The student’s gesture has an even longer trajectory than the teacher’s and appears more emphatic as she energetically raises her hand before retraction. This constitutes a rare case in these data when student gesture has a larger gesture box and is more emphatic than what is produced by the teacher. These features may also indicate that by this point, G feels quite confident about the meaning of “toward.”

The teacher reacts to G’s speech-gesture unit by echoing both of its elements as she utters “toward” and imitates the student’s catchment with smaller amplitude (lines 89-91, Figure 4.6). The teacher and student’s actions become finely coordinated as they move their hands synchronously and gaze in the same direction—toward the imagined destination. They retract the catchment simultaneously while G makes an emphatic move slightly raising her hand before completion (lines 93-94). We can see how in this co-temporal action, the same catchment plays different pedagogical functions. For the student, it appeared as a sign of understanding the meaning of the L2 item, while for the teacher, it served as an acknowledgement of the student’s understanding. Unlike G’s previous displays of understanding, this one is oriented to by the teacher as a sufficient and convincing sign of improved understanding, which motivates her to
terminate the mediation. Without trying to re-establish mutual gaze with G after completing the gesture, the teacher nods her head and moves away from the group (lines 95-96). Similarly, student G treats the issue as resolved and interaction complete: having retracted the gesture, she immediately shifts her gaze towards her desk and onto her cell phone that might still have the definition of “toward” on its screen.

Discussion

In Excerpt 4.2, the teacher employed iconic and deictic gestures for the instructional purposes of visualizing an L2 meaning as part of her vocabulary explanation. These dynamic depictions of “toward” demonstrate the advantage of gesture as miniature action able to convey spatio-motoric aspects of word meanings obscured in the verbal modality. The action-based qualities of gesture appear to be of particular importance in teaching prepositions, which express spatial relationships not easily accessible through verbal definitions. The teacher’s gesture-based mediation appeared to be effective in improving student understanding of the meaning of “toward” as signaled by their signs of comprehension. Thus, student N acquired the meaning that she had not been familiar with before, while student G clarified the use of the preposition in context.

Throughout the teacher’s mediation, gesture was employed repetitively in the form of the Toward Catchment, whose crucial feature was the forward movement of the hands. Synchronized with different verbal elements: the examples “toward the door” and “toward Washington,” the definitions “in the direction of” and “in that direction” as well as the word “toward” itself, the catchment helped to maintain coherence of teacher discourse. It did so by making the main topic of the discussion—the meaning of “toward”—publicly visible and continuously accessible as a reference point.
The catchment also maintained coherence across the speakers once it was imitated by the students. Student N employed the teacher’s Toward Catchment twice in her attempts to comprehend the preposition’s meaning: she synchronized it with “across,” which was an incorrect conjecture, and the repetition of the teacher’s definition, “direction.” While N’s verbal response, “across,” was incorrect, her gesture was similar to the teacher’s, displaying some level of shared understanding. Importantly, N only used the catchment when she experienced difficulties in understanding the meaning, which suggests that she relied on gesture as a learning tool in the process of comprehending the meaning. Student G’s imitation of the teacher’s catchment served as confirmation of her understanding of the meaning and as a signal to the teacher to terminate mediation. The close resemblance to, and creative elaboration of, the teacher’s catchment provided by G as well as her confident manner of gesturing demonstrated her proper understanding of the word’s meaning. It is important that the teacher oriented to the student’s catchment as the only convincing sign of her understanding (unlike “yeah” and head nods) and chose to cease her mediation only after the gestural enactment of “toward” was produced.

In each particular instance, the gestural image of “toward” in the form of the Toward Catchment (employed nine times throughout the excerpt) served different instructional and learning functions as shown in Table 4.2. Thus, the teacher’s catchments served as illustrations of the problematic item’s meaning, its definition, and contextualised examples. The catchment was also employed as part of the teacher’s acknowledgement of student G’s answer. Student N’s catchment served as a learning tool in accompanying her incorrect conjecture and as part of soliciting clarification from the teacher.
Table 4.2 Instructional functions of catchments in Excerpt 4.2: “Toward”

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toward C</td>
<td>1</td>
<td>Teacher</td>
<td>Illustration of meaning in (unsuccesful) Example 1</td>
<td>Deictic</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Student N</td>
<td>Incorrect interpretation of the teacher’s illustration of meaning</td>
<td>Deictic</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Teacher</td>
<td>Illustration of the definition of the meaning</td>
<td>Deictic</td>
<td>30-31</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Student N</td>
<td>Soliciting further clarification</td>
<td>Deictic</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Teacher</td>
<td>Illustration of meaning in (successful) Example 2</td>
<td>Deictic</td>
<td>52-53</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Teacher</td>
<td>Illustration of the definition of the meaning</td>
<td>Deictic</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Teacher</td>
<td>Illustration of the repeated definition of the meaning</td>
<td>Deictic</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Student G</td>
<td>Sign of understanding</td>
<td>Deictic</td>
<td>86-88</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Teacher</td>
<td>Confirmation/acknowledgement of student understanding</td>
<td>Deictic</td>
<td>90-91</td>
</tr>
</tbody>
</table>

The identified sequences of pedagogical actions accomplished with the support of the catchments are considerably more complex than those observed in Excerpt 4.1: “Five Senses.” In case of student N, the sequences include: 1) teacher illustration of Example 1—student sign of (incorrect) understanding; 2) teacher illustration of the definition—student gestural hold as a bid for clarification; 3) student bid for clarification—teacher gesture-based remediation: repeat of definition, illustration of example 2, and repeat of definition; 4) teacher gesture-based remediation—student verbal sign of understanding. In the interaction with student G: 1) teacher repetition of the definition; hold to elicit G’s signs of understanding—student signs of understanding; 2) student signs of understanding—teacher confirmation.

The excerpt also demonstrates pedagogical and communicative functions of gestural holds employed both by the teacher and a student. Thus, N employed a gestural hold as a tool for seeking shared understanding with the teacher and eliciting further explanation from her to resolve the confusion. Similarly, the teacher maintained a gestural hold to elicit more convincing
signs of understanding on student G’s part. These actions align with Sikveland and Ogden’s (2012) findings, which indicate that “holds provide a visible means for marking something out as ‘not yet quite dealt with,’ and their retraction as a way of displaying (literally) that the issue has been resolved” (p. 194).

Another salient feature of this interaction is the way the teacher directed her gaze towards her gesturing hands or in the direction of the imagined destination. Gazing away from interlocutors can often carry a private function (e.g., Lantolf and Yañez-Prieto’s, 2003), which did not seem to be the case here, since the teacher’s talk was oriented to the students. It appears that the teacher’s gaze became part of her character viewpoint in her embodied performance of the meaning. It showed her deep involvement with the embodied explanation, where in staging the situation of moving toward a destination, her gaze was directed toward the imagined goal. Interestingly, the same intense involvement with the gestural demonstration was displayed by student G, who imitated the teacher’s performance and directed her gaze towards her gesturing hand.

Finally, the excerpt is a good example of the complex and co-constructive nature of language teaching, manifested in the ways the teacher sensitively reshaped her gesture-based mediation. Thus, her first example of walking toward the door was not effective in facilitating student N’s understanding of the new word. Meanwhile, it may have helped G to generate a new example, “toward Washington.” This example was expanded and gesturally enacted by the teacher, who resumed the catchment (previously abandoned) and made it even more precise and expressive. These actions facilitated N’s arrival at her understanding of “toward.” The excerpt also illustrates the collaborative nature of co-constructing catchments, where first, student N imitated the teacher’s catchment and then the teacher in turn mirrored some elements of N’s catchment.
Similarly, student G imitated the teacher’s catchment, which was followed by the teacher’s imitation of G’s catchment. Thus, the form of the Toward Catchment was modified and reshaped through the collaborative process of reciprocal imitation.

In Excerpt 4.2, we were able to observe the importance of catchments as an instructional and learning tool, their complexity and co-constructed nature. In terms of student responsivity to teacher gesture, one type of student reaction that this section focused on was imitation of the teacher’s gesture. The following section considers how students convert gesture-based information into their verbal production, which is important when the purpose of instruction is the ability to express oneself verbally in a second language.

4.3 Student Interpretations of Teacher Gesture

Apart from imitating the teacher’s gestures, another way for students to react to her gesture-based vocabulary explanations is to employ the information conveyed in the teacher’s speech-gesture units and produce their own verbal and sometimes gestural interpretations and elaborations of it. In examining such interpretations, we can see the importance of teacher gesture for developing the students’ ability to produce verbalizations in their L2.

4.3.1 Student verbal and gestural interpretations

Excerpt 4.3: “Power up”

Excerpt 4.3: “Power Up” is an example of how the teacher’s gesture-based explanation of an L2 word elicits its gestural and verbal interpretations/elaborations from the students. The excerpt occurred in the first session of Class 1 in a whole-class interaction as the teacher and students began revising vocabulary. The discussion, centered on the meaning of the phrasal verb “power
“Power up,” involved three students as active participants: C (female, L1 Portuguese), G (female, L1 Spanish), and Sr (male, L1 Arabic).

*Excerpt 4.3: “Power up”*

1. C: power noun  
2. but power up phrasal verb=  
3. T: =phrasal verb yes if I said (.)  
4. {you need to}  
5. {raises BH to chest, fists clenched}

![Image of the teacher demonstrating the gesture for "power up"]

*Figure 4.7 Line 7: “power”*

6. {power}

7. {moves BH slightly downward and upward} Power C

8. G: {gazes at T}  
9. S: {gazes at his notebook}  
10. T: {up}  
11. {moves BH slightly downward}  
12. {the computer}  
13. {holds}

14. {what does that mean}  
15. {1.5}  
16. T: {moves gaze around class}

The discussion is launched by C, who asks the teacher about the meaning of the phrasal verb “power up” (lines 1-2). The teacher responds with an example: “you need to power up the computer.” Simultaneously, she depicts the meaning of the verb with a metaphorical gesture.
synchronized with “power” as she swiftly moves her hands slightly downward and upward with her fists clenched (line 7, Figure 4.7). The gesture portrays the abstract concept of electrical power through concrete display of physical might as expressed in clenched fists and an energetic beat movement. The particle “up” does not receive gestural emphasis. It is accompanied by a slight downward movement of the hand, resembling a retraction rather than an independent gesture. Thus, in illustrating the verb “power up,” the teacher highlights the notion of “power,” marking it with the stroke. She terminates her prompt with a gestural hold as she attempts to elicit the meaning of the verb from the students (line 13). The teacher keeps holding the image of “power” in the students’ view as she asks them about the meaning and moves her gaze around the class.

Excerpt 4.3: “Power up” (continued)

17 T: {you need to}
18 {raises RH to shoulder, holding a highlighter}

19 {power}

Figure 4.8. Line 20: “power”

20 {moves RH (holding a highlighter) downward to chest;}
21 {rapidly upward to face; and slightly downward}

G, S: {gaze at T}
23 T: {up}
24 {makes a slight beat—moves RH slightly downward and upward}
25 {the computer}
26 {holds}
The teacher’s actions fail to elicit student response, and she modifies the clue. Keeping its verbal part intact, including prosodic features, the teacher reshapes her gesture. She marks the word “power” with a more expressive hand movement that has larger amplitude: her right hand moves downward to chest and then rapidly and energetically—upward to her face (line 20). This time, the notion of “power” is portrayed through a different metaphor, which conceptualizes power as located in the upper space and aligns with the metaphor “power is high” discussed in Goatly (2006). It can also be interpreted as depicting an increase in power occurring as a result of powering something up. In this illustration of “power,” the upward hand movement constitutes the major part of the gestural image, which is now turned into a catchment further referred to as the Power Catchment. The particle “up” receives a stroke and a more distinct portrayal, being marked with a slight beat, involving a downward and upward hand movement. This depiction seems to reflect the meaning of “up” more adequately than in line 11. The prominence of the upward movement at “power,” the presence of two strokes—“power” and “up,” and a clearer depiction of “up” seem to shift the emphasis in meaning from the noun “power” to the verb “power up.” The teacher terminates the catchment with a hold as she moves her gaze around the class, soliciting student responses (line 28).

The modified clue appears to be more effective in that it elicits two student responses produced in the speech-gesture modality. Sr, who was gazing away from the teacher in her first portrayal of power (line 9), redirects his gaze back to the teacher in her second illustration of

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3 Goatly (2006) applied this metaphor to the domain of ideology as expressed in phrases “high-powered” and “upper class” (p. 26). However, following Lakoff & Johnson’s (1980) line of thought, the metaphor “power is high” most likely originates from human bodily experiences of something powerful being above one’s self. In its positive sense, “power is high” can be related to the conceptual metaphor “good is high.”
power (line 22). He orients to the teacher’s actions by offering his candidate understanding of “power up” formulated as “more” and pronounced with a questioning intonation. Simultaneously, Sr raises his hand from the desk and flips his palm to face upward (lines 29-30, Figures 4.9-4.10). His speech-gesture unit indicates that he interpreted the teacher’s upward hand movement as conveying an idea of an increase. This meaning seems close to the dialect meaning of “power” as “a large number or quantity” (Power, n.d.). Thus, the student creatively interprets the teacher’s speech-gesture unit, orienting to its most salient element—the upward hand movement; however, his candidate response is incorrect and does not receive the teacher’s acknowledgement. In this sense, the teacher’s gesture with the stroke on “power” rather than “power up” may have been ambiguous and misleading, given the student’s misunderstanding of the verb’s meaning.

Excerpt 4.3: “Power up” (continued)
Just as Sr completes his response, student G offers her conjecture by uttering “turn on” and enacting the verb. Thus, she clenches her fist as if holding a switch and flips her palm upward toward her face as if turning the switch on (lines 32-34, Figure 4.11-4.12). Having attended to both of the teacher’s gestural clues as was signaled by G’s gaze direction, she creatively reworks the information conveyed in the teacher’s speech-gesture unit by producing a synonym of “power up” and an iconic gesture depicting its meaning. Unlike the previously discussed excerpts where students imitated the teacher’s catchments, here, the student creates her own gesture. While the teacher portrayed the metaphorical meaning of “power,” G iconically pictures the literal meaning of “turn on.”

G’s conjecture receives acknowledgment from the teacher as she repeats her answer and points at G, simultaneously raising her hand (lines 35-36, Figure 4.13.). By doing this, the teacher produces another version of the Power Catchment, which combines deixis, the pragmatic
gesture of acknowledging the student’s response, and the metaphorical portrayal of “power.” The student silently confirms her response by reiterating the “turn on” gesture, which now constitutes a catchment referred to as the Turn On Catchment (line 37). The teacher and student’s actions become finely coordinated as they co-temporally align two portrayals of the synonymic meanings—the metaphorical (“power/up”) and the literal one (“turn on”).

The teacher concludes the discussion by providing a definition of “power up,” in which she connects the meanings of the two synonyms: “power up usually means to turn on.” Each of the verbs receives its gestural portrayal. The teacher first moves her left hand upward at “power,” producing the Power Catchment (lines 40-42, Figure 4.14). She continues by switching to her right hand and moves it downward at “turn” (lines 45-46, Figure 4.15). The downward movement resembles pushing a button as in turning on a computer due to the extended index finger. The teacher proceeds to say “on” and moves both hands apart, upward, and downward forming two arcs (lines 48-49, Figure 4.16). This “opening” movement may refer to the moment when the computer turns on and the screen “opens” with the images and icons appearing on the desktop. This gesture incorporates the feature borrowed from the student G and Sr’s gestures—the flipping of the palms. Thus, referring to “turn on,” the teacher produces her own version of the Turn On Catchment. Depicting the same concept, the teacher and student’s catchments connect “turn on” to their different life experiences, where the teacher refers to turning on a computer while student G refers to turning on a light, heat or oven.
Excerpt 4.3: “Power up” (continued)

40 T: \{**power up**\}

**Figure 4.14.** Line 40: “power”

41 \{moves LH to the left, flips palm to face upward; \text{Power C} \}

42 moves LH upward to shoulder; holds}

43 {usually means}

44 {holds}

**Figure 4.15.** Line 45: “turn”

45 {to **turn**}

46 {moves RH slightly downward, holding highlighter, index finger extended} 

**Figure 4.16.** Line 47-49: “on”

47 \{on\}

48 \{moves BH apart, upward and downward, forming two arcs, \text{Turn On C} \}

49 flips palms to face upward}

50 which is another phrasal verb
Discussion

In this excerpt, the teacher employed metaphorical gesture to portray the meaning of the phrasal verb “power up.” The gesture was produced as a visual clue in eliciting student explanations of the word’s meaning. Following the lack of student response, the teacher chose to reshape her gestural clue into a more expressive gesture, leaving the verbal affiliate intact. In this way, gesture became the crucial component of the teacher’s modified clue intended to help the students to overcome difficulties in formulating the verb’s meaning. The students attended to the teacher’s multimodal utterances and oriented to them by providing their own verbal and gestural interpretations. Thus, student G was able to creatively rework the information conveyed in the teacher’s speech-gesture unit and convert it into her verbal explanation of “power up” produced in the form of its synonym accompanied by an iconic gestural illustration. In this way, the teacher’s metaphorical portrayal of “power up” received the student’s iconic interpretation.

In their discussion of “power up,” the teacher and student actions often became finely coordinated. Thus, at one point, the teacher and student G produced their gestures for the two synonyms, “power up” and “turn on,” simultaneously, displaying a high level of interactional synchrony. According to Bernieri & Rosenthal (1991), “[b]y determining the congruence of physical behavior between two people, one can estimate the “togetherness” or similarity of their internal states” (p. 409). Apart from signaling similarity in the speakers’ line of thought, interactional synchrony is also a powerful sign of alignment (Semin & Cacioppo, 2008; Bernieri & Rosenthal, 1991), which is an important factor in creating opportunities for learning (Atkinson et al., 2007).

The illustration of “power up” offered by the teacher was not devoid of ambiguity and potential confusion, which mostly originated from the fact that the stroke was made on “power”
rather than “power up.” This case is in some way similar to the one described in Faraco & Kida’s (2008) study, where a student was confused because of the stroke of the teacher’s gesture, which was placed on the repetition of the student’s incorrect response rather than on the correct variant. Thus, following the portrayal of “power up,” student interpretations of the teacher’s speech-gesture unit were not always correct. Student Sr misinterpreted the teacher’s gesture as referring to the increase in quantity, orienting to the dominant part of her gesture—the upward hand movement. This may be due to its failure to capture the essential aspects of the notion in question, which, according to Roth & Welzel (2001) constitutes a major challenge in shaping instructional gestures intended to convey abstract concepts. In line with Roth & Welzel’s findings, the teacher’s gesture for “power up” raises questions about the most effective ways of shaping instructional gestures for visualizing abstract concepts so that they were adapted to the local requirements of the instructional conversation. The question of the most beneficial ways of shaping instructional gestures is also relevant to portraying the literal meanings of L2 concepts as was the case with “turn on.” The iconic gestures employed by the teacher and student G to visualize the verb reflected their divergent life experiences with the actions described by “turn on,” which could potentially be another point of confusion.

Similar to the Excerpt 4.2: “Toward” discussed earlier, the teacher employed a repetitive gestural image, the Power Catchment, multiple times throughout the interaction to maintain coherence in the discussion of the meaning of “power up.” The teacher also imitated the student’s catchment in her depiction of “turn on,” which demonstrates that she attended to student gesture and aligned with the students in their embodied thinking. In each instance, the teacher and student catchments served specific instructional functions summarized in Table 4.3. Thus, in addition to the functions of catchments identified in the previous excerpts, the Power
Catchment was employed by the teacher as a gestural clue for eliciting student response, while the Turn On Catchment was engaged by the student as a confirmation of her response. The three sequences in which the catchments helped to accomplish pedagogical actions complement the sequences identified in the previous excerpts: 1) teacher illustration of meaning used as a prompt in eliciting student response—student verbal and gestural interpretation and elaboration; 2) student elaboration—teacher acknowledgement; 3) teacher acknowledgement—student confirmation.

**Table 4.3. Instructional functions of catchments in Excerpt 4.3: “Power Up”**

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power C</td>
<td>1</td>
<td>Teacher</td>
<td>Illustration of meaning to elicit student response</td>
<td>Metaphorical</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Teacher</td>
<td>Clue to overcome difficulty in eliciting student response</td>
<td>Metaphorical—larger amplitude</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Teacher</td>
<td>Acknowledgement of student response</td>
<td>1) Metaphorical 2) Deictic</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Teacher</td>
<td>Illustration of definition</td>
<td>Metaphorical</td>
<td>41-42</td>
</tr>
<tr>
<td>Turn On</td>
<td>1</td>
<td>Student G</td>
<td>Speech-gesture elaboration of the teacher’s explanation</td>
<td>Iconic</td>
<td>33-34</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Student G</td>
<td>Confirmation of response</td>
<td>Iconic</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Teacher</td>
<td>Illustration of definition</td>
<td>Iconic</td>
<td>46-49</td>
</tr>
</tbody>
</table>

The teacher continued employing gestural holds to signal that the issue under discussion has not been resolved. The image of the central topic suspended in the students’ publicly accessible view served as a reminder and a reference point to the main topic/problematic point of the discussion. The gestural hold also became part of the teacher’s elicitation technique in combination with her eye gaze moving around the class.

The importance of catchments as instructional tools and their functions will also be central in Excerpt 4.4 that follows, with further evidence for student receptivity of teacher gesture in the form of verbal and gestural interpretations. The analysis will also focus on distinctive features in the teacher and students’ gestures, which reveal characteristics pertaining to the roles of a teacher.
and a student in classroom interaction. In addition, we will observe how teacher catchments provide a glance at the teacher cognition unfolding on her hands.

4.3.2 Differences in teacher and student catchments

Excerpt 4.4: “Waves”

Excerpt 4.4: “Waves” is an example of how the teacher employed iconic, metaphorical, emblematic, and deictic gesture to differentiate the meanings of two homonyms: “waves” as a noun and “waves” as a verb. She made her explanation visually coherent through repetitive catchments, which shed some light on the teacher’s cognition. The students oriented to the teacher’s gesture-based mediation by imitating her catchments and producing verbal elaborations of her explanation. The excerpt occurred in Class 8 during group work focused on discussing the meanings of “500 Most Frequently Used Words” in English. Students from three groups were involved in the discussion. Group 1 consisted of: A (male, L1 Arabic), Ar (female, L1 Arabic), and N (female, L1 Arabic). Group 2 included: B (male, L1 Vietnamese), C (female, L1 Portuguese), and F (male, L1 Arabic). Finally, Group 3 was comprised of: Sr (male, L1 Arabic) and By (female, L1 Arabic). Initiated by a student from Group 1, the interaction subsequently engaged the students from the two neighboring groups.

The discussion opens as student N expresses her lack of understanding of the meaning of “waves” (line 3). The teacher responds by indicating that the word has “two different meanings.” She first explains its meaning as a noun by using it in context: “when you’re in the ocean, and you see the waves, the water” (lines 8-22). The verbal example is enhanced by the teacher’s vivid, if not dramatic, visualization of ocean waves. She first describes the setting and moves her right hand to the right but also slightly upward and downward in preparation for picturing the
waves (lines 9-11). The teacher holds her hand in preparation, gazing at N. As she starts producing the gesture that imitates the shape and movement of waves, student N performs a smaller “waves” gesture simultaneously with the teacher (lines 16-17, Figure 4.17). The teacher and the student’s hand movements are now turned into a catchment further referred to as the Waves Catchment (1), whose crucial feature is the upward and downward direction of the motion. By producing the catchment synchronously, the teacher and student demonstrate interactional synchrony similar to the one observed in the excerpts “Toward” and “Power Up.” Their actions signal “congruence of mental states” (Scheflen, 1964, p. 409), in which student N’s understanding of “waves” as expressed in her gesture aligns with that expressed by the teacher.

Excerpt 4.4: “Waves”

1  N:    teacher,
2  T:    yeah
3  N:    I don’t understand this word
4  T:    waves.
5      that has two different meanings.
6  one (0.2) it can be a {noun}
7  {BH container gesture}
8      {when you’re in the ocean,}
9      {moves RH from center-center to the right, slightly upward
10     and slightly downward, palm facing downward;
11     makes a slight beat at “ocean”}
12      {(0.4)}
13  T:    {holds, gazes at N}
Meanwhile, the teacher reaches the culmination of her portrayal of waves as she raises her hand high above her head, to the left, and downward in the shape of a wave (lines 19-20, Figures 4.18-19). The dramatic effect of the teacher’s performance is amplified by her facial expression as she widens her eyes and raises her eyebrows. It is worth comparing the teacher’s depiction of
waves with the one produced by student N prior to this. The student’s gesture had a small gesture box, being limited to the central chest area so that it was barely visible to her group mates. The teacher’s gesture had a markedly larger gesture box, ranging from the extreme periphery on her left to the extreme periphery on her right and from above her head to her waist. In this way, the teacher’s gesture was highly visible to the students across the three neighboring groups. These differences in the teacher and student’s gestures (that constitute the same catchment) correlate to the differences in their functions. The teacher’s gesture serves as an instructional tool intended for a number of students to view, which motivates its highly emphatic, dynamic, and somewhat exaggerated nature. The student’s gesture serves more of a private function as a learning tool in her pursuit of understanding the new meaning. This is reflected in the features of student gesture: restricted amplitude and limited visibility.

As the teacher continues gesturing and pronounces “water,” she shifts her gaze to Sr, a student from Group 3 (line 22). (It remains unclear which actions produced by Sr compelled the teacher to redirect her gaze towards him since he was outside the camera view.) Sr joins the discussion by initiating a verbal elaboration of the teacher’s explanation, “magnetic waves” (line 23). This collocation reflecting the metaphorical meaning of “waves” receives the teacher’s acknowledgement as she repeats the student’s phrase and points at him (lines 24-25). Sr’s contribution shows that he has been following the discussion even though he was not part of Group 1. It is likely that due to its high visibility and expressive nature, the teacher’s gesture may have attracted the attention of a student from the neighboring group and encouraged him to participate.

Excerpt 4.4: “Waves” (continued)

26 T: {it can also be a
27 F: {shifts gaze to T
28  T:  \{verb\}
29  \{points at N\}
30  raises RH, waves several times, keeps waving through line 43  Bye C
31  A:  °bye°
32  F:  \{↑o:h\}
33  A:  \{nods head\}

34  T:  \{bye-↑bye\}

Figure 4.20. Lines 34-35: “bye-bye”

35  A:  \{raises RH palm from desk and waves\}  Bye C

The teacher next indicates that “waves” can also be a verb and silently enacts its meaning through an emblematic “Good bye” gesture (line 30). This illustration elicits a sign of understanding from student A, who identifies the emblematic meaning of the gesture and verbalizes it as “bye,” followed by a head nod (lines 31, 33). It also elicits a token of the changed cognitive state, “oh,” (Heritage, 1984) from F, a student from the neighboring Group 2, who was attending to the explanation of “waves” as a verb. The teacher next identifies the emblem verbally by producing direct speech, “Bye bye,” with a vivid intonation and a marked shift to higher pitch at the second “bye” (line 34). Simultaneously, student A produces another sign of understanding as he imitates the teacher’s gesture, turning it into a catchment referred to as the Bye Catchment (line 35, Figure 4.20). Retaining the crucial feature—the waving movement, A’s gesture, however, looks markedly different from the teacher’s. He only engages the palm of his
hand in waving, holding it at chest level while his arm is resting on the desk. The teacher’s waving engages the arm bent at elbow as well as the palm. Moreover, her arm is held at chest level with her palm moving as high as her face. The differences in teacher and student enactments also involve gaze direction. The teacher moves her gaze across several students from the three groups, while A gazes toward his front. These differences in the shape of the catchment and gaze direction indicate that the teacher’s gesture is intended for the students to attend to, which requires high visibility and expressiveness, while the student’s gesture is mostly intended for himself as a learning tool. We can see how the same catchment can serve different purposes when employed by participants that hold different institutional roles—that of the teacher versus a student.

Excerpt 4.4: “Waves” (continued)

36   { (0.2) }  
37   T:   { shifts gaze to RH, keeps waving }  

Figure 4.21. Lines 38-39: “the”  

38   { the the action with my } hand, (0.4)  
39   { touches right forearm with LH index finger; shifts gaze to students }  
40   is { wa: ves }  
41   { nods head }  

42   T:   { (1.0) }  
43   { keeps waving }  
44   two { totally different meanings }  
45   { moves BH apart, index fingers extended }  
46   N:   yeah
An interesting shift in the teacher’s mediational strategy occurs on lines 36-37, where she for a moment directs her gaze to her waving hand, observing her own gesture. That may reflect the case described by Streeck (2013), when speakers gain “visual awareness” (p. 87) of their gesture as they gaze at their gesturing hands, which in turn makes them “fully aware of their own communicative [and in this case, pedagogical] intent” (p. 86). This conjecture seems to be confirmed by the teacher’s actions following the shift in her gaze direction. She produces a meta comment on her emblematic hand movement and at the same time points to her gesture with her other hand (lines 38-39, Figure 4.21). As the teacher produces the comment preceded by disfluency, “the…the action with my hand is waves,” she makes a deictic move by touching the forearm of the waving hand with the index finger of the other hand. By doing this, the teacher shifts from her character viewpoint to the observer viewpoint, which allows her to create psychological distance between herself and her gesture. This, in turn, may enable the teacher to make her hand movement an object of contemplation—an “object” that can be used as an instructional tool. The shift in the teacher’s gestural perspective is motivated by the local instructional needs of focusing the students’ attention on the very action of waving, that is, the iconic rather than emblematic aspect of the Waves Catchment. Observing her own gesture may well have helped the teacher to reshape her mediational strategy.

Excerpt 4.4: “Waves” (continued)

48 F: and another meaning?
49 T: umm,
50 F: another meaning,
As the teacher moves away from Group 1, student F from Group 2 asks her for clarification of “waves” as a noun since he missed its previous explanation (line 48-50). The teacher responds with an explanation consisting of a string of examples. She first illustrates the literal meaning, “ocean waves,” and accompanies it with the Waves Catchment (2) produced with both hands (lines 52-53, Figures 4.22-23). This time, the portrayal of waves is not as spectacular as the Waves Catchment (1) produced on line 19: the teacher only raises her hands to the face level rather than high above her head and the dramatic facial expression is missing. These features make the second version of the catchment appear to be an echo of the first one. One might wonder why gestures used by the teacher for similar instructional purposes would look different. Some possible explanations are that the repetition of the catchment required less cognitive effort than its initial creation and that this catchment was intended for only one or two students. As the teacher continues to gesture, student F produces a sign of understanding in the form of “uh” with
a listing intonation, followed by a more definitive elongated “uh” with falling intonation. He then disengages from the teacher by withdrawing his gaze and turning away from her (line 59).

Excerpt 4.4: “Waves” (continued)

60  T:  turns to Sr and extends RH towards him, palm facing upward
61  Sr:  shifts gaze from F to T’s hand
62  Sr:  magnetic [waves]
63  T:  {[magnetic waves]
64  }{moves RH upward to chest and downward to waist}

Figure 4.24. Lines 65-68: “electrical waves”

65  {electrical wa:ves}
66  {gazes in front of herself, holds LH @ chest, palm facing body,
67  moves RH upward to face and downward to chest
68  in the shape of a wave; shifts gaze back to Sr}        Waves C 3
69  Sr:  [yeah

Figure 4.25. Lines 70-71: “radio waves”

70  T:  {[radio [wa:ves]
71  }{rotates BH around each other @ chest, narrows eyes}        Waves C 4
72  Sr:  [radio=yeah.
The teacher continues her mediation redirecting her gaze towards Sr as she tries to elicit his earlier example of the metaphorical meaning of “waves.” She does so by producing a designedly incomplete utterance (DIU—Koshik, 2002) and inviting Sr to complete it as she extends her hand with the palm facing upward towards him (lines 57, 60). This hand movement referred to by Kendon (2004, p. 265) as “Palm Addressed (PA) gesture” conveys an expectation of receiving something and can be used as a request for specific information or explanation. Student S orients to it by shifting his gaze to the teacher’s hand and providing the expected completion: “magnetic waves” (lines 60-61). The teacher’s verbal acknowledgement is accompanied by the PA gesture produced as a beat (line 63). In choosing not to repeat the Waves Catchment along with “magnetic waves,” the teacher may be orienting to the fact that Sr already displayed his understanding of “waves” previously.

The teacher resumes the Waves Catchment in listing a new example, “electrical waves,” not mentioned before (lines 66-68, Figure 4.24). Redirecting her gaze into space in front of her, she positions her left hand at chest and performs a smaller version of the Waves Catchment (3) above it with her right hand. The shape of the catchment may reflect the teacher’s understanding of the concept of electrical waves, which seems to include the presence of an axis portrayed with her left hand. This image seems to correspond to a depiction of the scientific concept of electromagnetic waves provided in Figure 4.30. The gesture box of this catchment is even smaller than the one produced for “ocean waves” in lines 52-53, ranging vertically from chest to face and horizontally from center to shoulder. This makes the Waves Catchment (3) appear to be an echo of its versions (1) and (2) (Figures 4.26-28). Owing to its repetition, the catchment

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4 It is a DIU in the sense that it prompts the action that the teacher wants the students to perform by offering the “beginning of a student’s turn” (Koshik, 2002, p. 303) and inviting the students’ completion. The specific functions of the DIUs discussed by Koshik are somewhat different from the ones discussed here, involving “eliciting a self-correction” or “eliciting a continuation of the task” (p. 303).
gradually loses its intensity and expressiveness. On the other hand, the smaller gesture box may reflect the metaphorical nature of the meaning, where “electrical waves” are conceived of as smaller than “ocean waves.” Synchronized with such verbal elements as “ocean waves” and “electrical waves,” the catchment creates a visual bridge between the literal and metaphorical meanings of the noun.

After Sr shows agreement with “yeah,” the teacher produces a concluding example, “radio waves” (line 70). It is accompanied with another depiction of waves as the teacher rotates her hands and also squints as if it were difficult to discern them (line 70, Figure 4.25). The gesture’s shape may reflect the way radio waves are often portrayed: having a round rather than wave-like shape as depicted in Figure 4.31. The presence of the upward and downward movement along with the reference to the same concept suggests that this is the fourth version of the Waves Catchment. This image of waves has the smallest gesture box to compare with the previous ones, being limited to the center-center area (Figure 4.29). The hand movement also appears more ambiguous and even somewhat careless. The teacher’s actions elicit agreement on Sr’s part as he repeats “radio” and adds “yeah” (line 71).

**Figure 4.26.** Lines 18-19. Waves Catchment (1)  
**Figure 4.27.** Lines 51-52. Waves Catchment (2)
Discussion

In this excerpt, the teacher employed hand gestures to differentiate between the meanings of homonyms. She engaged iconic gesture to illustrate the literal meaning of “waves” as a noun, metaphorical gesture to depict its metaphorical meaning, and emblematic gesture to enact the meaning of “waves” as a verb, combined with a deictic to highlight the action of waving.

The teacher maintained coherence in her discourse through the use of catchments, where the same image of the Waves Catchment accompanied different examples of “waves,” reflecting its literal and metaphorical meanings: “the waves, the water,” “ocean waves,” “electrical waves,” and “radio waves.” The reiterative image underlying a range of examples helped to create cohesive links between the literal and metaphorical meanings of the noun. The teacher’s repetitive use of the same catchment makes close analysis of differences between its multiple variants particularly relevant. The comparison of the four versions of the Waves Catchment revealed gradual “fading” of the gestural features that made the catchment look emphatic and
spectacular such as expanded gesture box, large amplitude, and an accompaniment in the form of an emotional facial expression. Specifically, the second version of the catchment resembled an echo of its first version while the fourth version resembled an echo of the third. One explanation for a more dramatic nature of the Waves Catchment (1) could be that because it was employed in introducing the meaning, the teacher chose to make it as illustrative, expressive, and memorable as possible. Following this instructional intent (not necessarily conscious), she invested more cognitive effort and multimodal resources into the initial version of the Waves Catchment than into its repetitions. The size of the teacher’s gesture was also motivated by the number of its addressees. Thus, the Waves Catchment (1) was intended for a group of students while its other variants were addressed to only two students. These observations raise an intriguing question: What can the differences in the versions of the same catchment reveal about a teacher’s ongoing cognition? This question brings us back to the earlier discussion in Excerpt 4.3: “Power Up” with regard to gesture portraying abstract intangible concepts.

The teacher’s gesture-based explanations appeared to be effective in that they elicited signs of understanding from the students who were initially confused. The students displayed their comprehension by imitating the teacher’s catchments. N reiterated the Waves Catchment (1) while A mimicked the Bye Catchment. Student imitations of the teacher’s catchment helped to maintain continuity of teacher-student discourse and thinking by showing that they were unfolding along similar lines. The other way in which students reacted to the teacher’s gesture-based mediation was providing verbal elaborations of her explanation. Student S was able to map the literal meaning portrayed and explained by the teacher onto the metaphorical domain as he produced an example “magnetic waves.” Student A showed signs of converting the information
expressed in the teacher’s emblematic “Bye” gesture into his verbal expression as a sign of understanding the meaning of her action.

While the teacher and student catchments shared crucial features reflecting the core meaning of “waves” as a noun and “waves” as a verb, they also displayed marked differences in their shape. Such divergent features as restricted versus expanded gesture box, limited versus high visibility as well as neutral versus emphatic gesture reflect important differences in the functions of the student and teacher gesture. Specifically, they point to the prevalence of the private/learning function in the first case and the public/instructional function in the second, which more broadly, reflects the institutional roles of student and teacher. In addition, high visibility and emphatic nature of the teacher’s gesture seemed to play a role in engaging students from other groups in the discussion. This suggests that teacher gesture can have a positive effect on student participation.

The excerpt also reveals the importance of using different gestural viewpoints for instructional purposes. Thus, shifting from the character viewpoint to the observer viewpoint allowed the teacher to disambiguate her emblematic-iconic gesture of waving by highlighting the action itself, which was crucial for student understanding the meaning of “waves” as a verb. The fact that the teacher pointed at her own hand movement to make it the focus of the students’ attention indicated that she treated her gesture as an instructional tool. The teacher’s actions also point to the importance of gaze as a focus of analysis, which can shed light on the unfolding of teacher cognition. In this case, observing her own gesture may have helped the teacher to reshape her mediation. The excerpt also shows the importance of teacher interactive gesture such as the palm-addressed gesture in constructing a joint explanation and acknowledging student response.
In each of its instances, catchments accomplished specific instructional functions, which were not as diverse as in the previous excerpts. Both teacher catchments, the Waves Catchment and Bye Catchment, served as illustrations of the literal meaning of “waves.” In addition, the Waves Catchment also portrayed the metaphorical meaning of the noun. The students’ catchments served as signs of their understanding the meanings portrayed by the teacher. The repetitive sequence of actions accomplished with the help of the catchments included: teacher illustration of meaning—student sign of understanding.

**Table 4.4. Instructional functions of catchments in Excerpt 4.4: “Waves”**

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waves C(1)</td>
<td>1</td>
<td>Teacher</td>
<td>Beginning to illustrate literal meaning</td>
<td>Iconic</td>
<td>15</td>
</tr>
<tr>
<td>Waves C</td>
<td>2</td>
<td>Student N</td>
<td>Sign of understanding</td>
<td>Iconic</td>
<td>16-17</td>
</tr>
<tr>
<td>Waves C(1)</td>
<td>1</td>
<td>Teacher</td>
<td>Continues to illustrate literal meaning</td>
<td>Iconic</td>
<td>19-20</td>
</tr>
<tr>
<td>Waves C(2)</td>
<td>3</td>
<td>Teacher</td>
<td>Illustration of literal meaning</td>
<td>Iconic</td>
<td>52-53</td>
</tr>
<tr>
<td>Waves C(3)</td>
<td>4</td>
<td>Teacher</td>
<td>Illustration of metaphorical meaning</td>
<td>Metaphorical</td>
<td>66-68</td>
</tr>
<tr>
<td>Waves C(4)</td>
<td>5</td>
<td>Teacher</td>
<td>Illustration of metaphorical meaning</td>
<td>Metaphorical</td>
<td>71</td>
</tr>
<tr>
<td>Bye C</td>
<td>1</td>
<td>Teacher</td>
<td>Illustration of literal meaning</td>
<td>1) Emblematic 2) Iconic</td>
<td>30</td>
</tr>
<tr>
<td>Bye C</td>
<td>2</td>
<td>Student A</td>
<td>Sign of understanding</td>
<td>1) Emblematic 2) Iconic</td>
<td>35</td>
</tr>
</tbody>
</table>

**4.4 Summary and Conclusions**

In this chapter, I have examined the ways the teacher employed gesture as part of her vocabulary explanations and the ways students oriented to her gesture-based mediation. The analysis predominantly focused on the instructional functions of teacher and student gesture primarily enacted in the form of catchments. It provided evidence for the beneficial role of
teacher gesture in developing student understanding of L2 meanings, which was displayed in their creative imitations of the teacher’s gesture as well as verbal interpretations and elaborations of her gesture-based explanations.

In her mediation aimed at facilitating student understanding of L2 vocabulary, the teacher employed gesture involving a wide range of dimensions: from haptic and deictic to iconics, metaphorics, emblems, and beats. Thus, deictic along with haptic gestures allowed the teacher and students to illustrate the meaning of an L2 item by connecting it to a referent in the local environment. The teacher’s pointing also served as a visual anaphoric reference to the previously mentioned subject of a discussion. It also helped to focus the student’s attention on a specific referent in the relevant environment. It allowed the teacher, for example, to draw the student’s attention to the action produced in her emblematic “Bye” gesture.

Iconic gesture served as a means of illustrating the literal meaning of L2 vocabulary due to its close resemblance to the real world phenomena portrayed in gesture. Its use as a mediational tool in picturing the meanings of nouns, verbs, and prepositions allowed the teacher to make them visible and publicly accessible to the students, which in turn facilitated their understanding of the L2 meanings. The ability of iconic gesture to imitate real-world actions made it a potent tool for illustrating such action-based meanings as the ones conveyed by verbs and prepositions. Iconic gesture was also crucial in distinguishing the meanings of homonyms by linking the words that have identical form to the images that reflect divergent meanings.

Metaphorical gestures allowed the teacher to present abstract L2 concepts in a concrete and visible form to facilitate students’ understanding. The teacher’s use of metaphorical gesture, however, raised issues about the most effective ways of shaping such gestures so that they reflected the essential aspects of the concepts portrayed. It seems particularly challenging to
shape the gesture in a way that allows the teacher to present abstract and intangible concepts in the clearest and unambiguous form and therefore minimize student misinterpretations of the meaning. In the data discussed in this chapter, such metaphorical meanings were related to the phenomenon of electricity as reflected in the phrases, “power up” and “electrical/magnetic/radio waves.” It appears that a certain level of the teacher’s understanding of the concepts in question was necessary for her to convey their essential features in her metaphorical gesture. Another source of student confusion was the placement of the stroke in the teacher’s gesture, which profiled the element of meaning that did not seem to be the central focus of instruction (“power” versus “power up”). This raises questions related to shaping gesture-based mediational strategies: Is it possible to ensure that the stroke of a gesture highlights the crucial features of the concept under consideration? Which aspects of the L2 concept depicted in gesture have to be profiled to benefit student learning?

The gesture employed by the teacher and students in their discussions of L2 vocabulary was pervasively enacted in the form of gestural reiterations, that is, catchments. Three ways of creating catchments in the flow of interaction were observed: 1) the teacher employed similar gestures repetitively throughout her explanation of an L2 item; 2) students imitated the gesture introduced by the teacher; 3) the teacher imitated the student’s gesture. In the first case, the catchments can be described as monologic, while in the second and third cases they can be characterized as dialogic. Monologic catchments helped the teacher to maintain coherence of her explanations, tying together different verbal elements related to the main topic of the discussion. Visualized through repetitive gestural images, the main topic became a publicly accessible reference point. For example, the same image of “toward” was coupled with the word itself, its definition, and contextualized examples, visually marking them as related to the same topic. In
the discussion of “waves,” the catchment accompanying the examples of the word’s literal and metaphorical meanings allowed for maintaining coherence between these two types of meanings.

In employing the same catchment multiple times, the teacher modified its features, reshaping her mediation in reaction to student difficulties. This aligns with Flevares & Perry’s (2001) and Taleghani-Nikazm’s (2008) findings, which indicate that teachers tend to reshape their gestures depending on the difficulties experienced by the students. In our data, the teacher’s monologic catchments were also reshaped through the collaborative process of reciprocal imitation, in which they acquired some features of student gestures and turned them into dialogic catchments. Such mirroring may have contributed to aligning the teacher and student cognitive states through aligning their bodily movements. Close analysis of the features of the teacher’s catchment repeated multiple times may shed some light on the unfolding of her thinking-for-teaching⁵. Thus, the comparison of the teacher’s four catchments employed in the “Waves” excerpt revealed a “fading” effect, where through repetition, such features as amplitude, gesture box, and emphatic quality of a catchment became gradually attenuated. These changes seem to be motivated by such factors as instructional functions at hand, the number of addressees, and whether it is an introduction or repetition of gesture.

The major way in which students oriented to the teacher’s gesture-based mediation was to imitate the teacher’s gesture and in this way, create dialogic catchments, which extended coherence of classroom discourse across multiple speakers. Reflecting Vygotsky’s (1987) view of imitation, the students’ gestural imitations were not complete replicas of the teacher’s gesture. Rather, the students creatively reworked the teacher’s hand movements and their meaning through their own thinking and background knowledge. Such imitations in the form of catchments externalized (to a certain extent) students’ thinking and reflected their understandings.

⁵ Adapted from Slobin’s (1996) term, “thinking for speaking”
of L2 meanings as being aligned or misaligned with the teacher’s. In some cases, the teacher treated student imitation of her catchment as a crucial sign of understanding, which was prioritized over the other verbal and non-verbal displays of agreement. She oriented to such gestural confirmation as a signal that the mediation had been sufficient and could be terminated.

Importantly, in some cases, correct understanding of an L2 word by the students first emerged in gesture before making its way into verbal expression. This aligns with Goldin-Meadow’s (2003) findings, where students’ correct solutions in solving math problems first came out on their hands before they were able to develop a “discourse framework” for expressing them in verbal form (p. 29). Student catchments not only served as signs of understanding new L2 meanings, but were also employed as the students struggled to comprehend meaning. In both cases, dialogic catchments appropriated from the teacher served as an important learning tool in students’ mastering L2 word meanings.

The other way in which students oriented to the teacher’s gesture-based explanations was by providing verbal interpretation or elaboration of the information conveyed in her speech-gesture units. In reworking the teacher’s multimodal utterances, the students were able to transfer the literal meanings portrayed by the teacher into the metaphorical domain and formulate them verbally. In another case, a student was able to verbalize the information conveyed in the teacher’s emblematic gesture, showing his understanding of the gesture’s meaning. Orienting to the teacher’s speech-gesture unit, another student provided a verbal elaboration in the form of a synonym, signaling her improved comprehension. These findings point to the benefits of gesture for developing L2 verbalizations of the meanings conveyed in hand movements, which is particularly important in the context where the purpose of instruction is to develop student ability to speak in the second language.
The analysis of catchments presented in this chapter complements McNeill’s (2005) theoretical view of catchments by elaborating their functions in the instructional context of a language classroom. In addition to their pedagogical and learning functions, catchments served a range of instruction-related purposes in the sequence of interaction. Thus, the teacher’s catchments served as: 1) an illustration of a new word meaning accompanying its introduction, definition or contextualized examples; 2) illustration of a word meaning as a prompt used as part of elicitation technique; 3) confirmation/acknowledgment of student response involving gestural display of understanding. Students’ catchments were engaged in accomplishing the following obuchenie-related actions: 1) mediation in achieving and signaling the understanding of an L2 meaning; 2) confirmation of the student’s own response; 3) solicitation of the teacher’s clarification; 4) a prompt in the teacher’s word search; 5) elicitation from the teacher of an L2 item searched for by the student. The most typical sequences of obuchenie actions accomplished with the help of catchments were identified as the following: 1) teacher illustration of meaning—student sign of understanding; 2) teacher illustration of meaning as a prompt in eliciting student response—student verbal and gestural interpretation/elaboration; 3) student response showing understanding—teacher acknowledgement/confirmation; 4) teacher acknowledgement—student confirmation of her/his understanding; 5) student soliciting clarification—teacher remediation (illustration of meaning in definitions and examples).

Teacher gesture exhibited distinctive features related to its instructional nature that often contrasted with the attributes of student gesture. These features included an expanded gesture box, large amplitude, and emphatic if not dramatic manner of performance. Acting in concert, they made teacher gesture highly expressive, visible, and publicly accessible. These qualities of teacher hand movements contributed to making her explanations more engaging as they seemed
to foster student participation in classroom discussion and expanded their learning strategies to include gesture. Student gesture displayed quite the opposite features including a restricted gesture box, smaller amplitude, limited visibility, and lack of expressive and emphatic qualities. These differences in student and teacher gestures point to the prevalence of the private-learning function in the first case and the public-instructional function in the second case, which reflects the institutionalized roles of the student and teacher in the classroom context.

Salient was the role of gestural holds employed by the teacher and students in their classroom interaction. In full agreement with Sikveland and Ogden’s (2012) findings, they were employed by the participants to seek shared understanding of L2 meanings. On the teacher’s part, a gestural hold was used as a publicly available visualization of the discussion’s central topic suspended in the student’s visual field. In this capacity, it served as an imagistic reminder and a reference to the main topic of the interaction. Combined with eye gaze, a gestural hold was also part of the teacher’s elicitation technique intended to invite student responses. In one case, it also served as an elicitation of more convincing signs of understanding from the student. On the students’ part, gestural holds were used as requests for clarification and further explanation. We can see how these interactional functions are closely tied to the obuchenie goals at hand.

Another aspect of gesture deployed by the teacher as an instructional tool was character and observer viewpoint. Thus, depicting the meaning of “toward,” the teacher employed character viewpoint, which, according to Gerofsky (2010), can play important pedagogical functions by enhancing the students’ personal engagement with the topic, deepening their understandings, and even improving retention. The findings presented in this chapter complement Gerofsky’s (2010) findings by showing that switching to the observer viewpoint can also serve important instructional functions. Such a shift allowed the teacher to observe her own instructional gesture
as an object of pedagogical contemplation in shaping her instructional strategy. The observer viewpoint also allowed the teacher to explicitly draw the students’ attention to her instructional hand movement.

The analysis also points to the importance of such non-verbal feature as the teacher’s eye gaze, which can shed more light on ongoing teacher cognition. Moments when the teacher’s gaze was directed at her own hands appear particularly intriguing, given that this gaze direction is often an attribute of private speech and/or thinking through a problem (Lantolf, 2010; Smotrova & Lantolf, 2013); however, this does not seem to be the case in the data presented in the present chapter. Rather, the gaze directed at gesture was part of the teacher’s embodied enactments of the meanings in question. Thus, in adopting the character viewpoint (in “toward” explanation), the teacher’s gaze directed at her hands contributed to enhancing the authenticity of the situation portrayed in gesture. Importantly, in imitating the teacher’s gesture, the student in question also adopted the character viewpoint and directed her gaze at her gesturing hands. When the teacher adopted the observer viewpoint (in the explanation of waves as a verb), she also shifted her gaze to her gesturing hand, which allowed her to treat her own gesture as an object of reflection. This, in turn, helped the teacher to reshape her further mediational strategy.

The local ecology of a beginner level language classroom, where the students and teacher do not share a common native language, positioned gesture as an important interactional and obuchenie resource. Thus, in situations when the shared L1 could be used as an affordance in clarifying L2 meanings and checking student understanding, gesture came into play. Due to its holistic nature, it allowed the creation of the spatial and motoric features of the described action or entity on the spur of a moment. Conveying the same amount of information sequentially in speech would have taken considerably more classroom time. In this respect, gesture served as an
economical (Kendon, 2004) instructional tool, saving the teacher and students classroom time. In their gestural enactments of word meanings, the teacher and students often displayed a high level of interactional synchrony as their hand movements became co-temporally coordinated. This helped them to build alignment in their cognitive states, which can be an important factor in enhancing student learning (Atkinson et al., 2007).
Chapter 5

Teacher-Student Gesture in Obuchenie of Synonymy

5.1 Introduction

This chapter presents the analysis of the teacher and students’ gesture employed in their discussions centered on the meanings of synonyms. The analysis focuses on the ways the teacher visualized synonymic relationships between L2 items through iconic and metaphorical gestures and the ways the students appropriated and employed the teacher’s gesture as a learning tool in using the acquired L2 items in a new context.

The chapter first reports on the teacher’s use of a catchment as an instructional tool that allowed her to visualize the element of meaning shared by the synonyms. The reiterative image of the catchment, accompanying different synonymic items, served as a cohesive device—a visual thread connecting a string of synonyms. Importantly, the teacher’s way of visualizing synonymy through gesture was appropriated by the students, who employed catchments for generating new synonyms and using them in a new context. In this way, the students appropriated the catchment as a learning tool for improving their receptive and productive vocabulary knowledge.

The second section discusses how the teacher and students visualized the semantic phenomenon of synonymy through their metaphorical gesture. This gesture became salient as it was employed iteratively as a catchment across classes. It provided a concrete and visible form for the abstract and intangible concept of synonymy by highlighting the essential features of its meaning. Compared with gestures depicting other semantic categories such as homonymy and
antonymy, the teacher’s use of the Synonymy Catchment raises issues about the optimal ways of shaping metaphorical gesture with the goal of instruction.

5.2 Catchment in Depicting Shared Meaning

This section presents an extended example of how the element of meaning shared by a set of synonyms was made concrete and visible through the teacher’s catchment. Having initially used the catchment as an elicitation technique, the teacher further coupled it with different synonyms. The students oriented to the teacher’s gesture-based mediation by imitating her catchment as they generated new synonyms. An hour later, in the second session of the same class, the students employed the acquired synonymic lexical items in a new context, which served as a sign of learning.

5.2.1 Catchment in eliciting synonyms

Excerpt 5.1: “Spot” (Part 1)

The first part of the extended excerpt occurred in Class 1 during the whole-class review of vocabulary from the text “Can Animals Think?”, introduced to the students in the previous class, which took place before the spring break. The teacher carried out the review by projecting the visual illustrations of the vocabulary on the screen and asking the students to identify their meanings.

Excerpt 5.1: “Spot” (Part 1)

1  T: {aright, >what about this one< (1.0)}
2  T: {gazes at screen}
3  Ss: {spot?}
4  T: {shifts gaze to class}
The excerpt begins as the teacher pulls out the slide showing the images of “spot” and asks the class which vocabulary item they illustrate. After a pause, the students provide the correct response, emphatically confirmed by the teacher (line 5). She highlights the word “spot” prosodically and gesturally by moving her right hand downward and hitting its palm against the palm of her left hand with a distinctive clapping sound (line 6, Figures 5.1 and 5.2). The shape of this iconic gesture resembles the image on the slide—a spotlight cast down on a flat surface. The brevity of the gesture, its rapid movement, and the sound it produced resemble the phonological form of “spot,” producing an effect of synesthesia or “union of senses.” In this way, the teacher’s gesture for “spot” combined with the sound it produced appears to intricately combine the features of the word’s meaning and form.

Rather than retracting the “spot” gesture, the teacher continues to hold it in the center-center area during the pause as she moves her gaze around the class (line 8). These actions serve as a means of establishing “spot” as the new topic of the discussion and the central focus of the
students’ attention. The students orient to this by repeating the word as they try to mimic the teacher’s pronunciation. Holding the image of “spot” in publicly accessible view, the teacher sets the task by asking the students to provide a synonym (line 10). Her question fails to elicit a clear response from the students as one of them indistinctly says, “hot,” most likely confusing a synonym for a rhyming word\(^6\) (line 11).

*Excerpt 5.1: “Spot” (Part 1—continued)*

12 T: \{\textit{uh}\}\)
13 \{shifts gaze to her RH as she moves it slightly upward, reshaping her palm from flat to half-cupped facing downward\}

![Figure 5.3. Line 16](image)

15 T: \{((1.0))\}
16 \{moves RH downward to lap and holds\} \hspace{1cm} \text{Spot C}
17 N, G: \{gaze at T’s hand\}
18 Sr: \{gazes at T\}

19 T: \{\textit{what’s}\}
20 \{shifts gaze to class, makes a beat @waist\} \hspace{1cm} \text{Spot C}

\(^6\) In their group work, students were usually asked to identify synonyms, antonyms, homonyms, and rhyming words. They often displayed confusion about these categories.
a good synonym

Figure 5.4. Line 21: “synonym”
{slightly rotates BH alternately @ chest, center-center, palms in a bunch gesture}

for [spot.]

Figure 5.5. Line 22: “spot”
{moves BH from chest to waist, palms half-cupped, facing each other} Spot C

The teacher orients to the students’ difficulties in generating synonyms of “spot” by reshaping her mediation. Her utterance begins with a hesitation marker as she shifts her gaze away from the students onto her right hand, switching into a private mode of communication (lines 12-13). Simultaneously, the teacher raises her right hand in preparation as she reshapes her palm from flat to half-cupped, facing downward. She then silently moves her hand downward and completes the gesture with a brief hold (lines 15-16, Figure 5.3). The fact that the teacher had to switch into a private mode indicates that in reacting to the students’ difficulties, she also experienced difficulties in generating a new instructional strategy. As a result, she attempts to deal with the problem by gesturing herself through the search for a better way of eliciting student
responses. Her resulting container gesture directed downward iconically depicts bounded space, with the shape still reminiscent of the spotlight cone.

Apart from the self-regulatory function, the teacher’s gaze directed at her hands may also have social consequences, serving as a deictic that directs the students’ attention to the gesture. In fact, three of the four students that are in the camera view have their gazes fixed on the teacher while N and G’s gaze is specifically directed at the teacher’s hand, which indicates that they are attending to her gesture (lines 17-18). Having terminated the gesture, the teacher switches back to the social mode as she redirects her gaze to the class (line 20) and resumes her speech by starting to repeat the question, “What’s a good synonym for “spot”?”. Simultaneously, she echoes the gesture produced in line 16 by making a beat with smaller amplitude (line 20). According to McNeill (2005) and Kita (2000), an echo gesture occurs in the cases of gesture-speech asynchrony, where the stroke is postponed since the speech is suspended as the speaker is trying to figure out the verbal affiliate. Meanwhile, the speaker’s thinking unfolds through her gesture, which in turn helps to generate the speech. When the speaker produces the verbal component of the meaning, the gesture-speech synchronization is restored: the stroke of the echoed gesture is placed on the retrieved verbal element, which constitutes the growth point. In full agreement with this view, the teacher’s echo gesture is synchronized with the verbal utterance and occurs with the stroke on the question word “what’s” (lines 19-20). In a sense, the message conveyed in this growth point (“what’s” plus the image of “spot”) encapsulates the meaning of the entire question: “What’s a good synonym for “spot”?” and captures the core of the students and teacher’s mutual struggle. The repeated container gesture depicting “spot” is turned into a catchment referred to as the Spot Catchment.
Unlike McNeill and Kita’s examples of gesture-speech asynchrony, where gesture produced during speech breakdown helps the speaker to generate a new verbal formulation, in this case, the teacher is unable or chooses not to reformulate the question—its verbal form remains intact (compare line 10 with lines 19-24). It is through gesture and prosody that the important change in the teacher’s instructional strategy occurs. To compare with the initial question, the prosodic emphasis in its repetition shifts from the word “spot” to the word “synonym,” highlighting the crux of the task. The teacher also adds three new gestures to the initial question. The first one, the echo gesture discussed above, was synchronized with “what’s.” The second hand movement accompanies the word “synonym” as the teacher slightly rotates both hands alternately at chest level with her palms shaped as a bunch (lines 22-23). In Kendon’s (2004) terminology, this gesture is called “grappolo or ‘finger bunch,’” where “the digits are all extended but flexed at the knuckles…and drawn together so that they are in contact with one another at their tips” (p. 229). As far as the meaning is concerned, grappolo can be employed “when a speaker is nominating a topic for consideration” and “is trying to clarify or make more specific what is to be considered” (p. 230). The teacher’s grappolo highlights the message for the students that it is specifically “synonyms” that have to be looked for. The two bunches metaphorically depict two synonyms that can be substituted for each other in certain contexts. The idea of substitution is portrayed in the alternating movement, which symbolizes the two options, from which one can choose depending on the context. The teacher’s third gesture is synchronized with the word “spot” (lines 24-26). In this bilateral version of the Spot Catchment (introduced on line 16), the teacher shapes her hands as if holding a container, which she places in front of her body. This iconic depiction of a spot serves as a visual reminder of the word’s meaning.
Excerpt 5.1: “Spot” (Part 1--continued)

27  Sr:  

   Figure 5.6. Line 27: “place”

28  {cups his RH and moves it downward, 
29  palm facing downward, holding a pencil; 
30  holds through line 34}

31  T:  

   Figure 5.7. Line 31: “place”

32  {moves RH forward in Sr's direction and downward, 
33  palm half-cupped facing downward}
34  Ss:  [place 
35  T:  {lo: [(1.0) 
36  {raises RH to chest and holds, palm half-cupped, 
37  moves gaze around class} 
38  S?:  **location**
39  T:  [lo{cation, (0.2) 
40  {moves RH downward to waist, palm half-cupped, 
41  leans body slightly forward} 
42  Sr:  { [point 
43  {moves RH downward, palm half-cupped facing downward}
As the teacher completes her question, student Sr overlaps her with a candidate synonym, “place” (line 27). Importantly, Sr accompanies his conjecture with his own version of the teacher’s Spot Catchment as he cups his hand and moves it downward. He produces the catchment with smaller amplitude than the teacher did, but retains its crucial feature—the cupped shape depicting bounded space. In this way, the student imitates the teacher’s catchment and uses it as a tool for thinking about the synonyms of “spot.” Sr holds the gesture in his pursuit of the teacher’s confirmation (line 30). She enthusiastically acknowledges Sr’s response by repeating it in a louder voice with emphasis. Simultaneously, the teacher marks “place” with the Spot Catchment, energetically performing it with her right hand (lines 31-33). The student only terminates his hold at the end of the teacher’s confirmation so that the two of them retract their catchments simultaneously. This is another case of interactional synchrony between the teacher and a student observed in the previous excerpts, which indicates that they are currently aligned in their ways of thinking.

The teacher continues to elicit more synonyms by producing a designedly incomplete utterance (DIU), which consists of the verbal prompt—the first syllable of the synonym, “lo,”
markedly elongated—and the gestural clue in the form of the Spot Catchment, maintained as a hold (lines 36-37). The teacher’s solicitation of the DIU’s completion is reinforced by her gaze moving around the class. One of the students orients to the teacher’s actions by offering the completion with a candidate synonym, “location” (line 38). It receives the teacher’s acknowledgement as she emphatically repeats “location” and energetically reiterates the Spot Catchment, leaning her body forward (lines 40-41). Previously synchronized with “what’s” and “place,” the catchment is now coupled with another verbal element, “location,” which contributes to the coherence of the teacher’s discourse.

Co-temporally with the teacher’s confirmation of “location,” Sr generates another synonym, “point,” accompanying it with the Spot Catchment so that the teacher’s stroke on “cation” and the student’s stroke on “point” are practically synchronized. We can see how the teacher and student’s actions become finely aligned, signaling that their cognition is unfolding along similar lines. The teacher acknowledges Sr’s contribution by repeating “point” and producing a combination of a deictic and the Spot Catchment as she points at Sr with her hand half-cupped (line 45, Figure 5.8). The teacher and student’s actions become synchronized again as Sr repeats the word “point” for confirmation simultaneously with the teacher and repeats the catchment in synch with her gesture (lines 47-48). In their finely tuned coordination of action, the teacher and student demonstrate an impressive level of interactional synchrony and alignment of mental states.

In the segment of interaction discussed above, the Spot Catchment was synchronized with different synonyms of “spot:” “place,” “location,” and “point,” which seems to indicate that this iconic gesture visualizes the core element of meaning shared by the synonyms, that is, the idea of bounded space. Indeed, the dictionary definitions of “place,” “location,” and “spot” confirm that
all of these synonyms share the meaning of a limited/bounded area, which is iconically depicted in the container shape of the catchment.⁷ Even the word “point,” which does not seem to fit the rest of the set, can also mean “locality”—“a narrowly localized place” (Point, n. d.). The consistent image accompanying different synonyms helps to maintain coherence among them by visualizing their semantic bond.

5.2.2 Catchment in using synonyms in a new context

Excerpt 5.1: “Spot” (Part 2)

The synonyms of “spot” reemerge in the classroom discussion in the second session of the same class, about an hour after the previous excerpt left off. In this segment of the class, the students were working in groups on identifying pronoun reference in the text, which contained the vocabulary discussed above. In the interaction analyzed below, the teacher was going through correct answers and asked the students about the reference of the pronouns “he” and “it” in the last sentence of the following segment: “Later, after the other chimps fell asleep, Dandy went right to the spot where the fruit was. He dug it up and ate it” (Blanchard & Root, 2007, p. 51).

Excerpt 5.1: “Spot” (Part 2)

1 T: he dug {IT}
2 {moves RH slightly downward @ chest, index finger pointing to the floor}
3 {up}
4 {moves RH upward from chest to neck, index finger extended parallel to floor}

---

⁷ Place – “an area with definite or indefinite boundaries; a portion of space” (Place, n. d.). Location – “a place where something is or could be located; a site” (Location, n. d.). Point – “a narrowly particularized and localized position or place; a spot” (Point, n. d.). Spot – “a place of relatively small and definite limits” (Spot, n. d.)
{what is it.}
{holds the gesture, gazes at class}
(0.8)

Sr: {spot?=

Figure 5.9. Lines 11-12: “spot”

{moves RH (holding a pencil) slightly downward, palm half-cupped}

C: =uh spot?
(0.4)

Sr: {la[nd land]

{moves BH from sides to center as if folding something, palms facing downward: rotates RH at wrist as he repeats “land”}

T: {you can’t dig up the

{spot.

{moves BH bent at elbow upward from lap to waist, palms facing upward, fingers stretched, palms shaking at the end, holds through line 30

Sr: {[land]

{rotates RH at wrist more actively

C: {[[lo uh] lo uh

{raises RH to neck in preparation

Figure 5.10. Lines 29-30: “place”  Figure 5.11. Lines 29-30
The excerpt begins as the teacher reads the sentence from the screen and accentuates the pronoun “it” and the particle “up” prosodically and gesturally (lines 1-4). She continues holding the gesture and gazes at the students, addressing them with a question about the referent for “it.” After a pause, Sr provides a candidate response, “spot,” with a questioning intonation and accompanies it with a version of the Spot Catchment (Lines 10-12, Figure 5.9). It is slightly modified since Sr is holding a pencil, yet the half-cupped shape and the downward movement, reflecting the core meaning of “spot,” are retained. Sr’s actions can be viewed as signs of appropriating the teacher’s gesture employed in the previous session as he uses the word “spot” in a new context. Although his response does not address the teacher’s question related to pronoun reference, Sr still shows signs of having learnt the meaning of the word.

Sr’s response is latched by C, who follows his line of thought and hesitantly repeats “spot” with a questioning intonation (line 13). No acknowledgment from the teacher ensues, and Sr generates another conjecture, “land,” simultaneously imitating the process of digging the ground in his hand movements (lines 15-17). The teacher overlaps Sr with clarification, which indicates that “spot” is an incorrect response (lines 18-19). While uttering “spot,” she moves both hands upward, iconically depicting the direction of digging something up. Following conventional logic, the upward hand movement should be synchronized with “dig up” rather than “spot.” The mismatch produced by the teacher appears to visualize the inaptness of “spot” as an object of “digging up.” Notice that the teacher does not imitate the student’s Spot Catchment in response...
to him as she would usually do when acknowledging a student response. Thus, reacting with a
different gesture for “spot,” the teacher already signals her disalignment with Sr’s candidate
response.

At this point, C pursues Sr’s line of thought related to “spot” as the referent in question. She
hesitantly produces the first syllable of “location,” simultaneously moving her right hand upward
to her neck in preparation for a stroke (line 27). She then produces the stroke on “place” as her
palm becomes half-cupped and moves forward, oriented slightly downward (Figures 5.10-11). She
generates another stroke on “local” as she reorients her palm in a more downward direction.
By saying “local,” C most likely meant “location,” as depicted in her gesture. She has not fully
mastered the form of the word but her gesture shows that she has acquired the meaning (Goldin-
Meadow, 2003). We can see how C produces two synonyms of “spot” learnt in the previous
session and accompanies them with the Spot Catchment. Depicting the shared element of
meaning, the catchment has been appropriated by C as a mediational tool that facilitated her
production of the synonyms in a new context. Even though both Sr and C were unable to identify
the referent correctly, they showed signs of learning in a different domain—the one related to
synonymic L2 meanings.

Discussion

In this excerpt, the teacher employed gesture to elicit synonyms of the L2 vocabulary item
“spot” from the students. For this instructional purpose, she visualized the element of meaning
shared by the synonyms of “spot” through iconic gesture depicting bounded space. This gesture
was employed by the teacher as a reiterative catchment synchronized with a range of synonymic
items: “spot,” “place,” “location,” and “point.” It therefore helped the teacher and students to
maintain coherence in talking and thinking about the different synonyms of “spot.”
In eliciting the synonyms, the teacher also employed a metaphorical gesture for visualizing the abstract semantic phenomenon of synonymy in a concrete form. Thus, the ability of synonyms to substitute for each other in particular contexts was dynamically portrayed as a rotating movement of alternating hands. It is important to mention that when the teacher initially asked the students to provide synonyms, and her question was not accompanied with the “synonymy” gesture, one of the students reacted by offering a rhyming word instead, displaying confusion about the term “synonym.” The teacher’s embodiment of the abstract notion of synonymy may have helped the students to distinguish it from the other semantic categories they covered in class.

The excerpt also shows that gesture can serve as a crucial pedagogical tool in reshaping the teacher’s mediation as she responded to the students’ emergent difficulties. In generating a new instructional strategy, the teacher modified the gestural part of her utterance, keeping the verbal affiliate intact. In her search for more effective mediation, the teacher resorted to gesture as an embodied semiotic resource at hand. The way she gestured herself through her search revealed some aspects of teacher cognition occurring on the fly. The teacher’s self-regulatory gesture was simultaneously socially oriented, being motivated by student needs and her own instructional purposes. Similarly, the teacher’s gaze directed at her hands served the private function of helping her to gain awareness of her instructional intent. On the other hand, it also served a social function of focusing the students’ attention on the teacher’s gesture, as displayed in their eye gaze directed at her hands. In terms of teacher cognition externalized in gesture, recall that in Excerpt 4.4: “Waves,” through repetition the teacher’s catchments gradually acquired an echo quality as their gesture box tended to diminish. Similarly, the first version of the Spot Catchment, when the catchment was just created, had noticeably larger amplitude than its echo.
It seems that it was not the presence of gesture per se, but rather its specific qualities that made the teacher’s reshaped mediation more effective. Recall that she initially portrayed “spot” gesturally in two ways: 1) as a spot on a flat surface; 2) as bounded space. The question arises, what qualities of the second gesture made it applicable as a reiterative pedagogical tool employed across sessions both by the teacher and students? A possible answer can be that the “flat” gesture for “spot” was too specific, referring to the image on the screen, while the “bounded” gesture reflected the meaning of “spot” in a more general way. It appeared to aptly capture the word’s core meaning shared by its synonyms as well. This question brings us back to the issue discussed in the previous chapter, which is related to the most beneficial ways of shaping teacher gesture to serve the instructional purposes at hand. The range of instructional gestures employed by the teacher in referring to “spot” and its synonyms points to the transformative and flexible nature of gesture as a semiotic tool, which can be modified on the fly to address the contingencies of instructional interaction. This is clearly an advantage of gesture compared to speech, given that gesture is not restricted by convention and a relatively more consistent form-meaning mapping.

The teacher’s gestural modifications appeared crucial in overcoming the students’ difficulties and in enabling them to generate the synonyms of “spot.” Their verbal contributions show that similar to Excerpt 4.3: “Power Up,” the students attended to the information conveyed in the teacher’s gesture and were able to transfer it into the verbal expression. The students also oriented to the teacher’s actions by imitating the Spot Catchment creatively and selectively as they retained the core feature, the half-cupped hand shape, which signaled their understanding. Through imitation, the students further appropriated the teacher’s catchment as a learning tool in generating the synonyms of “spot” and using them productively in a new context, which is
considered as a sign of learning. By maintaining coherence of student thinking and speaking about the synonyms, the catchment served as a mediational tool that facilitated their development of the productive knowledge of the synonyms.

Employed thirteen times across the participants and across the classroom sessions, each instantiation of the Spot Catchment served specific instructional functions summarized in Table 5.1 below. Throughout the interaction, the teacher’s Spot Catchment was employed as a prompt in eliciting student responses; acknowledgement of student response; and a gestural emphasis of the discussed meaning. The catchment underwent a number of modifications depending on the local context and emergent instructional needs: it was enacted as an echo following the teacher’s private speech; it was produced as a hold embedded in a DIU as part of the teacher’s elicitation technique; it was combined with other body movement such as leaning the torso forward for emphasis; and was enacted as a deictic in the acknowledgement of student response. Throughout these changes, the core feature of the catchment—the half-cupped hand shape reflecting the essential feature of the concept, bounded space, remained intact. On the students’ part, the Spot Catchment was employed in generating synonyms; using them in a new context; and for confirming the student’s prior response. Similar to the differences in teacher and student gestures identified in the previous chapter, Sr’s imitations of the teacher’s catchments had more restricted amplitude and lower visibility. C’s version of the catchment though was as expressive as the teacher’s. One may wonder if that can be related to her cultural background of coming from Brazil. Similar to student G from Colombia, C’s gestures were generally characterized by a more expanded gesture box than that employed by the other students in this class.
Table 5.1. Instructional functions of catchments in Excerpt 5.1: “Spot”

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot C</td>
<td>1</td>
<td>Teacher</td>
<td>1) Illustration of meaning shared by synonyms 2) Prompt to elicit synonyms</td>
<td>Iconic, unilateral</td>
<td>Part 1, 16</td>
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<td></td>
<td>2</td>
<td>Teacher</td>
<td>1) Illustration of meaning shared by synonyms 2) Synchronized with question</td>
<td>1) Iconic, unilateral, echo; 2) Beat</td>
<td>20</td>
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<tr>
<td></td>
<td>3</td>
<td>Teacher</td>
<td>Emphasizing the synonymic meaning</td>
<td>Iconic, bilateral</td>
<td>25-26</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Student Sr</td>
<td>Providing a synonym</td>
<td>Iconic, unilateral, restricted amplitude</td>
<td>28-29</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Teacher</td>
<td>Acknowledgement of student response</td>
<td>Iconic, bilateral</td>
<td>32-33</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Teacher</td>
<td>1) Illustration of meaning shared by synonyms 2) Prompt to elicit more synonyms</td>
<td>1) Iconic 2) Hold, part of a DIU</td>
<td>36-37</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Teacher</td>
<td>1) Acknowledgement of student response 2) Emphasis</td>
<td>Iconic, adds body movement: leans forward</td>
<td>40-41</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Student Sr</td>
<td>Providing a synonym</td>
<td>Iconic, unilateral, restricted amplitude</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Teacher</td>
<td>Acknowledgement of student response</td>
<td>1) Iconic, unilateral; 2) Deictic</td>
<td>45-46</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Student Sr</td>
<td>Confirmation of response</td>
<td>Iconic, unilateral, restricted amplitude</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Student S</td>
<td>Producing a synonym in new context</td>
<td>Iconic, unilateral, restricted amplitude, holding a pencil</td>
<td>Part 2, 11-12</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Student C</td>
<td>Producing a synonym in new context</td>
<td>Iconic, unilateral, oriented slightly forward</td>
<td>29-30</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Student C</td>
<td>Producing a synonym in new context</td>
<td>Iconic, unilateral, oriented more downward</td>
<td>32</td>
</tr>
</tbody>
</table>

Apart from the most common sequences of instruction-related actions involving the use of catchments, such as student response—teacher acknowledgement, Excerpt 5.1: “Spot” also involved a less frequent three-part sequence similar to the one identified in Excerpt 4.3: “Power up;” student response—teacher acknowledgement—student confirmation. This sequence seems to
show the importance of reiterative catchments in aligning teacher and student cognitive states. In relation to catchment as part of the teacher’s confirmation of student response, this excerpt also presents an inverse case. When Sr employed the Spot Catchment in his candidate response, the teacher reacted with a different gesture rather than mirroring his catchment, the way she would usually do as a sign of acknowledgement. In this way, the teacher signaled her lack of alignment with the student’s answer both in the verbal and non-verbal channel.

While this section mainly focused on the role of a catchment as a cohesive link among the synonyms belonging to the same set, the next section will examine metaphorical gesture depicting synonymy. Introduced by the teacher in the excerpt discussed above, this gesture will be considered in more detail below. In addition, multiple instances of its usage in referring to different synonymic sets will be analyzed.

### 5.3 Metaphorical Catchment in Depicting Synonymy

This section presents the analysis of the metaphorical gesture employed by the teacher and students in illustrating the semantic relationship of synonymy with specific focus on its instructional functions. The gesture, first introduced in the discussion of “spot,” became salient in the rest of the data, being consistently employed by the teacher across subsequent classes in referring to diverse synonymic items. The shape of the gesture depicting synonymy was slightly modified in each of its instances, retaining the crucial feature—the alternating movement of the hands. For this reason, this reiterative gesture was identified as a catchment referred to as the Synonymy Catchment. The catchment is unusual in that it “traveled” across different classroom sessions, which makes it worth closer consideration even though the students’ responsivity to it
was not always obvious. The examples of the teacher’s use of the Synonymy Catchment will be followed by the excerpts in which the catchment was employed by the students.

5.3.1 Teacher’s use of the Synonymy Catchment

Before considering the instructional functions of the teacher’s metaphorical gesture depicting synonymy, it is important to indicate that at the beginning of the semester, the students were asked to keep a record (by filling out the charts distributed by the teacher) of all the synonyms, homonyms, antonyms, and rhyming words that they encountered during the semester. This continuous task sensitized the students to the possibility of grouping words under those categories whenever they encountered them in the textbook or in classroom communication. The observations of the classroom sessions also showed that students often displayed confusion about the categories listed above as they discussed them in their group work. Therefore, it seems important to examine the ways the teacher portrayed abstract semantic relationships through metaphorical gesture, which could help students to differentiate synonyms from the other linguistic categories dealt with in class.

Throughout the data, the Synonymy Catchment was employed in the teacher’s explanations of the following synonymous words: “spot; location; place; point;” “below; under;” “plant; factory;” “article; story;” “senior; old;” “hurt; injured;” “goal; dream.” In these explanations, the catchment was predominantly synchronized with the words reflecting the idea of semantic similarity: “synonyms” and “similar.” In terms of the catchment’s shape, its crucial features were: 1) hands/fingers held at the same level, depicting the equal semantic status of synonyms; 2) an alternating (usually upward and downward) movement of both hands or fingers, reflecting the idea of substitution. The variation in the catchment’s non-essential features involved the body
parts that depicted the synonyms. Thus, in some instances they were symbolically portrayed with bilaterally produced *grappolo* (finger bunches), while in other instances—with two fingers of the same hand (e.g., Figure 5.12). In the latter case, the movement was produced by flipping the palm so that the fingers alternately moved upward and downward. Three examples of the teacher’s enactment of the Synonymy Catchment and its instructional functions will be considered below. These excerpts demonstrate that the Synonymy Catchment: 1) conveyed instructionally relevant information absent from the teacher’s speech; 2) helped to elicit synonyms from students.

*Excerpt 5.2: “Hurt-Injured”*

Excerpt 5.2 is an example of how the teacher employed the Synonymy Catchment for illustrating the meaning of the term “synonym” in distinguishing it from other semantic categories. The excerpt comes from the segment of Class 7 in which the teacher was reading vocabulary definitions from the textbook while the students had to provide the matching items. The excerpt opens as the teacher reads aloud the next definition, “hurt.” This elicits the correct response from Sr, who provides the matching word “injured,” acknowledged by the teacher (lines 4-5). She follows up with a meta-comment in which she categorizes both words as synonyms (line 7). Simultaneously, the teacher positions her right hand at the level of her shoulder as she also shifts her gaze onto her hand. She next begins pivoting her hand upward and downward with her index and middle fingers extended so that the two digits alternately change positions (lines 8-10, Figure 5.12). In this gesture, the two synonyms, “hurt” and “injured,” are symbolically portrayed with two fingers. They alternately move upward and downward to visualize the process of substituting for each other in specific contexts. This gesture is similar to the one produced in the discussion of the synonyms of “spot” in that it retains the alternating
movement even though the synonyms are symbolized by fingers rather than palms. Due to these features, the gesture constitutes a version of the Synonymy Catchment.

Notice also that the teacher’s gaze is directed at her moving hand as she is observing her own gesture (line 9). Given that her speech retains the qualities of her usual teacher talk in terms of speed, fluency, and volume, it is unlikely that the gaze indicates the private function of the gesture. It may in fact serve the social function of a deictic, signaling to the students that the teacher’s gesture should be attended to (Streeck, 2013). Some of the students react by expressing their agreement, as shown in lines 12 and 15. The teacher continues to pivot her hand as she starts repeating the synonyms “hurt” and “injured” (lines 16-17). Thus, the Synonymy Catchment is now concurrent with the synonymous items, helping to maintain visual coherence between the category “synonyms” and the vocabulary items that belong to it. The teacher’s gesture terminates with a hold, maintained through the word “injured” and the ensuing pause (lines 18-19).

*Excerpt 5.2: “Hurt-Injured”*

1. T: the next one
2. {hurt (0.4)}
3. {gazes at class}
4. Sr: injured
5. T: [injured]
6. Ss: [injured]  

*Figure 5.12. Lines 7-10: “those are synonyms”*
Throughout her meta-comment, the teacher seemed to ascribe particular importance to categorizing the words as synonyms. This was displayed in her gaze directed at the gesturing hands as well as in the pauses that followed each part of her comment, during which she either continued gesturing or maintained the catchment as a hold while her gaze was directed at the students, recruiting their attention (7; 11; 18; 19). The teacher’s strategy of highlighting the category of synonyms seems to be motivated by the students’ task of completing the chart that includes a range of semantic categories. Student understanding of their meaning and the ability to differentiate between them seems to be an important prerequisite for accomplishing the task. Illustrating the category of synonyms through concrete and visible metaphorical gesture that captures its crucial aspects may help the teacher to disambiguate the term for the students and distinguish it from the rest of the categories.

While in this excerpt, the Synonymy Catchment was employed by the teacher to illustrate the category of synonyms mentioned in her verbal expression, the next excerpt shows how gesture
depicting synonymy provides important information absent from the teacher’s concomitant speech.

Excerpt 5.3: “Goal-Dream”

The discussion of synonyomic words in this excerpt provides an example of the Synonymy Catchment employed in the absence of the verbal reference to synonyms. It occurred in the second session of Class 8 during the teacher’s explanation of the meaning of “dreams” as she was reading the poem “Hold Fast to Dreams” by Langston Hughes. Prior to the transcribed part of the interaction, the teacher explained to the students that “dreams” can have two meanings: dreams that we have at night and dreams as a synonym of goals. She exemplified the similarity of the meanings with a sentence: “My goal/dream is to learn English.” The teacher follows up the example with a comment indicating that “in that context “goal” and “dream” can be the same.”

Excerpt 5.3: “Goal-Dream”

Figure 5.13. Lines 1-3: “that context”

1 in \{**that context**\}  

2 \{holds BH @ chest, moves them alternately towards and away from body twice, palms facing body\}  

3 \{**goal**\}  

4 \{raises RH to shoulder; away from body, palm facing body; holds\}  

5 \{and **dream**\}  

6 \{raises LH to shoulder; away from body, palm facing body; holds\}
The verbal part of the teacher’s explanation does not provide explicit reference to synonyms. The utterance, however, contains the gestural image of synonyms, synchronized with the phrase “that context” (lines 1-3, Figure 5.13.). In this version of the Synonymy Catchment, the teacher alternately moves her hands toward and away from her body. Similar to the previously discussed instantiations of the Synonymy Catchment, the two hands symbolically depict the two synonyms, while the alternating movement conveys the idea of their interchangeability. In this way, the catchment communicates the information absent from the teacher’s verbal expression, bringing together two semantic concepts—those of “context” and “synonymy.” The unity of gesture and speech in the teacher’s utterance helps to create a composite message that could be formulated as follows: “in that context, the words “dream” and “goal” are substitutable,” that is, synonymous. The teacher next confirms verbally that (in that particular context) the two words “can be the same” (line 32).

We can observe in this excerpt how the Synonymy Catchment helped to convey important information about the semantic category of synonyms; specifically, about the ways synonyms act in certain contexts. This information, absent from the teacher’s verbal expression, was conveyed exclusively through her gesture, which helped to construct the instructionally relevant message in a concrete and visible form. The example discussed below expands the instructional functions of the Synonymy Catchment identified in the above excerpts by illustrating its usage as an elicitation technique.
Excerpt 5.4: “Senior-Old”

In this excerpt, the Synonymy Catchment was employed by the teacher as a gestural prompt in eliciting a synonym from the students. (In this sense, its function is similar to the one identified in Excerpt 5.1: “Spot”). The excerpt discussed below occurred in the second session of Class 8, ten minutes after the discussion of “goal” and “dream.” In this segment of the class, the teacher introduced new vocabulary, specifically, the word “disabilities.” In explaining its meaning, the teacher brings in an example of a sign on the bus, “For senior citizens and people with disabilities” (line 2). She then checks the students’ understanding of the phrase “senior citizens.”

Excerpt 5.4: “Senior-Old”

1  T:  and the sign says
2    { <reserved for senior citizens and people with disabilities> }  
3    { points at the screen as if the sign was there, gazes at class } 
4    { what are }  
5    { raises LH from lap to chest, index and middle fingers extended } 

6    { senior } 

Figure 5.14. Lines 6-7: “senior” 

7    { pivots LH so that her middle finger is up }
Figure 5.15. Lines 8-9: “citizens”

8 {citizens?}

9 {pivots LH so that her index finger is up;}

10 holds through line 11

11 S?: old

12 T: {older people}

13 {points at the student, nods head}

The teacher begins to formulate the question, raising her hand in preparation for a gesture. She continues with a stroke on “senior” as she extends her index and middle fingers so that the middle finger is in the upward position (Figure 5.14). The teacher then flips her hand at “citizens” so that the index finger takes the upward position (lines 10-11; Figure 5.15). The shape of this gesture resembles the Synonymy Catchment employed by the teacher in categorizing the synonymous relationship between “hurt” and “injured.” This time, however, the catchment is synchronized with the words that include no mention of synonyms. The metaphorical image of synonyms is concurrent with the phrase “senior citizens,” where “citizens” is obviously not a synonym of “senior.” It may seem that this speech-gesture unit is a mismatch in the sense that the gesture conveys information different from the message of the verbal expression (see Goldin-Meadow, 2003). A possible explanation is that in asking the students about the meaning of “senior citizens,” the teacher simultaneously offers them a gestural prompt in the form of the Synonymy Catchment, suggesting that the phrase can be explained.

8 In explaining the term “mismatch,” Goldin-Meadow (2003) refers to a continuum reflecting how much information conveyed in speech and gesture overlaps. Thus, matching gesture conveys information overlapping with speech while mismatching gesture conveys information absent from speech. Goldin-Meadow (2003) indicates that although there is no clear line between matching and mismatching gesture, it is still possible to identify the cases which belong to the extremes of the continuum.
through its synonym. Similar to the findings in Goldin-Meadow (2003), where a mismatching gesture conveyed an additional strategy for solving a math problem, in this interaction the mismatching gesture seems to convey an additional strategy for explaining the word’s meaning—by means of its synonyms. In fact, the student in his response does generate a synonym for “senior,” “old,” acknowledged and expanded by the teacher (line 14-15). It is unclear whether the student, who was outside the camera view, attended to the teacher’s gesture since his gaze direction was not visible, but it is possible that he oriented to the teacher’s Synonymy Catchment as a visual clue in generating his response.

5.3.2 Students’ use of the Synonymy Catchment

The students also employed metaphorical gesture in thinking about synonymic meanings. This gesture exhibited features similar to those displayed in the teacher’s Synonymy Catchment, even though it was employed independently from the teacher’s gesturing. Two examples of the students’ enactments of the Synonymy Catchment employed to express their understandings of semantic relationships between L2 items are considered below. Student gestural illustrations of synonymic meanings are further compared with those expressing antonymic relationships.

Student Synonymy Catchment

Excerpt 5.5: “Town-City” is an example of how the Synonymy Catchment was employed by a student to visualize his understanding of the similarity of meanings. The student’s gesture was produced in the absence of his verbal contribution and accompanied the teacher’s explanation, providing its gestural illustration. The discussion, centered on the meaning of “town,” occurred in Class 10. The teacher asked whether the students had any questions about the vocabulary. Student F reacted by asking about the meaning of “town.” The excerpt opens with the teacher
explaining its meaning by referring to the synonym of “town,” “city.” This time, she does not visualize the notion of synonymy through the Synonymy Catchment, as it occurred in the previous excerpts. Rather, it is one of the students who accompanies the teacher’s words with the catchment.

*Excerpt 5.5: “Town-City”*

![Image](image.jpg)

1 T: t(h)own, {is a}

*Figure 5.16. Lines 1-3: “is a”*

2 F: {moves BH, palms away from body, opening them flat to face upward; holds through line 5}

3 (1.0)

4 T: {is another word for a city.}

*Figure 5.17. Lines 6-7*

5 F: {alternately moves BH towards and away from body, palms facing upward, continues through line 13}

6 Ss: {yeah}

7 F: {yeah}

8 {nods head}

9 (1.5)

10 {nods head multiple times, moves gaze around class}

11 aright,

12 very s:imilar to the word city
As the teacher begins to formulate the definition of “town,” student F produces a hand movement in preparation for a gesture, flipping his palms open and holding them (lines 1-3, Figure 5.1). This hand movement is labeled by Kendon (2004) as a “Palm Presentation (PP) gesture” (p. 265) originating from humans’ manipulation of objects such as the act of “offering or giving” (p. 264). Through metaphorical mapping onto discourse/communicative domain, the gesture often serves “as an introduction to something the speaker is about to say” in the contexts where “the speaker supplies an explanation for a term or a phrase just used” (p. 266). Notice that student F produces this hand movement silently, providing a gestural accompaniment to the teacher’s speech. His PP gesture seems to be forward oriented as he prefaces the teacher’s upcoming explanation. It is important that he employs two hands as if in expectation that the teacher is going to talk about two things, which is confirmed in her subsequent talk.

The meaning of F’s introductory gesture, produced with both hands, becomes clear as he transitions to a new gesture. As soon as the teacher proceeds with her explanation of “town” as: “another word for a city” (line 5), F’s hands are set into motion as he alternately moves them towards and away from his body, palms facing upward (Figure 5.1). Since F keeps silent while producing the gesture, its stroke is made on the teacher’s words cited above. What we observe here is a co-constructed growth point, in which the teacher supplies the verbal element and the student provides the gestural affiliate. The psychological predicate jointly produced by the teacher and student in the growth point highlights the concept of synonymy absent from the verbal expression. While the teacher only mentions that “town” “is another word for a city,” conveying the idea of substitution implicitly, the student makes it explicit in his gesture. The Synonymy Catchment depicting the words as interchangeable, that is, synonymous, reflects the student’s understanding of semantic similarity. It also signals that even though he might not be
able to employ meta-language to describe such relationships, his correct conceptualization comes out in gesture.

Student F continues the alternating movement through line 13 as the teacher nods her head multiple times and moves her gaze around the class. The teacher’s search for the signs of comprehension, attended to by F, as indicated by his gaze, makes his continuous display of understanding relevant. He only retracts his gesture when the teacher signals the closure of the sequence with “aright” (line 13). She concludes by verbalizing the idea conveyed in student F’s gesture—that “town” is ”very similar to the word “city.”

In this excerpt, the student employed the Synonymy Catchment in expressing his understanding of the relationships of similarity between vocabulary items. He seemed to lack the necessary meta-language to do so, resorting instead to gesture as an alternative and effective means for expressing his conceptualization. The metaphorical gesture allowed him to externalize the notion of synonymy in a concrete and tangible form.

The Synonymy Catchment was also employed by another student in Excerpt 9.9: “Between-Then” (Chapter 9). In discussing the words from the frequency list, student C expressed to Sr her confusion about the meaning of the words “between” and “then.” Specifically, she was attempting to understand whether they are similar or different. While C was unable to identify the relationship as “similar” in her verbal expression, she conveyed this hypothesis through her gesture (Figure 5.18). In her hand movement, the two synonyms were symbolized by two fingers,
Figure 5.18. Student C producing the Synonymy Catchment which she alternately flipped upward and downward, conveying the idea of substitution. Similar to F, student C has not developed the discourse framework for verbalizing the idea of similarity and relied on the gestural movement as she was struggling to understand the semantic relationship between the words. Mediating herself through gesture helped C to resolve the dilemma whether the L2 words are similar or different and arrive at the correct decision.

Teacher and student gestures for antonymy and homonymy

In considering the instructional qualities of the Synonymy Catchment, it seems important to compare it with the gestures employed to visualize other semantic categories dealt with in class such as antonyms, homonyms, and rhyming words. In relation to antonymy, the teacher was not found to portray this semantic phenomenon through metaphorical gesture. However, gestural depictions of antonymic relationships were observed in some student interactions. In Excerpt 9.6: “Top-Bottom,” discussed in detail in Chapter 9, student W was explaining the relationship between the words “top” and “bottom” to his partner in a group activity. In his explanation, W employed a metaphorical gesture to illustrate the opposing meanings. He visualized the incompatible nature of the two meanings through the organization of the physical space. Thus, he assigned two separate spaces to each of the words by gesturing to his right at “top” and moving his hands to the left at “bottom” (Figure 5.19).
From Excerpt 9.6: “Top-Bottom”

32 W: {top,
33 {moves BH slightly to his right, palms facing each other}

Figure 5.19. Lines 34-35: “bottom”

34 {bottom.
35 {moves BH to his left, palms facing each other}

A similar “antonymy” gesture was employed by student C in Excerpt 9.7: “Below-Under” (Chapter 9). In discussing semantic relationships between the words “above” and “below,” she produced a metaphorical gesture which assigned a separate space on her left to the word referred to as antonym (Figure 5.20). The two gestures used by the students to depict antonymy can be considered as another “traveling” catchment employed across classes, though not as common as the Synonymy Catchment.

From Excerpt 9.7: “Below-Under”

46 C: = {antonym is} {above}
47 {points with BH, index fingers upward} {points to her left}

Figure 5.20. Lines 46-47: “above”
The features of the gestures illustrating synonymy and antonymy suggest that differentiating these two semantic phenomena through gesture seems to be unproblematic, which is not the case with homonymy. For example, in explaining that “high” and “hi” are homonyms, the teacher employed a gesture that looked similar to the Synonymy Catchment (Figure 5.21).

![Image of teacher and students using gesture]

**Figure 5.21.** “Homonyms”

The teacher synchronized the word “homonyms” with an alternating movement of both hands towards and away from her body. Such similarity of shape between the gestures referring to divergent concepts of “synonymy” and “homonymy” may cause the students’ confusion in their attempt of differentiating between the two semantic categories.

**Discussion**

The preceding section examined the ways the teacher and students employed metaphorical gesture in visualizing the semantic relationship of synonymy. The gesture identified as the Synonymy Catchment was used reiteratively across classes and served important pedagogical function of illustrating the abstract semantic concept of synonymy in a concrete, dynamic, and visible form. In this portrayal, the equal semantic status of synonyms was depicted by the two hands or fingers held at the same level, while the idea of substitution was visualized in their alternating movement. The catchment seemed to reflect the most essential features of the concept of synonymy.
The students’ enactments of the Synonymy Catchment allowed them to externalize their view of synonymy, making it publicly accessible. The gesture enabled the students to express their understandings of this semantic relationship before they acquired the necessary meta-language to formulate them verbally. This makes the teacher’s attending to student gesture particularly important since student correct conceptualizations often come out in gesture before making their way into the verbal expression (Goldin-Meadow, 2003). In student C’s case, the Synonymy Catchment also played a self-regulatory function as it became an embodied mediational tool relied upon in her pursuit for understanding semantic relationship between L2 words.

The teacher’s usage of the catchment enhanced her mediational strategy in explaining the relationships between vocabulary items. Thus, instead of providing a verbal definition of a synonym, the teacher resorted to the gestural modality as a concrete, economical, and easy-to-grasp medium for explicating abstract semantic concepts. Her metaphorical gesture seemed to reflect the essential aspects of the depicted concept, which makes it a potentially effective instructional tool. The ability of synonyms to substitute for each other visualized through the alternating movement of the hands seemed to be a more prominent feature in the teacher’s illustration of synonymy to compare with the equal status of synonyms. Such profiling appears to be instructionally relevant: a quick glance at dictionary and encyclopedic definitions of synonyms reveals that they predominantly lack the mentioning of interchangeability as an attribute of synonyms. Meanwhile, this feature seems to be an important criterion for identifying synonyms and the one that is usage-based, oriented to the use of synonyms in real speech contexts. This makes the teacher’s highlighting of substitution in her gesture particularly important in terms of drawing the students’ attention to the usage-based, practical side of employing synonyms in a new language.
The Synonymy Catchment often conveyed important information about the category of synonyms absent from the teacher’s verbal expression. In a mismatching case, the Synonymy Catchment conveyed additional strategy for explaining the word’s meaning—through a synonym. Embedded in the teacher’s elicitation technique, the catchment was also employed as a gestural prompt, which helped the student to generate a synonym. The teacher’s visualization of synonymy through the Synonymy Catchment may have helped the students to differentiate synonyms from the other semantic categories dealt with in class such as antonyms and homonyms, which were a common source of student confusion. The teacher’s use of metaphorical gesture in explaining semantic phenomena was not devoid of potential problems. Thus, the shape of the Synonymy Catchment was similar to a less frequent gesture depicting homonymy, which may be a source of confusion. This brings us back to the issue related to the most advantageous ways of shaping instructional metaphorical gestures. One can imagine designing different gestures to portray the confusing “nyms” so that their shape would be sufficiently distinct to convey the differences among synonyms, antonyms, and homonyms.

Close analysis of features of different instantiations of the Synonymy Catchment sheds more light on the methodological issue of criteria for identifying catchments. It appears that the Synonymy Catchment serves as a good example for the principles identified in Arnold (2012), according to which catchments can exhibit variation in non-essential attributes while their crucial features have to be retained. According to Arnold (2012), those are the features that convey the information most relevant to the task at hand. In our data, these reflect the core meaning of the concepts depicted. In full agreement with the criteria indicated above, the multiple versions of the Synonymy Catchment displayed such noticeable differences in their form as: the use of palms versus fingers in symbolically depicting synonyms, with the palms being also shaped
differently—either as flat and open or as grappolo. These divergences in shape, however, did not affect the core aspects of the concept of synonymy: equal status (hands held at the same level) and substitution (alternating motion). The dialectic of the stable and the variable in a catchment is precisely what makes it a powerful cohesive device, which helps to maintain visual coherence of discourse through its invariable core feature and at the same time, has room for variation to fit the changes in the local contexts.

The data discussed in this section, specifically, the interaction centered on “town-city” also illustrate a co-constructive nature of classroom interaction, in which the teacher and students align their speech-gesture semiotic channels, creating collaborative growth points. While the teacher employed a synonym “city” to explain the meaning of “town,” the student provided a gestural image of the semantic relationship between them. The two streams of information supplied by the two speakers in different modalities converge in a composite message as obuchenie becomes enacted on the fly. The teacher and student’s fine-grained alignment was also expressed in the way the student predicted the teacher’s reference to synonyms as he prefaced her explanation with a forward-looking PP gesture. Such highly coordinated action was achieved through the teacher and student’s fine-tuned alignment of cognitive states as both of them contemplated semantic relationships in the language taught and learnt.

5.4 Summary and Conclusions

This chapter examined the use of teacher and student gesture in obuchenie of L2 vocabulary meanings involving synonymy. The analysis focused on the iconic gesture depicting the elements of meaning shared by the synonyms as well as the metaphorical gesture portraying the concept of synonymy. Findings provide evidence for the beneficial role of the teacher’s gestures
in developing student understandings of synonymic meanings and building up their productive knowledge of L2 vocabulary.

In teaching synonymic meanings, gesture allowed the teacher to present abstract semantic relationships in a concrete and visible form, which enabled the students to become aware of, and act upon, them. The role of catchments in this process was crucial: the iconic Spot Catchment visualized the element of meaning shared by the synonyms, while the metaphorical Synonymy Catchment provided a dynamic image of synonymy. These findings align with the Vygotskian view of the role of symbolic mediational means, which enable learners to visualize and objectify intangible concepts and in this way, bring them into their consciousness. This, in turn, enables learners to act upon these concepts in the process of gaining voluntary control over them and making them their own (Lantolf & Thorne, 2006).

The teacher’s use of gesture in illustrating the concept of synonymy points to the importance of considering the most beneficial ways of shaping instructional gesture in order to facilitate the process of language learning. It appears that in order to be an effective pedagogical tool, gesture related to L2 concepts has to foreground the most essential features of their meanings. In constructing their explanations, teachers may want to construe the concepts in the ways that direct students’ attention to the aspects most relevant to the current instructional task. This seems analogous to what Slobin (1996) calls a “selective schematization of a concept” (p. 75-76) guided by the grammatical categories available in a particular language. In the context of the language classroom, such schematization is driven by the current pedagogical purposes. To paraphrase Slobin, the teacher’s speech and gesture are guided by thinking-for-teaching, where she chooses to focus on those aspects of objects and events that align with the local instructional purposes and the emergent student needs.
The teacher’s on-going cognition was to some extent externalized in her private gesture, which had important social/instructional consequences. The way the teacher gestured herself through her search for an improved instructional strategy in eliciting the synonyms of “spot” sheds light on her thinking-for-teaching occurring in flight. The focus on the teacher’s self-regulatory instructional gesture appears important, given that prior studies predominantly focused on the students’ gesture as externalizing their cognition (McCafferty, 1998; van Compernolle and Williams, 2011; Lantolf, 2010). In one of the few studies that mentioned the role of gesture in revealing certain aspects of teachers’ thinking, Alibali & Nathan (2007) indicated that apart from reflecting the teacher’s content knowledge, “teachers’ gestures may reflect their implicit models of students’ knowledge and potential areas of difficulty” (p. 361). This suggests that teachers’ gesture has recipient design, reflecting “how speakers adjust their utterances for the benefit of their interlocutors” (Kendon, 2004, p. 3). Thus, in her foregrounding certain aspects of meaning through gesture, the teacher orients to the students’ difficulties, background knowledge, and current level of understanding.

The recipient design may answer the intriguing question of why in the discussion of “spot” the teacher chose the “bounded space” gesture to turn into a catchment used as an instructional tool, while the “spotlight” gesture was abandoned. One possible explanation is that assessing the students’ reaction to the “spotlight” gesture showed that this hand movement was not satisfactory in serving current obuchenie purposes. On the contrary, the “bounded space” gesture (the Spot Catchment) appeared effective in eliciting the students’ correct responses. What features of the Spot Catchment made it more effective? A possible answer is that the image was able to capture the essential features of the concept expressed by the synonyms: spot, place, location, and point. The image must have also resonated with the students’ background knowledge and the idea of
“spot” conceptualized in their native language. In this recipient design, a proper match between the teacher’s expert knowledge of the L2 concept and the students’ expected background knowledge seemed to have been achieved, as signaled by the students’ uptake of the teacher’s gesture and their verbal responses. The match seemed to have been attained through the gestural selective schematization of a concept (thinking-for-teaching) tailored according to the recipient design.

The teacher’s gestural self-regulation was publicly accessible to the students and therefore had social consequences. It appears to reflect the dialectical nature of thinking-for-teaching: even in its private function, it is inherently socially oriented, being aimed at the students’ other-regulation for achieving the instructional purposes at hand. Therefore, the social effect of the teacher’s private gesture comes as no surprise, where it was oriented to, and appropriated by, the students as a publicly available instructional tool. A similar dialectic was observed in the effect of the teacher gaze, acting in concert with gesture. Her private gaze was socially oriented to by the students and served as a deictic, directing their attention to the teacher’s instructional gesture.

A distinctive quality of the teacher’s catchments examined in this chapter is that they exhibited remarkable flexibility in varying their non-essential features to fit the local instructional context. Thus, the Spot Catchment was enacted as an echo, a hold, and a deictic to serve the emergent pedagogical purposes. Throughout these modifications, the core feature of the catchment that reflected the essential meaning of the concept remained intact. Such flexibility in fitting diverse contexts of use makes catchments an important and versatile instructional resource.

The findings reported in this chapter offer a possible contribution to McNeill’s (1992; 2005) methodology in terms of elaborating the notion of the growth point. The teacher and student’s use of speech and gesture in Excerpt 5.5: “Town-City” suggests that the focus of gesture analysis
can be expanded from a monological growth point—produced by a single speaker—to a dialogical one—co-constructed by more than one speaker. Thus, in the discussion of the meaning of “town,” the growth point acquired a dialogical nature as it was collaboratively constructed by the teacher and a student. Their instructional and learning purposes converged as they created a joint psychological predicate. In this dialogue, one of the interlocutors, the teacher, adopted the stance of the expert by providing the necessary means of expression in L2 (“town is another word for a city”), while the other, the student, maintained the status of a novice L2 speaker by displaying his understanding solely in gesture (the Synonymy Catchment), as he lacked the verbal means of expression. The resulting growth point created the psychological predicate, which can be formulated as “town is a synonym of city.” The two modalities engaged by the two interactants converged in the joint effort of expression or rather in the joint pursuit of obuchenie.

As for the students’ uptake of the teacher’s gesture-based mediation, the excerpts in this chapter show that they attended to the teacher’s gesture and appropriated it as a tool for thinking and speaking. In their imitations of the teacher’s gesture, in full agreement with Arnold (2012), the students creatively reshaped the non-essential features of the L2 concepts while retaining their core features and in this way, showed their appropriate understanding of the meaning. The students employed catchments not only to display their understanding, but, in addition to the instructional functions identified in the previous chapter, they used them in developing their productive knowledge of vocabulary, that is, in generating L2 items and employing them in a new context, which can be viewed as a sign of learning.

Importantly, the teacher’s gesture-based mediation played a significant role in developing the students’ verbal expression in L2. The students showed signs of converting the meanings expressed in the teacher’s gesture into their L2 verbal expression. The evidence for this was
found in the discussion of “spot,” where the students used the teacher’s gestural prompt for generating synonyms in the verbal modality. Converting the gestural information into L2 verbal expression appears to be an important finding, which aligns with Goldin-Meadow’s (2003) study, which identified a similar phenomenon but in the context of math education. The findings in the current study indicate that it can also occur in the L2 classroom. Another parallel with Goldin-Meadow’s (2003) findings was identified in how the students externalized their understandings of L2 semantic phenomena through gesture before they developed meta-language to express them verbally (as it occurred in Excerpt 9.9: “Between-Then” and Excerpt 5.5: “Town-City”). The role of students’ gesture as a precursor for developing their verbal expression in L2 points to the importance of the teacher’s close attention to their students’ hand movements as a reflection of their on-going thinking.
Chapter 6

Gesture in Obuchenie of Formulaic Expressions

6.1 Introduction

This chapter reports the findings related to the ways the teacher employed gesture in introducing the meanings of such formulaic expressions as idioms and proverbs. The analysis also focuses on how students oriented to the teacher’s explanations involving gesture. The distinctive feature of the teacher’s gesture-based mediation with regard to formulaic expressions is the patterned manner in which she orchestrated her use of multimodal resources. Importantly, the students exhibited multiple signs of appropriating these patterns along with the meanings they embodied. In one case, such embodied patterns, enacted by the teacher and appropriated by the students, conveyed an emotive meaning, which is a rare focus of analysis in classroom language learning.

The first section focuses on the multifaceted role of the teacher’s gesture in explaining the meaning of a proverb. Combined with object manipulation and other multimodal resources, the teacher’s catchments served a range of instructional functions: illustration of meaning, a visual anaphoric reference, a marker of prosodic pattern, and a means of building affective alignment with the students. The second section examines the teacher and student use of gesture in conveying the emotive meaning of an idiom. The teacher’s engagement of diverse semiotic means, including gesture, allowed her to visualize the crucial part of the L2 meaning—emotion, obscured in the verbal expression. It also enabled her to provide a recast in the non-verbal modality, attended to and taken up by the students. They showed signs of appropriating the emotive meaning by inhabiting it in their affective imitations of the teacher’s enactments.
6.2 Teaching a Proverb: Bridging the Form and Meaning through Gesture

This section presents an extended example of how the teacher turned an informal interaction with a student that occurred during the break into a teachable moment in which she introduced the students to a new proverb. She also turned the item given to her by the student as a treat into an instructional tool, which symbolically depicted the meaning of the proverb and served as an anaphoric reference to the central topic of the discussion. Not only did the teacher’s gesture combined with object manipulation illustrate the meaning of the proverb, but it also highlighted the features of its form, facilitating student learning of the proverb. Thus, the teacher’s embodied performance served multiple pedagogical functions: 1) it visualized the meaning of the proverb; 2) highlighted its rhythmical pattern; and 3) provided affective engagement with the students. The students in turn imitated the teacher’s body movement in 1) developing their understanding of the proverb’s meaning; 2) producing the proverb in a new context; and 3) mastering the proverb’s rhythmical pattern. The teacher and students maintained coherence of their instructional discourse through extensive use of catchments.

6.2.1 Introducing the proverb

Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 1)

The excerpt occurred during the time preceding the first session of Class 9. As the students were preparing for the class, student G approached the teacher and gave her an apple. The teacher enthusiastically thanked the student and placed the apple on her desk but then immediately picked it up, turned to G, and indicated that there is an American expression, “an apple a day keeps the doctor away” (lines 2-4). As the teacher utters the proverb, she highlights the rhythmic pattern by emphasizing the stressed syllables and elongating the vowels in the rhyming words: “day” and “away.” She also embodies the rhythm by beating out the stressed
syllables with her left hand, holding the apple. In this way, the teacher’s multimodal utterance appears to integrate the instructional focus on the meaning and the form of the item, where the object reflects the meaning of the proverb, while gesture reflects its form in terms of the rhythmical contour.

Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 1)

1 T: we have an a (0.2) merican expression we say
2 {an apple a day, (0.5) keeps the doctor (0.2)}
3 {beats out stressed syllables with LH, holding apple} Apple C

4 {away.}

Figure 6.1. Lines 4-6: “away”

5 {raises RH to neck, palm facing outward, fingers extended and apart;
6 moves RH from center to right extreme periphery, away from body} Away C
7 A: oh
8 {(1.0)}
9 G: {smiles, moves head slightly up and down}
10 T: have you hear-
11 do you have that in your language?
12 {(1.0)}
13 G: {stops smiling, gazes at T}
14 T: it means if you
15 {eat an apple every day,}
16 {beats out stressed syllables with LH, holding apple} Apple C
17 G: {makes three head nods at “day”}
18 {0.4}
As the teacher keeps holding the apple in the publicly accessible center-center area, which serves as her “workspace” (Clark and Krych, 2004, p. 65), she moves her right hand away from her body, illustrating the meaning of the particle “away” (lines 5-6; Figure 6.1). The iconic gesture for “away” is performed with noticeably large amplitude, where the teacher moves her hand from the center-center to the extreme periphery on her right and with visible effort, as if pushing and then keeping something away. The emphatic quality of the gesture aptly matches the prosodic emphasis and elongation of “away.”

G reacts by smiling and moving her head slightly upward and downward, which can be taken as a sign of understanding (line 9). However, when the teacher asks whether the student has a similar expression in her language, G becomes serious and silently gazes at the teacher. Orienting to G’s lack of response, the teacher provides a clarification in the form of a paraphrase (lines 15, 20). In reformulating the proverb, she retains the prosodic pattern established earlier, marking the rhythm with stress and elongation. She also continues to beat out the stressed syllables with her left hand, holding the apple (line 16). In doing this, the teacher reiterates the
gesture produced on line 3 and turns it into a catchment referred to as the Apple Catchment. The catchment reflects the meaning of the first part of the proverb, “an apple a day.” Its synchronization with the paraphrase “if you eat an apple every day” helps to maintain coherence between the proverb and its reformulation. G signals her understanding by making head nods (line 17).

As the teacher pauses after the first part of her paraphrase, student A reacts with a gesture, swiftly moving his right hand away from his body (line 19; Figures 6.2-6.3). It resembles the teacher’s previous illustration of “away,” reiterated by A with restricted amplitude as was often the case with student versions of the teacher’s gesture. By imitating the teacher’s gesture for “away,” A turns it into a catchment referred to as the Away Catchment. The catchment serves as a gestural completion of the teacher’s utterance, “It means if you eat an apple every day…” The completion is further formulated by the student verbally: “you’ll never go to the [doctor],” which overlaps with the teacher’s version, “you can stay healthy” (lines 20-21).

We can see how student A’s understanding of the segment of the proverb, “keeps the doctor away,” was externalized in gesture before making its way to the verbal channel. This constitutes two consecutive steps in his microgenetic development: from gestural imitation as a sign of understanding to the ability of verbalizing his understanding in the form of a paraphrase, which can be viewed as gaining more control over the task (Lantolf and Thorne, 2006). Thus, gesture can serve as a mediational tool on the way to generating L2 verbal formulations. This coincides with Goldin-Meadow’s (2003) findings showing that students of math were able to transfer teachers’ gestural strategies into verbal expression, which was viewed as a sign of learning.
6.2.2 Contextualizing the proverb

Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 2)

Immediately after the exchange in Part 1, the teacher asks the students whether they have a similar saying in their languages. After some of them respond positively, she writes the proverb on the board. This is where Part 2 begins, opening with the teacher’s comment addressed to G, “so you will help me stay healthy” (line 1). In this way, the teacher recontextualizes the proverb, applying it to real life. She also gives her comment an emotive coloring by voicing G’s positive intentions behind her act of sharing. The teacher accompanies the phrase with the Apple Catchment, initially coupled with the proverb (line 2). The rhythmically produced catchment serves as a visual anaphor, referring the students back to the proverb. In this way, the gesture helps to maintain coherence between the proverb and the teacher’s comment related to the real life context.

As soon as the teacher moves away from the board, she positions herself in her usual “teacher” space in front of the class, facing the students as if “on stage.” She proceeds by reiterating the proverb with the familiar pattern established earlier: marking the rhythm prosodically and beating it out with the Apple Catchment. Despite the fact that the interaction occurs during the break, the teacher’s actions bear typical features of her usual teacher role, being addressed to the whole class (the students are already seated at their desks). The Apple Catchment, produced in the center-center area, is made maximally visible to the students. In repeating the proverb this time (line 6), the teacher does not accompany “away” with its illustration—the Away Catchment. One possible explanation for this is that the illustration of the word’s meaning was only necessary during the students’ first exposure to the proverb since they subsequently provided signs of understanding the meaning.
Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 2)

1  T:  { so you will help me stay healthy}
2  { glances at G, makes beats with RH, holding apple, Apple C}
3  walks away from board
4  T:  { 1.5}
5  { walks away from desk}
6  { an apple a day keeps the doctor away.}
7  { faces class, gazes at C, beats out stressed syllables with Apple C
8  RH, holding apple @ chest in center periphery; holds through line 10}
9  C:  { gazes at T, smiles}
10 C:  { yeah. =}
11 T:  ={ do you [ have this in portuguese? }  Apple C
12  { makes slighter beats in C’s direction}

Figure 6.4. Line 13: “away”  Figure 6.5. Line 13: “away”

13 G:  { [°away°]}  Away C
14  { moves RH from desk to head, away from body,}
15  from center to right extreme periphery,
16  palm facing outward, fingers slightly curved and apart}

The teacher terminates her Apple Catchment with a hold, eliciting reaction on C’s part in the form of “yeah,” pronounced with rising intonation. The teacher asks C, “Do you have this in Portuguese?” and disambiguates the reference “this” by producing the Apple Catchment with slight beats in C’s direction. The catchment serves as another anaphoric reference to the proverb. Quite unexpectedly, G overlaps the teacher with a delayed repeat of “away,” accompanied by the Away Catchment (lines 13-16; Figures 6.4-6.5). She produces the catchment with the same large
amplitude as the teacher did but with a somewhat different shape, where G’s fingers are slightly
curved and separated. The student’s gesture though retains the crucial feature that reflects the
core meaning of “away:” The direction of the movement is away from her body. The addressee
of G’s utterance is unclear: since her face is blocked by the teacher, we cannot see the direction
of G’s gaze. G must be aware that due to the teacher’s positioning, she is not visible to the
students she is facing. Given the low volume of her voice, she is also hardly audible to the class.
This suggests that G’s utterance is produced as externalized private speech in her contemplation
of the proverb’s meaning. Her imitation of the teacher’s Away Catchment serves as a
confirmation of her understanding of the proverb’s meaning.

Meanwhile, student C responds to the teacher’s question about the existence of the proverb in
Portuguese with hesitation and a pensive look as the teacher waits for C’s answer, holding the
apple and gazing at her (lines 17-19). Orienting to C’s difficulties, the teacher glances at the
proverb on the board and then repeats its earlier paraphrase, accompanied by the Apple
Catchment (lines 20-21). We can see how uniquely patterned the teacher’s explanation is: the
proverb and even its paraphrase (reiterated unchanged) are produced with the same prosodic
features and are consistently coupled with the Apple Catchment. The student follows the
teacher’s gaze, referring to the proverb on the board, and reacts with two tokens of agreement
(“yeah”), accompanied by head nods (lines 23-24; 27-28).

Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 2—continued)

17 C: {u::m:}
18 {becomes serious}
19 T: {holds the apple, gazes at C} Apple C

20 T: {that if you eat an apple every day,}
21 {glances at board, makes frequent slight beats with RH, holding apple} Apple C
The teacher follows up with a summary, which is a repeat of her previous comment on G’s positive intentions: “So, G wants me to be healthy—she just gave me an apple.” The teacher accompanies the summary with complex manipulations involving the apple and gestural moves. Along with “so,” she swiftly repositions the apple from her right to her left hand so that the apple remains in the visible center-center area (lines 29-30). She next silently points to the proverb on the board with her vacant right hand. She then moves the apple back into her right hand and uses it to point at G, pronouncing her name (lines 33-34). Thus, the verbal reference to G is complemented by a gestural reference to her prior act of sharing the apple. The teacher’s move to
place the apple in the gesturing hand serves the purpose of providing anaphoric reference to G’s prior action.

Following the teacher’s comment, C initiates a narrative about her personal experience of having a healthy breakfast that always includes an apple (lines 41-43). By doing this, C demonstrates that she was not only able to understand the proverb, but also to contextualize and project its meaning onto her personal life. The teacher acknowledges C’s contribution by making head nods throughout her speech. As C produces a list of fruit she has for breakfast, the teacher latches onto one of the items with an energetic “but always apple” (line 44). Simultaneously, the teacher points at C with her left hand, holding the apple. By doing this, she verbally highlights the major focus of the discussion and gesturally refers back to the proverb. C reacts with an emphatic agreement as she mirrors “always” and makes a beat with her fist clenched in a positive and reassuring manner (46-47; Figure 6.6). In Kendon’s (2004) terms, this is a pragmatic gesture that reinforces C’s statement, making it sound more assertive and confident. C’s actions elicit affiliative laughter from the teacher, who aligns with the student by making a triumphant face and producing an emphatic version of the Apple Catchment. She swiftly moves the apple to her right hand, clenching it in her fist, raises the hand upward and produces two beats (49-50). In this way, the teacher affectively expresses her solidarity with the student in her decisiveness to stay healthy. The teacher’s gesture, involving the apple display, serves as another visual reference to the proverb.

Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 2—continued)

41 C: every da:y, I eat (0.4) an apple, and breakfast every day.
42 and mix apple and banana, apple and watermelon,
43 apple and strawberry=
44 T: =but {always apple.}
45 {points at C with LH, holding apple; holds through line 49} Apple C
Figure 6.6. Lines 46-47: “always”

46  C:  \{always\}
47  \{raises LH to shoulder, fist clenched; makes a beat\}
48  {\{(laughs\)}
49  T:  \{moves apple from LH to RH; clenches RH in a fist; \}
50  raises to shoulder; makes a beat\}

Just as the teacher and student C jointly express their affective alignment, G reacts in a similar vain by saying, “keep the doctor away” in a cheerful manner (line 51). She is not visible to her addressee (C), however, being blocked by the teacher, and therefore her comment goes unnoticed, as it overlaps with C’s laughter and the teacher’s utterance (lines 48, 52). To compensate for that, G repeats her comment, smiling and gazing at C as the teacher moves slightly aside (lines 53-54).

By citing the second half of the proverb, “keep the doctor away,” G seems to offer a logical conclusion to C’s story, whose content reflected the first half of the proverb (having apples for breakfast—“an apple a day”). In this sense, G’s utterance demonstrates that she has developed an appropriate understanding of the proverb, which enabled her to use it creatively in a new context. G’s understanding of the proverb’s meaning is also expressed through gesture as she accompanies the adverb “away” with the Away Catchment (lines 57-59; Figure 6.7-6.8), initially introduced by the teacher. Unlike the version of the catchment enacted by G as part of her private speech (lines 14-16), where her fingers were slightly curved, this time the gesture’s shape is more distinct and almost identical to the one produced by the teacher (Part 1, lines 5-6). G’s
palm is facing outward with fingers extended and separated. This version of the Away Catchment is also enacted by G with more confidence than her private gesture. The fact that the student did not produce the catchment in her first attempt to make the comment, when she was not visible to her addressees, suggests that her gesture is now used for social purposes rather than self-regulation.

*Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (Part 2--continued)*

51  G:  [keep the doctor] [away
52  T:  [then you’re very healthy

53  G:  {keep the doctor
54  {gazes at C and smiles}
55  T:  {turns to G and walks towards her}

56  G:  {away
57  {moves RH upward to head; away from body, Away C
58  from center to right extreme periphery,
59  palm facing outward, fingers extended and apart}

56  T:  {laughs, shifting gaze from G to C
57  G:  {laughs
58  C:  {laughs
59  T:  keeps the
Figure 6.9. Lines 64-66: “doctor”

64 {doctor away

65 {moves RH upward to face and away from body as a beat, Away C

66 palm facing outward, fingers extended, gazes at C

67 that’s right

68 very nice

G’s actions elicit laughter from the teacher and student C so that the three appear to be laughing simultaneously (lines 47-49). This is followed by the teacher’s acknowledgement of G’s contribution as she enthusiastically repeats it and re-enacts the Away Catchment (this time mimicked from G) in a positive and emphatic manner by making a beat at its stroke (lines 65-66; Figure 6.9). Being produced in the same direction as G’s gesture with the palm shaped in a similar way, the teacher’s catchment acquires some features of G’s catchment. Apart from serving as an acknowledgment of G’s contribution, the teacher’s repeat of “keeps the doctor away” also serves as a comment redirected to C, as expressed in the teacher’s gaze directed at her (line 66). The beat feature of the teacher’s gesture makes it similar to the “fist” gesture, previously produced by C in line 47. Thus, the teacher demonstrates fine-tuned alignment with both students by incorporating the features of their gestures in her own body movement. In this sense, we can observe a jointly accomplished transformation of the Away Catchment throughout the interaction: being initially introduced by the teacher, it gradually acquires the features appropriated from the students’ gestures.
6.2.3 Embodying the rhythm of the proverb

Excerpt 6.2: “Nice Sound”

In this excerpt, which occurs twenty-three minutes later, the teacher attempts to make a connection between the newly introduced idiom “Under the weather” and the previously introduced proverb “An apple a day keeps the doctor away.” She does so by producing a designedly incomplete utterance (DIU), consisting of a subordinate clause, “if you don’t want to be under the weather” (line 1). Instead of the missing main clause, the teacher silently produces a gesture. She picks up the apple from her desk and shows it to the students, holding it in the center-center area as she gazes at the students, soliciting their verbal completion of the utterance (lines 4-5). This pantomime in the form of the Apple Catchment serves as a visual anaphor, referring the students to the proverb introduced earlier and therefore, acts as a gestural clue aimed at eliciting the proverb from the students.

Excerpt 6.2: “Nice Sound”

1  T: and if you \{don’t want to be; under the weather\}  
2  \{beats out stressed syllables\}  
3  \{(2.0)\}  
4  T: \{picks up apple from desk with RH; raises it to shoulder \}  
5  \{and holds, gazing at class\}  
6  A: °eat apple every day°  
7  T: \{an apple a day, (.)\}  
8  \{points with RH, holding apple, to blackboard\}  
9  \[keeps the doctor a\uparrow way\}  
10  Ss: smile  
11  G: \{[>an apple a day keeps the doctor<\}  
12  \{gazes at notes\}  
13  \{away\}  
14  \{shifts gaze to T, moves RH to shoulder and away from body,}
Student A orients to the teacher’s embodied performance by providing the first half of the proverb rephrased so as to perfectly match the meaning and the syntactic function projected by the teacher’s designedly incomplete utterance. T: “if you don’t want to be under the weather,” A: “eat apple every day” (lines 1 and 6). The teacher follows up by pronouncing the proverb unchanged as she points at it written on the board (holding the apple). By doing this, she provides another anaphoric reference to the proverb, enhanced by the presence of the object, the apple, which by now has almost turned into a symbol of the proverb’s meaning. Half way through the teacher’s utterance, G rushes to produce the proverb, first gazing at her notes and then shifting her gaze to the teacher at “away,” accompanied with the Away Catchment (lines 10-14). G’s actions show that in producing the proverb, she still needs to be mediated by its graphic inscription and the gestural enactment. “Replaying” the Away Catchment allowed G to make a visual-motoric connection to her previous two instances of producing the proverb in Part 2.

The teacher proceeds by shifting her instructional focus from the meaning to the form of the proverb. She starts by asking the students to identify rhyming words in the proverb and points at its inscription on the board with both hands, completing the gesture with a hold (line 16-17). It serves as a visual prompt, where the two pointing hands suggest the presence of two rhyming words. The teacher’s action elicits the correct response from By: “toda:y and awa:y” (line 20).

Excerpt 6.2: “Nice Sound” (continued)

16  T: do you hear {**rhyming** words in there?}
17 {points to board with BH, index fingers extended; holds}
18 {1.0}
19 T: {holds}
Notice that the student mimics the teacher’s prosodic pattern, elongating the stressed syllables. The teacher energetically acknowledges her response and follows up by distinctly pronouncing the proverb to highlight the rhythm and rhyming words. She brings the rhyming words into focus prosodically and gesturally as she elongates each of them (lines 23, 29), separates the two rhythmic groups with a pause (line 26), and points at “day” and “away” on the board (lines 24, 30). The students orient to such multimodal highlighting by echoing the rhyming words in synch with the teacher (lines 25, 31).

The teacher next explains that due to the rhyming words, the proverb acquires a “nice sound” (line 34). Simultaneously, she starts to embody the sound, making it visible through her rhythmic body movement. The teacher rotates her hands, moving them upward and downward, and slightly moves her whole body in the rhythm with the stressed syllables, which resembles dancing (lines 35-36). The teacher follows by pronouncing the proverb, accompanied with a similar dancing movement (Figures 6.10-6.11). It becomes even more active as she adds distinct
head tilts to mark the stressed syllables, highlighting the established rhythmical pattern (lines 37-39). The reiterated dancing movement turns into a catchment referred to as the Rhythm Catchment. It serves the instructional function of visualizing and embodying the rhythmical contour of the proverb.

Excerpt 6.2: “Nice Sound” (continued)

34 T: {and that’s the reason that has a nice sound,}
35 {raises BH to chest; moves them alternately upward and downward}
36 in a rotating motion as in dancing, slightly moves body} Rhythm C

Figure 6.10. Lines 37-39: “an apple a day” Figure 6.11. Lines 37-39: “an apple a day”

37 {an apple a day, keeps the doctor away.}
38 {produces the same movements as in lines 35-36,}
39 moves body more actively, tilts head} Rhythm C

40 A: {slightly nods head in the rhythm} [°away°] Rhythm C

41 W: {smiles}

42 Ss: {make notes in notebooks}

Figure 6.12. Lines 43-44 “doctor away”
Some of the students express their alignment with the teacher while others make notes in their notebooks (probably filling out the chart for rhyming words). Thus, W reacts by smiling while A marks the rhythm of the teacher’s utterance with slight head nods, echoing “away” (lines 40-41). We can see how the student embodies the rhythmic pattern in a way different from the teacher. His head nods, however, serve the same instructional function as the teacher’s dancing movement. Therefore, A’s gesture can be considered the same Rhythm Catchment as the one employed by the teacher to mark the rhythm. In this case, the crucial identifying feature of the catchment is the rhythmic movement of the body.

Student G also imitates the teacher’s performance by repeating the proverb and tilting her head from side to side to mark the rhythm (lines 43-44; Figure 6.12). G employs another way of highlighting the rhythmic pattern and by doing this, she creatively imitates the Rhythm Catchment previously produced by the teacher and A. The teacher in turn aligns with G by making two beats, accompanying the last stressed syllables in G’s utterance (line 45). The teacher’s hand movements follow the same direction as G’s head tilts—from right to left as she produces the Rhythm Catchment in synch with the student. The teacher acknowledges G’s performance and tries to draw the other students’ attention to it by saying “See?” (line 46), at which point some of them raised their heads.

Excerpt 6.2: “Nice Sound” (continued)
The teacher then makes a humorous suggestion that the students can now “walk around saying that all day” (line 47). Simultaneously, she produces a slightly modified dance movement in a humorous manner as she tilts her head from right to left. Her hands move in the same direction with her fists clenched (lines 48-49; Figures 6.13-6.14). We can see how this version of the teacher’s Rhythm Catchment incorporates the feature of G’s catchment—the head tilts. Thus, similar to the Away Catchment, the Rhythm Catchment is also modified through mutual imitation in the process of the interaction. The students affiliate with the teacher’s humor by smiling and laughing while student G taps out the rhythm of the teacher’s utterance on the desk (lines 50-51). As the teacher concludes by pronouncing the proverb, accompanied with the dancing movements, G starts to move her right hand to the right and left synchronously with the
teacher, imitating her hand movement. They produce the Rhythm Catchment co-temporally and express affective alignment with shared smiling (lines 53-54). Another student, C, joins in by imitating the catchment as she tilts her head from left to right at the end of the teacher’s utterance and echoes part of the “away” (lines 55-56). C also affiliates with the teacher’s humor by exclaiming “ha” and raising her eyebrows.

6.2.4 Discussion

To summarize, in these excerpts the instructor turned a real life situation into a teachable moment, where she extensively employed gesture and manipulation of an object to explain the meaning of a proverb. The teacher’s multimodal explanations were uniquely patterned throughout the six instances of uttering the proverb and two paraphrases. The pattern included consistent prosodic features such as the elongation of the rhymed syllables and a pause separating the segments of the proverb. Its gestural accompaniment was also patterned so that each instance of the proverb and its paraphrase were synchronized with beats, marking the rhythmic contour. Most of the beats were combined with object manipulation—the apple—held in the gesturing hand in the center-center area as an illustration of the proverb’s meaning. Such consistent combination of multimodal resources employed for specific instructional purposes will be referred to as an instructional multimodal scheme (IMS). Importantly, the students attended to, and appropriated, the elements of the teacher’s IMS, specifically, its prosodic and gestural features.

Throughout the gesture-based mediation, the teacher consistently employed three gestural catchments as part of her IMSs: the Apple Catchment, the Away Catchment, and the Rhythm Catchment. Each of these iterative gestures served specific instructional functions. In employing the Apple Catchment, the teacher combined hand movement with object manipulation as an
illustration of the meaning of the proverb’s segment: “an apple a day.” She consistently employed the apple as part of her beat or pointing gestures, displaying it in the center-center gestural space. In this way, the apple embodied the main topic of the discussion, helping to maintain coherence of the teacher-student discourse centered on the proverb. By illustrating the proverb’s meaning, the Apple Catchment also served as a visual reminder and an anaphoric reference to the proverb throughout the teacher’s discourse. Thus, holding the apple in the area most visibly accessible to the students was motivated by the teacher’s instructional and communicative intent.

The Apple Catchment was produced by the teacher in several variants, where differences of form correlated with the catchment’s instructional functions. Combined with superimposed beats, the Apple Catchment highlighted the rhythmic pattern of the proverb in addition to visualizing its meaning. In this respect, the beat version of the Apple Catchment integrated the instructional focus on the meaning of the vocabulary with the focus on its form. Produced as a pointing gesture (directed at G), the Apple Catchment served as an anaphoric reference to the student’s act of sharing, which initially triggered the introduction of the proverb. Directed at the proverb written on the board, the Apple Catchment served as an anaphoric reference to its meaning. Performed as a pantomime, the catchment was intended to elicit the proverb from the students by visually referring them back to the proverb, introduced twenty minutes earlier.

The instructional function of the Away Catchment introduced by the teacher was to iconically portray the meaning of the adjective “away,” included in the second part of the proverb. The teacher’s actions indicated that the use of iconic gesture to illustrate the new L2 meaning was of major importance at the point of the students’ first exposure to the item and became less relevant as soon as they showed signs of understanding. The students signaled their comprehension by
imitating the teacher’s Away Catchment as they were mastering the meaning of the proverb. Thus, student A showed his understanding by providing a gestural completion of the teacher’s utterance in the form of the Away Catchment. His imitation of the teacher’s catchment appeared as an echoing gesture, whose features reflected the differences in the teacher versus student gesturing observed in the previous excerpts. Among these features pertaining to the classroom roles of the teacher and student were a smaller gesture box and limited visibility. Student A’s gestural depiction of the meaning of “away” was followed by his two verbal elaborations of the proverb, one of which occurred twenty minutes later. Thus, in full accordance with Goldin-Meadow’s (2003) findings, the student’s understanding of the new vocabulary first manifested itself in gesture before it became shaped in his speech. Having appropriated the teacher’s gestural strategy, the student transferred it into speech as a sign of his better control over the task and his microgenetic development.

The teacher’s Away Catchment was also appropriated as a tool-for-thinking by student G, who employed it for self-regulation as part of her externalized private speech. Unlike student A though, G’s catchment was not shaped as an echo of the teacher’s gesture, having a large gesture box, which is unusual for the student gesture observed in the current data. Given that this was typical of G’s gesture produced in other excerpts as well, one might wonder whether it was due to cultural or individual factors. Similar features—expanded gesture box and emphatic qualities—also pertain to C’s gestures. Interestingly, both students come from South American countries: Columbia and Brazil. Thus, a cultural factor might be at play as well. Student G further employed the Away Catchment for communicative purposes as she used the proverb creatively in a new context, which can serve as a sign of learning. She mediated herself with the catchment again in her production of the proverb twenty minutes later. Another student (C)
oriented to the teacher’s gesture-based mediation by projecting the proverb’s meaning onto her personal life experiences. In producing a narrative about her healthy food habits, C creatively applied the newly acquired proverb to a real life situation, showing signs of learning.

Finally, the teacher employed the Rhythm Catchment, which served the instructional purpose of visualizing and embodying the rhythmical pattern of the proverb. Similar to the Apple catchment, the Rhythm Catchment appeared as part of an IMS distinguished by consistent prosodic features, hand gestures, and a “dancing” movement of the whole body complemented by a happy facial expression. Acting in concert, these non-verbal features of the IMS created an affective expression of happiness, which was further amplified and exaggerated to produce a humorous effect. The emotional coloring of the teacher’s performance was sensitively oriented to by the students, who joined her in affective alignment by smiling and imitating the teacher’s Rhythm Catchment. Several students creatively reworked the catchment in their mastering the rhythm of the proverb. Student A marked the rhythm with head nods while G and C accomplished that by making head tilts in the rhythm of the teacher’s body movement. The process of teacher-student gestural imitation became reciprocal as the teacher aligned with G’s body movement by making hand beats. She further incorporated G’s head tilts in her own humorous version of the Rhythm Catchment. In this way, the catchment initially introduced by the teacher became transformed through teacher-student reciprocal imitation. These reflective imitations of catchments across the participants helped to maintain their affective engagement as signaled by their smiling and laughing. At several points in their mutual imitations, the body movements produced by the teacher and students were synchronized, marking the rhythm of L2 speech. Such interactional synchrony can be an important mediational tool in acquiring prosodic features of a new language.
Throughout the excerpts, the teacher and students demonstrated unique alignment by reacting to each other’s actions with positive expressions of affect. These included affiliative laughter as well as mirroring each other’s body motion engaged in affective displays. Thus, C reacted to the teacher’s comment “always apple” with an affective gesture projecting decisiveness and confidence. This sentiment was mirrored by the teacher in an amplified way as she laughed and produced a triumphant gesture, which incorporated the features of C’s hand movement (clenched fist). The affective exchange triggered affiliative reaction on G’s part, who shared the elated mood by reiterating the proverb in a cheerful manner and imitating the teacher’s Away Catchment. This, in turn, elicited affective reaction on C’s part as well as on the teacher’s part, where the three (G, C, teacher) produced shared laughter. The affective alignment extended into the teacher’s gesture (upward hand movement produced as a beat, Figure 5.31), which creatively incorporated the features of both students’ gestures. As a result, the Away Catchment initially introduced by the teacher became collaboratively transformed through the teacher’s affiliative engagement with the students. In this sense, the teacher and students’ gesture became a tool for affective alignment and establishing positive teacher-student relationship. This, in turn, can have beneficial effect on student engagement and achievement as shown in prior studies (e.g., Roorda, Koomen, Spilt, & Oort, 2011).

On the whole, the excerpts demonstrated the multifunctional nature of the teacher’s gesture, where it served a diverse range of instructional functions: illustrating the meaning of L2 vocabulary; highlighting the features of its form such as the rhythmic contour; maintaining coherence of teacher-student discourse by serving as a visual anaphor. The teacher’s gesture also
Table 6.1. Instructional functions of catchments in Excerpt 6.1: “An Apple a Day Keeps the Doctor Away” (AD) and Excerpt 6.2: “Nice Sound” (NS)

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
</table>
| Apple C        | 1          | Teacher | 1) Illustration of meaning  
2) Marking the rhythm | 1) Iconic, object manipulation  
2) Beat | 3 |
|                | 2          | Teacher | 1) Clarification of meaning, anaphoric reference  
2) Marking the rhythm | 1) Iconic, object manipulation  
2) Beat | 16 |
|                | 4          | Teacher | 1) Anaphoric reference  
2) Marking the rhythm | 1) Iconic, object manipulation  
2) Beat | P 2, 2 |
|                | 5          | Teacher | 1) Reminder of meaning  
2) Marking the rhythm | 1) Iconic, object manipulation  
2) Beat | 7-8 |
|                | 6          | Teacher | Anaphoric reference | 1) Iconic, object manipulation  
2) Beat | 12 |
|                | 7          | Teacher | Depiction of the main topic, Eliciting student response | 1) Iconic, object manipulation  
2) Hold | 19 |
|                | 8          | Teacher | 1) Clarification of meaning  
2) Marking the rhythm | 1) Iconic, object manipulation  
2) Beat | 21 |
|                | 9          | Teacher | Anaphoric reference | 1) Iconic, object manipulation  
2) Pointing | 32 |
|                | 10         | Teacher | Anaphoric reference | 1) Iconic, object manipulation  
2) Pointing | 34 |
|                | 11         | Teacher | Anaphoric reference | 1) Iconic, object manipulation  
2) Pointing | 45 |
|                | 12         | Teacher | 1) Affective alignment  
2) Anaphoric reference | 1) Affective  
2) Object manipulation | 49-50 |
|                | 13         | Teacher | 1) Anaphoric reference  
2) Eliciting student response | 1) Iconic, object manipulation  
2) Hold | NS, 4-5 |
|                | 14         | Teacher | Anaphoric reference | 1) Iconic, object manipulation  
2) Pointing | 8 |
| Away C         | 1          | Teacher | Illustration of meaning | Iconic | 6 |
|                | 2          | Student A | Completion of teacher’s DIU; sign of understanding | Iconic | 19 |
|                | 3          | Student G | Self-regulation—private speech | Iconic | 14-16 |
|                | 4          | Student G | Communicative—affective alignment | Iconic | 57-59 |
|                | 5          | Teacher | Acknowledgement of student contribution, affective alignment | Iconic  
Beat | 64-66 |
<p>|                | 6          | Student G | Providing correct response | Iconic | NS, 14-15 |
| Rhythm C       | 1          | Teacher | Marking the rhythm in a | Beat | NS, |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>DIU</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Teacher</td>
<td>Marking the rhythm in a meta comment</td>
<td>Dancing body movement</td>
</tr>
<tr>
<td>3</td>
<td>Teacher</td>
<td>Marking the rhythm in the proverb</td>
<td>Dancing body movement</td>
</tr>
<tr>
<td>4</td>
<td>Student A</td>
<td>Imitates T synchronously to mark rhythm</td>
<td>Head nods</td>
</tr>
<tr>
<td>5</td>
<td>Student G</td>
<td>Imitates T to mark rhythm</td>
<td>Head tilts</td>
</tr>
<tr>
<td>6</td>
<td>Teacher</td>
<td>Imitates G to mark rhythm, alignment, acknowledgment</td>
<td>Hand beats</td>
</tr>
<tr>
<td>7</td>
<td>Teacher</td>
<td>Humorous suggestion, affective alignment</td>
<td>Head tilts, hand beats, dancing movement</td>
</tr>
<tr>
<td>8</td>
<td>Student G</td>
<td>Imitates T synchronously to mark rhythm</td>
<td>Hand beats</td>
</tr>
<tr>
<td>9</td>
<td>Teacher</td>
<td>Marking the rhythm in the proverb</td>
<td>Head tilts, hand beats, dancing movement</td>
</tr>
<tr>
<td>10</td>
<td>Student G</td>
<td>Imitates T synchronously to mark rhythm</td>
<td>Hand beats</td>
</tr>
<tr>
<td>11</td>
<td>Student C</td>
<td>Imitates T synchronously to mark rhythm</td>
<td>Head tilts</td>
</tr>
</tbody>
</table>

The findings presented in this section illustrated the ways the teacher employed gesture as part of an instructional multimodal scheme in explaining the meaning of such formulaic expression as a proverb. The section that follows continues considering the *obuchenie* of L2 formulaic expressions, expanding the focus onto metaphorical and emotive meanings of an idiom. The teacher’s embodied explanations of the meanings and the ways students orient to them remain central to the findings reported below.

### 6.3 Gesture in Teaching a Metaphorical-Emotive Meaning of an Idiom

This section reports on the role of the teacher’s gesture and other non-verbal means of expression in teaching the metaphorical emotive meaning of an idiom. In the excerpt discussed below, the teacher employed iconic gesture to illustrate the literal meaning of the lexical components of the idiom and metaphorical gesture to explain its metaphorical meaning. The emotive aspect of the idiom’s metaphorical meaning was visualized by the teacher through an
array of multimodal resources in the form of IMSs, which were performed by her in a consistent and iterative way. This patterned embodiment of the idiom’s metaphorical emotive meaning was appropriated by the students as they comprehended its meaning and produced the idiom in a new context, displaying signs of learning.

6.3.1 Introducing the idiom

Excerpt 6.3: “On top of the World” (Part 1)

The teacher’s instructional routine involved introducing an idiom at the beginning of each class. In the excerpt presented below, she introduced the idiomatic expression “On top of the world,” the discussion of which spanned three sessions: the first and the second session of Class 10 and the first session of Class 11. Part 1 of the excerpt begins as the teacher pulls out the slide with the idiom written on it. She pronounces the phrase, emphasizing the word “top,” which is markedly aspirated and uttered in a louder voice (line 1). The prosodic stress is enhanced with the gestural emphasis as the teacher mimics the shape of the globe in her gesture, amplifying it with superimposed beats (lines 2-3. Figure 6.15).

Excerpt 6.3: “On top of the World” (Part 1)

1  T:  on \{T(h)OP of the world\}  

Figure 6.15. Lines 1-3: “top of the world”

2  \{holds BH at waist, palms half-cupped facing each other, \  

World C

3  makes beats\}
4  T:  on ↑T(h)OP of the world
5         is this {top or bottom?}
6  {strikes against table twice}
7  Ss:  top
8  T:  top.
9  and you know {what the world is} right,
10  {moves BH upward to chest; to the sides and downward,
11  forming a circle, palms half-cupped; holds}  World C

Figure 6.16. Lines 9-11: “what the world is”

12  Ss:  yeah
13  T:  so on {↑th(top) of the world
14  {makes a beat}  World C

The teacher then checks the students’ understanding of the literal meanings of the idiom’s
lexical composition through iconic gestures. She hits her hand against the top of her desk to
portray the meaning of “top” and draws a round shape with her hands to depict the world (lines
5-6, 10-11; Figure 6.16). Both actions elicit claims of understanding on the students’ part (lines 7,
12). By repeating the iconic depiction of the world, the teacher turns it into a catchment referred
to as the World Catchment. The use of iconic gestures to confirm the meanings of L2 vocabulary
with the students appears to be instructionally strategic since the teacher does not share the
students’ native languages. The teacher concludes by repeating the idiom with a similar
prosodic-gestural emphasis as she did previously, marking the word “top” with a beat shaped as
a globe (line 14). It seems important to consider the role of the beat in more detail. In most of the
literature, beats are described as related to prosody and parsing the discourse into rhythm groups
(e. g., Efron, 1972; Kendon, 2004). However, McNeill (1992; 2005) points to a more meaningful role of beats as highlighting the importance of the verbal element “with respect to the larger discourse…, the equivalent to using a yellow highlighter on a written text” (McNeill, 2005, pp. 40-41). In this sense, by marking the word “top” with a beat, the teacher may be profiling it as a key element in the idiom’s meaning. The importance of “top” is related to the metaphorical meaning of the idiom, “exultant, elated, or very happy” (On Top Of The World, n. d. a), which reflects the conceptual metaphors “GOOD IS UP” as well as “HAPPY IS UP; SAD IS DOWN” (Lakoff & Johnson, 1980, p. 15). The meanings of these metaphors are projected from our physical experiences with the world, where “erect posture [goes] with a positive emotional state” while “Drooping Posture typically goes along with sadness and depression” (p. 15).

Excerpt 6.3: “On top of the World” (Part I--continued)

20 T: how does she feel?
21 Ss: happy
22 T: {a little happy?}
23 {LH @chest, palm cupped, slightly twists palm counter clockwise
24 and then clockwise; holds through line 28}
25 R: no
26 A: {more}
27 S?: so happy
28 T: {r:really really really RE:ally}
29 {raises head, widens eyes, slowly moves BH upward to chest,
30 to the sides and downward, palms half-cupped;
31 raises shoulders and gazes upward on "REally"}
Having introduced the literal meaning of the idiom, the teacher invites the students to infer its metaphorical meaning from illustrative dialogues, which they read aloud from the screen. In the first, a girl is “on top of the world” because her boyfriend proposed to her. When the students finish reading the exchange, the teacher attempts to elicit the figurative meaning of the idiom by asking the students how the girl from the dialogue feels (line 20). By referring to the character’s feelings, the teacher suggests that the meaning of the idiom is related to the sphere of emotions. As the students respond, “happy,” the teacher invites them to specify the intensity of the feeling. She accompanies her request, “a little happy?”, with a gesture metaphorically depicting the low intensity of happiness as a small object (lines 23-24). Her actions elicit student responses, which convey a higher degree of happiness: “more” and “so happy.” These answers are acknowledged and elaborated by the teacher as she rephrases them with the intensifier “really,” repeated four times. It is also marked prosodically with a slow-down, elongations, and higher volume, which is matched by the teacher’s emphatic embodied performance (lines 28-31; Figure 6.17). She raises her head, widens her eyes, and slowly moves her hands upward, to the sides and downward as if outlining the shape of the world. This bilateral gesture for “really,” produced in the right and left periphery, is in striking contrast with the unilateral hand movement for “little.” Portraying the
higher intensity of happiness, the gesture still retains the iconic shape of the globe, similar to the World Catchment produced on lines 10-11. It acquires a metaphorical quality, however, through use of the intensifier “really” and by referring to the abstract concept of happiness. By combining the reference to the meaning of the “world” with the reference to the figurative meaning of the idiom, “very happy,” the gesture serves as a visual bridge between the literal meaning of the idiom’s lexical make up and the metaphorical meaning of this formulaic expression.

In combining such multimodal resources as prosody (slow-down and elongation), eye gaze and facial expression (widened eyes), and gesture to serve the specific instructional purpose of highlighting the crucial aspect of the idiom’s meaning (i.e., the degree of happiness), the teacher creates an instructional multimodal scheme similar to the IMS employed in explaining the proverb “An apple a day…” It constitutes the IMS1, which will be reiterated and turned into a pattern later on in the interaction.

6.3.2 Non-verbal recast

Excerpt 6.3: “On top of the World” (Part 2)

The discussion of the idiom continues as the students are asked to read another dialogue illustrating its meaning. In this dialogue, a student feels “on top of the world” because she just finished her last exam. The concluding line, “Now I can graduate,” was intended to illustrate the feeling of being “exultant, elated, or very happy” (On Top Of The World, n. d. a). However, student G reads it in a flat voice with monotonous intonation (line 39), which fails to convey the previously discussed feeling of intense happiness. The teacher responds with a recast, in which she reworks the student’s utterance so that it retains its verbal form but acquires an entirely different non-verbal affiliate. Beginning to pronounce: “Now I can graduate,” the teacher smiles,
widens her eyes, and raises her eyebrows, displaying the feeling of intense happiness (lines 40-41). She follows by excitedly exclaiming “graduate” and amplifies the emotion with an emphatic bilateral gesture as she moves her hands upward and then to the sides in the periphery. The affective nature of the gesture is reinforced by effortful superimposed beats (lines 43-44; Figure 6.18).

*Excerpt 6.3: “On top of the World” (Part 2)*

39  G:    now I can graduate
40  T:  {now I can}
41   {smiles, widens eyes, raises eye brows}
42   {GRA[du:te]!}
43   {moves BH upward to chest; to the sides, palms flat,
44   fingers extended; makes beats} Very Happy C

![Image](image.png)

*Figure 6.18. Lines 42-44: “graduate”*

45   C:   [{graduate}]
46   {smiles}
47  Sr:  [graduate]
48  R, G:  {smile}
49  T:  {not now I can graduate.}
50   {tilts head, makes a dull face; moves BH downward, brings them in contact}
51 52  R, C:  {look more serious}
53  Sr:  laughs
54  T:  {now I can}
55  {moves BH upward and apart to head}
Given the role of beats in marking the importance of the co-temporal verbal element for larger discourse, it appears that in this case, beats synchronized with “graduate” highlight the locus of the problematic part of the student’s utterance—the word that was supposed to convey the missing emotion of happiness. The shape of the teacher’s gesture synchronized with “graduate” resembles the gesture for “really happy,” produced in lines 28-31. However, its iconic feature—the shape of the globe—is no longer retained as the teacher’s palms are flat rather than half-cupped. Thus, the gesture coupled with “graduate” is of a metaphorical nature, portraying the feeling of intense happiness. Repeated by the teacher later, it constitutes the Very Happy Catchment. Combined with other multimodal resources, the catchment is part of the teacher’s recast that she produced exclusively in the non-verbal modality. It is an unusual recast, referring to the paralinguistic features of the student’s utterance rather than to its grammatical or lexical form. The non-verbal aspects of the student’s answer became the focus of the teacher’s recast since they were supposed to convey the crucial element of the idiom’s meaning—the intensity of emotion. Several students, including G, react to the teacher’s vivid embodiment of happiness in her recast by smiling while students C and Sr also repeat the accentuated word “graduate” with a similar emphasis (lines 45, 47).

The teacher continues using G’s utterance as a “substrate” (Goodwin, 2013, p. 9) in extending her recast and proceeds by mirroring the student’s way of producing the phrase “Now I can
graduate.” The teacher does so by exaggerating G’s manner in a humorous way as she tilts her head, makes a dull face, and moves her hands downward, bringing them into contact (line 47). The teacher seems to be strategic in mirroring G’s performance and highlighting its embodiment as she makes G’s error visible, bringing it into the students’ consciousness. Students R and C, who were smiling previously, now mirror the teacher’s facial expression by taking a more serious look (line 52). Student Sr reacts in an opposite manner by responding to the teacher’s “dull” utterance with laughter, displaying his understanding of the humor (line 53).

What happens next is that the teacher switches back into her “very happy” line of action by putting on a happy face, exclaiming the phrase at an even higher pitch, and accompanying “graduate” with the Very Happy Catchment (lines 56-57). This performance creates a comparative framework by contrasting the teacher’s parody of student G’s utterance with her performance of “happiness.” It elicits affiliative moves from several students. C repeats the word “graduate” synchronously with the teacher and mimics her facial expression by smiling and flashing her eyebrows (line 58-59). Students R, G, and Sr accompany the teacher’s utterance with smiling, which is followed by G’s laughter.

What is also important in this excerpt is that the teacher chose to provide the recast from the character viewpoint, animating the person from the dialogue rather than pointing out to the student that she should have produced the phrase differently. The use of the character viewpoint, involving direct speech, motivated the dramaturgical nature of the teacher’s utterance, “now I can graduate,” and the orchestrated use of diverse multimodal resources: prosody, eye gaze, facial expression, and body movement, including gesture. Employed in concert and reiterated for the instructional purpose of extended recast, they constitute another instructional multimodal scheme, IMS2.
6.3.3 Character Viewpoint

Excerpt 6.3: “On Top of the World” (Part 3)

Part 3 starts where Part 2 left off as the teacher pulls out the slide that depicts the literal meaning of the elements of the idiom and includes the verbal definition of its metaphorical meaning. The image on the slide portrays a female sitting on the top of the globe with her hands raised up in the air. The teacher first asks the students whether their image of the literal meaning coincides with the picture on the slide (line 65). As she pronounces the idiom, the teacher employs the World Catchment, iconically portraying the globe as a visual reminder of the literal meaning (lines 69-70; Figure 6.19). When the teacher next asks the students about the figurative meaning of the idiom, Sr provides a response “to be happy,” which lacks an intensifier, whose importance was emphasized by the teacher in the preceding discussion. The teacher requests further specification from the students, which elicits correct responses from Sr, “more,” and By, “very happy” (lines 74-75). Notice that By pronounces the intensifier “very” with the emphasis on the intensifier (just as the teacher emphasized “really” and “super” previously), showing her understanding of its importance through her imitation of the prosodic elements of the teacher’s IMS1. This emphasis becomes amplified in the teacher’s response as she acknowledges By’s answer by repeating “to be very happy” with a stronger emphasis and elongation of “very.” She also accompanies the phrase with the Very Happy Catchment (lines 77-78). The teacher further elaborates on the student’s answer by reiterating “very” three times with a slow-down and emphasis. She also marks each stressed syllable with a beat superimposed on the Very Happy Catchment (lines 80-81). We can see how the teacher reiterates the IMS1, which was previously synchronized with “really” and is now accompanying another intensifier, “very.” Such
consistency in illustrating intense happiness may facilitate the students’ appropriation of the meaning.

Excerpt 6.3: “On Top of the World” (Part 3)

63 T: {so I’m on top of the world}
64 {operates laptop pulling out next slide}
65 is that the picture you have for your literal meaning?
66 somebody {is on}
67 {moves BH upward to shoulders}
68 {top of the world.}
69 {holds BH in front of herself @ shoulders, palms half-cupped} World C
70 facing each other, makes beats}

Figure 6.19. Lines 68-70: “top of the world”

71 but what is the figurative meaning
72 Sr: to be happy,
73 T: just happy?
74 Sr: more
75 By: very happy
76 T: to be very {happy}
77 {moves BH from waist to chest and downward to waist, palms facing upward, fingers extended; holds through line 80} Very Happy C
78 (0.5)
79 T: to be {<very very very> happy}
80 {makes four beats} Very Happy C
81 {i’m on}
82 {moves BH upward from waist to head and to the sides, palms facing obliquely upward, fingers extended,
shifts gaze upward\}
\{TOP OF THE WORLD!\}
\{makes beats; shifts gaze to class and smiles at “world”\}

Figure 6.20. Lines 86-87: “top of the world”

\{(4.0)\}

t: \{walks towards her desk\}

t, f: \{smile\}

c: \{smiles and nods\}

s: \{write in their notebooks\}

t: to be very happy

The teacher next complements the verbal definition of the idiom’s figurative meaning with a vivid embodied performance. In doing so, she switches from the observer viewpoint to the character viewpoint by animating the person placed on top of the world as portrayed in the screen image. The teacher enacts the meaning of the idiom, which is described in a dictionary as feeling “wonderful; glorious; ecstatic” (On Top of the World, n. d. b). She shifts her gaze upward, moves her hands to the sides in extreme periphery, raising them to the level of her head, and exclaims: “I’m on top of the world!” (lines 82-87, Figure 6.20). The emphatic and emotional effect of this gesture is amplified with superimposed beats and a smile added at the end. The concerted use of non-verbal resources bears the features similar to the ones employed in the recast of “Now I can graduate.” Thus, the teacher reiterates the IMS2, creating a pattern in embodying the person, who is on top of the world. The teacher’s impressive demonstration of
happiness elicits affective reaction from the students as several of them respond by smiling (lines 90-91).

6.3.4 Student responsivity

Excerpt 6.4: “Yeah”

The discussion of the idiom continues as the teacher asks the students to provide examples from their personal experience when they were on top of the world and felt “incredibly happy.” Student C volunteers a response and shares that “her job” took the first place in the list of bestsellers (lines 1-6). It remains unclear what exactly she meant by “my job,” but it is obvious that she provides an appropriate example of an exceptional achievement that serves the reason for being very happy. In this way, C displays adequate understanding of the idiom’s meaning, which is also made visible through her dramatic performance accompanying the utterance (line 13, Figure 6.21). She emphatically utters “yheah” with a large smile and triumphantly raises her hands up above her head in extreme periphery with her fists clenched. By doing this, the student creatively imitates the teacher’s IMS2—the embodied performance of intense happiness, which included the Very Happy Catchment. Notice also that in full alignment with the teacher’s IMS, the student imitates the teacher’s catchment from the same perspective as the teacher did—the character viewpoint, which shows her tight personal engagement with the idiom’s meaning. Student C’s actions serve as a sign of appropriating the metaphorical emotive meaning of the idiom at a receptive level as she does not produce the idiom itself but effectively illustrates its meaning in her real life example and embodied performance.

Excerpt 6.4: “Yeah”

1 C: my job very important in my culture
2 and the goal my
and I list in the books bestsellers

T: ↓ahh
C: yes, different momentus
and my job is {first}
{raises LH upward to head}
T: {yhhhes:=}
C: {=list}
{makes a beat}
T: [she was]
C: {{yheah}}
{smiles, bows head, raises BH above head, fists clenched} Very Happy C

Figure 6.21. Lines 112-113: “yeah”

T: on {top}
{points at C, makes a beat}
{of the [world]}
{holds BH @ chest, palms facing each other, fingers extended, makes beats} Very Happy C
C: [“yeah”]
laughs

Excerpt 6.5: “Did you get it?”

At the end of the second session on the same day, the teacher checks with the students whether they fulfilled all the goals for the class. When she asks whether they understand the meaning of the idiom “On top of the world,” one of the students immediately provides the correct answer, “to be very happy,” acknowledged by the teacher. Another confirmation of student understanding and appropriation of the idiom’s meaning occurred in the class that took
place two days later. Following a quiz, the teacher and students were going through the correct answers. After explaining one of them, the teacher asks the class: “Did you get it?” In response, student G produces the idiom as an indication that she is very happy about her correct answer. Recall that student G was the one who produced the phrase “now I can graduate” in Part 1, which was corrected by the teacher through a recast related to the non-verbal form of the utterance. This time, G’s prosody is noticeably livelier than in the recast utterance. She also

*Excerpt 6.5: “Did you get it?”*

1 T: did you get it?
2 G: on top *{of the world}*  
3 *{raises RH upward above head, fist clenched} Very Happy C*

*Figure 6.22. Line 3: “of the world”*

complements the verbalization of the idiom with embodied performance, raising her right hand up above her head with her fist clenched (Line 3; Figure 6.22). In doing this, she displays the signs of appropriating the teacher’s IMS2 by imitating some of its prosodic features and creatively reworking the Very Happy Catchment produced from the character viewpoint. She thus attempts to express the feeling of being “very happy,” which signals her appropriation of the metaphorical meaning of the idiom. Although the context of use is not quite appropriate for “feeling wonderful; glorious; ecstatic,” the student can be credited for making an attempt to use
the idiom in the context of a real life situation. This can be viewed as a sign of productive knowledge of the idiom and as a delayed (two days later) uptake of the teacher’s recast.

6.3.5 Discussion

To summarize, in this excerpt the teacher employed gesture combined with other multimodal resources in explaining the metaphorical meaning of the idiom “On top of the world” as well as the literal meaning of its components. The teacher’s iconic gestures along with her use of objects in the environment enabled her to check the students’ understanding of the literal meanings of the idiom’s lexical elements (“world” and “top”). This appeared to be a strategic move under the circumstances where the teacher and students did not share the native language, which could be another resource in checking the comprehension of L2 meanings. One of the teacher’s iconic gestures was employed by her in a consistent way as the World Catchment. Repeated throughout the three classroom sessions, it served as a reminder and as an anaphoric reference to the literal meaning of the “world.” The teacher also employed a hybrid gesture which contained the metaphorical dimension referring to the idea of intense happiness, and at the same time retained the iconic features of the world. In this way, it served as a visual bridge between the literal meaning of “world” and the figurative meaning of the idiom.

Through the hybrid gesture, the teacher transitioned to the use of metaphorical gesture—the Very Happy Catchment—as she explained the idiom’s metaphorical meaning. Synchronized with such verbal elements as the idiom itself, the example from the dialogue, “graduate,” and the intensifiers “really” and “very,” the catchment helped to maintain coherence of the teacher’s explanation of the idiom’s metaphorical meaning. The Very Happy Catchment consistently involved the use of superimposed beats, whose role is often overlooked in gesture research. In
the excerpt discussed above, the functions of beats were varied and important. On the one hand, they helped to amplify the teacher’s affective illustration of the idiom by making the gesture more expressive and emphatic. On the other hand, they served as markers of essential discourse elements by highlighting the key ideas, such as “top,” reflecting the metaphor “GOOD IS UP.” Furthermore, in the teacher’s recast of “graduate,” beats were synchronized with the troublesome part of the student’s utterance—the focus of the instructional correction. In terms of the instructional functions of catchments summarized in Table 6.2, apart from the ones identified in the previous excerpts, the teacher used catchments in order to recast, add emphasis to an explanation, and to expand student responses. Students added such functions as illustrating an example and producing an idiom in a new context (similar to the synonyms of “spot”).

The illustration of the idiom’s metaphorical emotive meaning, formulated by the teacher as “very happy,” transcended the speech-gesture modality, engaging a wider range of non-verbal resources. The teacher’s explanations can be divided into two types: 1) a more impersonal and psychologically distanced explanation from the observer viewpoint, which involved providing the definition of the idiom’s meaning, “really/very/super happy;” 2) a more personal and engaging explanation from the character viewpoint, in which the teacher turned herself into the person “on top of the world.” These two perspectives shaped the two instructional multimodal schemes (IMS1 and IMS2 respectively) employed to embody them and motivated the kinds of semiotic resources used within the schemes, which spanned at least three modalities: prosody; facial expression; and body movement, including gesture.

Each IMS was characterized by specific non-verbal features and served specific instructional functions. Thus, the IMS1 involved such shared features as verbal repetition, slowed-down speech, elongations, and the use of the Very Happy Catchment combined with beats. It was
synchronized with intensifiers “really,” “very,” and “super” (happy) and appeared to highlight the degree of happiness that was missing from the students’ answers. In the accompanying non-verbal affiliate, the teacher illustrated the feeling of intense happiness, which is the crucial part of the idiom’s meaning. The IMS2 seems to take the teacher’s explanation of the metaphorical emotive meaning a step forward in shortening the psychological distance between the explained meaning and the teacher as well as between the meaning and the students. The teacher demonstrated the meaning by inhabiting the role of the person “on top of the world.” In this way, her performance attracted more multimodal resources in becoming more emotional and dramatic. The shared features included: louder volume, prosodic emphasis, smiling, widened eyes, and the use of the Very Happy Catchment with superimposed beats. The character perspective has important pedagogical implications: according to Gerofsky (2010), switching to the character viewpoint enhances the students’ personal engagement with the topic and as such improves their understanding.

The teacher’s vivid embodiment of the emotive meaning through IMS2 served as a medium of providing a recast. Unlike most types of recasts described in the SLA literature (e.g., Mackey & Philp, 1998; Ellis, 2001), the recast in this excerpt was of embodied nature, focusing on the non-verbal features of the student’s utterance rather than its grammatical or lexical form. The focus was motivated by the instructional purposes at hand: it was predominantly through semiotic resources other than speech that the idiom’s emotive meaning was conveyed. The absence of the necessary non-verbal affiliate in the student’s utterance impoverished if not distorted the metaphorical meaning conveyed. The teacher’s embodied performance also helped to create humor by visualizing the contrast between the correct form and the student’s production (the dull versus excited manner), which was recognized and affiliated with by student Sr and
may have contributed to his understanding of the meaning of the idiom, “very happy.” This coincides with Smotrova & Lantolf’s (2013) findings that gesture can be used as a tool for creating humor through visualizing the incompatible nature of the correct and incorrect versions of L2 meanings and forms.

The recast was taken up by the student two days later as she attempted to produce the idiom in the context of the ongoing classroom situation. In her uptake, the student showed signs of appropriating the teacher’s embodied performance of the idiom. Thus, she creatively imitated the prosodic and gestural features of the teacher’s IMS2 by mimicking the phrasal emphasis and the Very Happy Catchment. The student’s actions can be viewed as signs of gaining productive knowledge of the idiom as she employed it in a new context. Another student demonstrated the signs of appropriating the idiom’s metaphorical emotive meaning as she provided a narrative of her prior life experience, correctly reflecting the meaning of the idiom. Her adequate understanding of the meaning became visible as she creatively imitated the teacher’s IMS2 in her triumphant gesture. Other students reacted to the teacher’s theatrically performed IMS2 with affective alignment as they responded with smiling and laughing.

The excerpt demonstrates the importance of teaching emotive meanings in the second language and the role of non-verbal resources in this process—the issues that have often been overlooked in the second language acquisition research. Emotions as a necessary part of word meanings were considered by Vygotsky (1986), who indicated that language and word meaning as its unit of analysis constitute “a dynamic system of meaning in which the affective and intellectual unite” (p. 10). Meanwhile, teaching emotive L2 meanings remains outside the focus of SLA studies (Swain, 2013). The analysis of the obuchenie of the metaphorical-emotive meaning of “On top of the world” aligns with Swain’s (2013) claims that emotions have to be
merged with the cognitive aspects of language instruction as they permeate the co-constructive obuchenie dialogue and “mediate learning outcomes” (p. 203). The importance of non-verbal expression of emotions in the obuchenie process was indicated by Holodynski (2013), who claimed that “language is neither the only nor the primary cultural sign system by which emotions are mediated in social interactions” (p. 16). The author underscores the role of non-verbal behavior such as gesture, eye gaze, and facial expression in forming “emotional expressions” (p. 15). Moreover, in full agreement with Holodynski (2013), the students did not appropriate emotional expressions in an impartial way but rather interpreted them in the context of their own personal experience and the local context of situation, which can be viewed as a sign of learning.

Table 6.2. Instructional functions of catchments in Excerpt 6.3: “On Top of the World” (T), Excerpt 6.4: “Yeah” (Y), and Excerpt 6.5: “Did you get it?” (DG)

<table>
<thead>
<tr>
<th>Catchment Name</th>
<th>Instance #</th>
<th>Actor</th>
<th>Instructional Function</th>
<th>Features</th>
<th>Line #</th>
</tr>
</thead>
<tbody>
<tr>
<td>World C</td>
<td>1</td>
<td>Teacher</td>
<td>Illustration of meaning in introducing</td>
<td>Iconic</td>
<td>T, 2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Teacher</td>
<td>Checking student understanding of meaning</td>
<td>Iconic</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Teacher</td>
<td>Repeat of the idiom</td>
<td>Iconic</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Teacher</td>
<td>Reminder about literal meaning</td>
<td>Iconic</td>
<td>69-70</td>
</tr>
<tr>
<td>Very Happy C</td>
<td>1</td>
<td>Teacher</td>
<td>Recast—correction of metaphorical meaning (example “graduate”)</td>
<td>Metaphorical</td>
<td>43-44</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Teacher</td>
<td>Extension of recast—making contrast between non-target and target form</td>
<td>Metaphorical</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Teacher</td>
<td>Acknowledgment/confirmation of student response</td>
<td>Metaphorical</td>
<td>77-78</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Teacher</td>
<td>Elaboration of student response—adding emphasis</td>
<td>1) Metaphorical, 2) Beats</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Teacher</td>
<td>Embodiment of metaphorical meaning</td>
<td>1) Metaphorical, Participant VP, 2) Beats</td>
<td>83-87</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Student</td>
<td>Illustrating example from personal experience</td>
<td>Metaphorical, Participant VP</td>
<td>Y, 13</td>
</tr>
</tbody>
</table>
### 6.4 Summary and Conclusions

This chapter examined the use of teacher and student gesture combined with other multimodal resources in *obuchenie* of L2 vocabulary meanings involving formulaic expressions. The analysis focused on gestures used in concert with other non-verbal resources in the form of instructional multimodal schemes to illustrate the meanings of formulaic expressions such as proverbs and idioms. Findings reported in this chapter provide evidence for the beneficial role of the teacher’s gestures and IMSs in developing student understandings of formulaic expressions. The teacher’s multimodal mediation also facilitated the development of the students’ productive knowledge of these expressions.

In line with the teacher’s mediational strategies observed in the previous chapters, her gestures were consistently enacted as catchments, which served specific instructional functions. In this chapter, the teacher’s catchments were particularly salient as cohesive devices, providing anaphoric references to the central point of the discussion. This function was especially obvious in the use of the Apple Catchment, invariably maintained by the teacher in her workspace—the centre-center area. In varying their non-essential features, the teacher’s catchments also exhibited contextual flexibility. Thus, the Apple Catchment that illustrated the meaning, when complemented with superimposed beats, acquired an additional instructional function of highlighting the form—the rhythmical pattern of the proverb. The same catchment turned into an anaphor when combined with deictic and served as a gestural clue when enacted as a pantomime.
While previous chapters revealed the instructional functions of holds, this chapter sheds more light on another under researched dimension of gesture—beats. The discussed excerpts provide evidence that extends the functions of beats beyond prosodic parsing of speech. In full agreement with McNeill (1992; 2005), they appeared to highlight important elements of the teacher-student discourse such as: 1) the key element of the idiom’s metaphorical meaning (“top”) and 2) the problematic part of the student’s utterance that became the focus of the teacher’s recast (“graduate”). Identified by McNeill (1992; 2005) in narratives and ordinary conversation, the functions of beats acquire instructional nature in the pedagogical context considered in this study.

As for the student responsivity to the teacher’s gesture, the students appropriated and employed it as a learning tool in thinking about and verbalizing the L2 formulaic expressions. In this process, student catchments served the following learning functions: 1) self-regulation as part of private speech in mastering a formulaic meaning; 2) productive use of the acquired formulaic phrase in a new context; and 3) appropriation of the rhythmic contour of a formulaic expression. The enactment of the teacher’s gestural depictions of meanings allowed the students to not merely observe them in the visual modality but also embody them in the motor modality. Engaging the motor modality is shown to be beneficial in vocabulary learning in terms of improving the students’ retention and recall (Allen, 1995; Tellier, 2008). Student gesture continued to exhibit the features observed in the previous chapter: restricted gesture box, lower visibility, and attenuated expressivity. However, the hand movements of some students (G and C) displayed the features similar to the teacher’s gesture. An intriguing question arises whether these qualities, divergent from the rest of the students’ gestures, are related to G and C’s cultural backgrounds as they both come from South American countries (Colombia and Brazil,
respectively). Cross-cultural comparisons of student gestures in the classroom context can be a fruitful direction for future research.

The teacher’s gesture-based mediation continued to facilitate the development of the students’ verbal expression in L2. The students exhibited signs of converting the meanings expressed in the teacher’s gesture into their verbalizations produced in L2. Thus, in acquiring the meaning of the proverb “an apple a day,” student A first imitated the teacher’s gesture silently on the way to developing a discourse framework for producing the verbal elaboration of the proverb. Student C reacted to the teacher’s markedly gesture-based explanation with a narrative connecting the meaning of the proverb to her real life experiences.

The teacher’s use of hand movement in the interactions discussed in this chapter demonstrates how gesture is intertwined with a range of other multimodal resources, which form a pattern serving specific instructional functions. Such patterns were identified as instructional multimodal schemes (IMSs) that were employed for the pedagogical purposes of illustrating the essential aspects of formulaic meanings but also to highlight the aspects of form. Thus, the IMS including the Apple Catchment organically merged the focus on meaning, by illustrating the proverb, with the focus on form, by marking its rhythmic pattern. Importantly, in engaging such non-verbal resources as gaze, facial expression, and body movement, the IMSs served as a powerful means of infusing the teacher’s embodied performance with vitality, humor, and emotion. This enabled the teacher to convey emotive meanings of the formulaic phrases obscured in the verbal expression. It also allowed for building affective alignment with the students and maintaining a positive atmosphere in the process of obuchenie. Thus, the IMS involving the Rhythm Catchment enacted as dancing not merely marked the rhythm but created an impression of joy and happiness assigned by the teacher to the process of practicing the proverb.
The role of the IMS was even more crucial in the explanation of the idiom “on top of the world” since it was predominantly through non-verbal semiotic means that the idiom’s metaphorical emotive meaning was possible to convey. The combination of joyful facial expression marked by smiling, raised eyebrows, and widened eyes with excited beat-infused gesture and exclamatory prosody enabled the teacher to express the feeling of being “wonderful; glorious; ecstatic.” She explained the meaning by inhabiting it and turning herself into a person “on top of the world,” which was achieved through the character viewpoint. Such personal closeness has positive instructional outcomes as reported by Gerofsky (2010) and discussed in the previous chapter. It was the IMS that allowed the teacher to provide an embodied recast and use humor to create a comparative framework between the incorrect (unemotional) and correct (emotional) form of the student’s utterance. The recast was appropriated by several students in their imitations and affiliative reactions. This finding appears to be important in adding to the research on corrective feedback, predominantly focused on the verbal modality as a means of providing a recast (e.g., Mackey & Philp, 1998; Ellis, 2001). What we see in the collaborative dialogue centered on the emotive meaning of the idiom can be characterized as an “emotionally permeated set of cognitive processes” (Swain, 2013, p. 203), where emotion is both the purpose and the means of instruction, that is, emotive meanings are acquired through affective alignment between the teacher and the students. This has important implications for learning as suggested by Del Rio & Alvarez (2002). In their view, cognition and emotion “may unite and enhance each other to yield an outcome greater than either of them alone” (p. 65).

The IMSs seem to have interesting implications for the methodology of gesture studies and teacher-learner discourse in general. They may offer a solution to the question raised by Swain (2013, March) in her colloquium presentation related to the necessity of identifying the unit of
analysis that would embrace emotions. In response, J. P. Lantolf (2013, March 16th) suggested that the gestural growth point as defined by McNeill (1992; 2005) might serve as such a unit of analysis. The way the teacher employed the IMSs in these data suggests that, indeed, the speech-gesture growth point can be expanded to include other multimodal resources—gaze, facial expression, and body movement—all converging in making a “stroke” at a particular verbal unit to mark the speaker’s psychological predicate. Thus, for example, the teacher’s stroke on “graduate” included not only the highest peak of gesture but also the highest degree of emotion displayed in her facial expression through her smile and widened eyes. This emotive element of meaning constituted a crucial part of the psychological predicate “very happy because she graduated.” The idea of expanding the growth point into other multimodal resources aligns with Goodwin’s (2003) call for avoiding a restrictive approach to gesture analysis by accounting for “the structural diversity of multiple semiotic fields” that act in concert and mutually elaborate each other (p. 238).
Chapter 7

Teacher and Student Gesture in Obuchenie of Pronunciation and Grammar

7.1 Introduction

This chapter reports on the findings related to teacher and student use of gesture in the process of mastering aspects of pronunciation and grammar. The analysis focuses on the following areas: the role of teacher and student body movement in mastering syllabification and word stress; the importance of metaphorical gestures in visualizing the following grammatical features: demonstrative pronouns, degrees of comparison, progressive aspect, and word order.

The first section of the chapter examines the teacher’s instructional gestures employed for teaching syllabification and word stress. It reveals how the teacher used gesture intentionally and consciously in making intangible pronunciation phenomena visible. It also reports on the students’ appropriation of such instructional gestures as a mediational tool for mastering L2 pronunciation. The second section of the chapter considers the ways the teacher used metaphorical gestures in depicting the features of L2 grammar listed above. The analysis focuses on how gesture enabled the teacher and students to present abstract grammatical phenomena in a concrete and visible form, which allowed the students to develop new understandings of grammar through embodied and co-constructed conceptualizations.

7.2 Gesture for teaching pronunciation

This section examines the type of the teacher’s gesture that constitutes instructional gesture per se, specifically designed to serve pedagogical purposes and therefore, unlikely to be used in ordinary conversations outside the language classroom. These instructional gestures facilitated
the students’ appropriation of aspects of L2 pronunciation by making them visible through the teacher’s haptic and deictic gestures as well as movement of the whole body. The excerpts considered below also show the importance of synchronization of the teacher and student actions in mastering L2 pronunciation.

7.2.1 Gesture in obuchenie of syllabification

The analysis in this section is focused on the teacher’s use of gesture for resolving the students’ confusion about the number of syllables in an L2 item. By making the syllables visible and even tangible through “counting” and deictic-haptic gestures, the teacher facilitated the students’ ability to identify the syllables. In this mediational process, the students imitated the teacher’s gesture synchronously with her hand movements and expressed their unique understandings of the syllabic structure through their own gestures.

*Excerpt 7.1: “Specialized”*

This excerpt is an example of how the teacher employed instructional gesture in mediating the students in identifying the number of syllables in an L2 item, which facilitated the resolution of the students’ confusion. The interaction occurred in Class 11 during a review of vocabulary from Unit 5, Chapter 1: “Do you know your right brain from your left brain?” Blanchard & Root (2007). The teacher initiated the review by reading the list of items and asking the students to repeat while mimicking her pronunciation. She then organized the students into groups of three and asked them to identify the number of syllables in each of the words. Trying to accomplish the task, one of the groups experienced difficulties in identifying the number of syllables in the word “specialized.” As Sr attempted to count the number of syllables using his fingers, the teacher approached the group and offered her help.
Excerpt 7.1: “Specialized”

1  T, By: \{spe (0.2) cial (0.2) lized\}
2  T: \{shifts gaze to hands, RH shaped as finger bunch
3       touches LH fingers; nods head at each syllable;
4  shifts gaze to By\}
5  Sr: \{holds BH in front of himself, palms half-cupped,
6       fingers brought into contact at their tips, gazes at T\}
7  By: therez four
8  \{(1.0)\}
9  T: \{gazes at By, holds gesture\}
10 By: three

\[\text{Figure 7.1. Lines 11-13: “spe”}\]

11 T: \{spe\}
12 \{shifts gaze to hands; RH shaped as finger bunch
13 touches LH little finger\}

The excerpt begins as the teacher pronounces the word “specialized” slowly, accentuating each syllable and separating them with brief pauses. Apart from prosodic emphasis, she also marks each syllable with her body movement (lines 1-3) by slightly nodding her head and tapping the fingers of her left hand with her right hand (since her hands are not entirely in the camera view, it is not possible to provide a more detailed description of the gesture). According to Cienki & Muller (2006), this metaphorical gesture reflects the metaphor where abstract entities are treated as objects. In this case, the teacher presents syllables as objects, making them
visible and countable through her “counting” gesture. The teacher’s gaze is directed at her gesturing hands, which suggests that she may be aware of the communicative or rather instructional intent behind her hand movement (Streeck, 2013). The students co-participate in the teacher’s enactment of the syllables. Thus, By pronounces them concurrently with the teacher while Sr, who attempted to count the syllables with his fingers before the teacher joined the group, is still holding his hands as if prepared to continue the counting (lines 1, 5-6).

Following this joint embodied mediation, By offers a candidate response by identifying the number of syllables as four (line 7). The teacher abandons her gesture, gazes at By, but fails to acknowledge her conjecture. This elicits another conjecture from By, “three” (lines 8-10), oriented to by the teacher as a sign of confusion. To resolve the problem, the teacher redirects her gaze back to her hands and begins counting the syllables by pronouncing the first one, “spe” (lines 11-13, Figure 7.1). She next pauses and shifts her gaze to Sr. At this point the teacher shifts her instructional strategy and moves her left hand upward, placing it below her chin as if supporting her chin from below (lines 15-17). The teacher next reiterates the word “specialized” with the previous prosodic pattern. She separates each syllable with a brief pause, accentuates them, and accompanies each with slight head nods. Throughout the utterance, the teacher continues “supporting” her chin with her hand (Figure 7.2).

Excerpt 7.1: “Specialized” (continued)

```
14     \{(0.4)\}
15  T: \{shifts gaze to Sr; moves LH toward chin; pl
16  \ places LH below chin, touching the chin, palm facing downward,
17  \ fingers extended and drawn together\}
18  \{\textbf{spe} (0.1) \textbf{cial} (0.1)\}
```
This gesture seems to highlight the chin as the articulatory organ involved in producing the syllables. In this sense, the gesture plays a deictic function by drawing the students’ attention to the chin and its downward movement produced while pronouncing the vowels, at the core of
each syllable. The shape of the gesture appears to visually “underline” the syllables and make the articulatory movements more visible and distinct.

In response, Sr also reshapes his gesture, synchronizing his actions with the teacher’s. As the teacher pronounces the first two syllables, Sr marks each syllable by moving his left hand slightly toward his body. He also marks the syllables with head nods (lines 21-23, Figures 7.3-7.4). Shaped differently from the teacher’s “chin” gesture, Sr’s hand movement retains its crucial feature—the rhythm synchronized with the syllable production. Therefore, Sr’s gesture serves the same obuchenie function of visualizing the syllables. In this sense, he creatively imitates the teacher “chin” gesture and turns it into a catchment referred to as the Syllable Catchment.

As the teacher pronounces the third syllable, she seems to inadvertently lay stronger emphasis on it (line 24), which may confuse the students. In fact, Sr sensitively orients to this by changing the directionality of his gestures as he utters, “lized.” Instead of nodding, he slightly raises his head and moves his left hand away from instead of toward his body as he had done previously (line 27). In this way, Sr mistakenly marks the third syllable as the one that carries stress. His gesture therefore, exhibits the student’s confusion in interpreting the teacher’s actions. Apparently, for the purposes of pronouncing the three syllables as distinctly as possible, the teacher placed too much emphasis on the third syllable, which caused the student’s confusion. The excerpt concludes as both By and Sr generate the correct response produced in unison, “three” (lines 29-30). It is only at this point that the teacher retracts her Syllable Catchment.

Discussion

To sum up, in this excerpt, the teacher employed two gestures as instructional tools to facilitate the students’ accomplishing the task of identifying syllables. The first, “counting” gesture, metaphorically depicted syllables as objects, which made them visible and countable.
Orienting to the students’ difficulties, the teacher introduced another instructional gesture, the Syllable Catchment, which appeared to be more effective in resolving the students’ confusion. This catchment allowed the teacher to make the syllables visible by foregrounding the physical motion of producing them. It helped to draw the students’ attention to the place where vowels that mark each syllable are formed.

Unlike instructional gestures employed by the teacher spontaneously in her vocabulary explanations and unlike gestures employed in ordinary conversation, the “counting” gesture and the Syllable Catchment were produced by the teacher consciously and were specifically designed to facilitate mastering pronunciation. This becomes clear from the teacher’s interview, where she acknowledged that in teaching pronunciation, she attempts to provide the students with a number of learning tools from which they can choose those that suit their individual learning needs. In teaching syllabification, apart from the “counting” and “chin” gestures, the teacher also encouraged the students to use clapping. In these data, students were often observed using counting, clapping, and “chin” gestures for identifying the number of syllables in their group work.

As for the students’ reaction to the teacher’s instructional gestures, the excerpt shows that the Syllable Catchment helped to resolve the students’ confusion and facilitated their ability to identify the correct number of syllables in a word. In Sr’s case, this was achieved through his imitation of the teacher’s Syllable Catchment, which he creatively reworked. We also saw how Sr coordinated his actions with the teacher by moving his body contemporaneously with her body movement. Such interactional synchrony appears to serve as an important instructional tool in the *obuchenie* of syllabic structure. Sr’s gesture also served the medium of externalizing his own understanding of placement of word stress. It was only in gesture that his confusion
regarding the stressed syllable became visible. We see more evidence for the role of gesture in externalizing the student’s understanding of syllabic structure in the excerpt below.

*Excerpt 7.2: “Visual”*

In this excerpt, the teacher employed the Syllable Catchment to visualize the syllables, while the student employed gesture to emphasize his divergent understanding of the syllable structure. The interaction centered on identifying the number of syllables in the word “visual” occurred seconds after the previous excerpt. Preceding the transcribed part of the interaction, students By and Sr repeated the word multiple times, unable to generate a conjecture regarding the number of syllables. At this point, the teacher approached the group and suggested that they “slow down” the pronunciation of the word (line 2).

*Excerpt 7.2: “Visual”*

1 By: visual
2 T: slow it down

3 \{<viː suː əl>\}

*Figure 7.5. Lines 3-4: “vi”*

4 \{moves LH upward; places it below chin, touching the chin, palm facing downward\}
5 B: \[^{°}three\]
6 Sr: yeah
7 T: \{WO:W\}
8 \{widens eyes, smiles\}
Figure 7.6. Lines 13-14: “visual”  Figure 7.7. Lines 13-14: “visual”

The teacher complements her advice with a demonstration similar to the one produced in the previous excerpt. She places her left hand below her chin and pronounces each syllable slowly and separately, elongating the vowels (lines 3-4, Figure 7.5). In doing this, she employs the Syllable Catchment introduced in Excerpt 7.1: “Specialized” (lines 4-5). Before the teacher completes the utterance, she is overlapped by By, who provides the correct answer, “three” (line 6). This is followed by a sign of agreement from Sr and the teacher’s evaluative reaction. The teacher produces an exclamation, “wow,” in a louder voice as she also widens her eyes and smiles (8-9). These actions seem to express the teacher’s empathy and solidarity with the students in treating “visual” as a difficult word in terms of syllabic structure.

Sr reacts by aligning with the teacher’s attitude as he softly utters, “too much” (line 10), expressing his dissatisfaction with the ways English works. When the teacher requests specification by repeating Sr’s comment with rising intonation, he provides his own
demonstration of the syllabic structure of “visual.” He pronounces the word as one syllable and accompanies it with a gesture, moving his left hand away from his body in a single stroke (line 14, Figures 7.6-7.7). We can see how the student externalizes his view of the syllabic structure of “visual” through gesture, which depicts it as consisting of only one syllable. This gesture appears different from the Syllable Catchment. Instead of depicting syllables as distinct (and countable) elements, it depicts them as a single inseparable stretch in the shape of a straight line. It therefore seems to foreground the inseparability of syllables.

Sr next confirms his understanding verbally by saying, “only one” and gesturing “one” with his left index finger (lines 15-16). The teacher orients to Sr’s comment by agreeing with the student that “we say it fast” and that it is necessary to slow down in order to identify the syllables. She complements her statement with another visualization of the syllabic structure of “visual” by employing the Syllable Catchment (lines 18-19). Student Sr participates in this demonstration by pronouncing the syllables simultaneously with the teacher.

Discussion

To summarize, in this excerpt the teacher and students used gesture to visualize the syllabic structure of the word “visual.” The teacher’s use of the Syllable Catchment allowed her to depict the syllables as distinct components and helped student By to correctly identify the number of syllables. Student Sr’s use of gesture allowed him to externalize his understanding or rather, preferred understanding, of the syllable structure of “visual” as consisting of only one syllable. The excerpt seems to underscore the importance of embodied visualizations of the intangible pronunciation phenomena such as syllables in mastering syllabification in such challenging “synthetic” words as “visual,” where audio perception can be too elusive for students to readily “grasp” its syllabic structure.
7.2.2 Gesture in obuchenie of word stress

Excerpt 7.3: “Experiment”

This excerpt is an example of how the teacher and students employed body movement to visualize and embody word stress. It occurred in the same class as the discussions of “specialized” and “view.” Having concluded the group activity, the teacher went over the vocabulary items worked on in groups and discussed the meaning and pronunciation of some of them. She begins with the word “experiment,” which she pronounces twice, marking the word stress in an embodied way. As she pronounces the stressed syllable, “per,” the teacher increases the volume of her voice and raises her entire body upward (lines 1-2, Figures 7.8-7.9). By repeating this body movement, the teacher turns it into a catchment referred to as the Stress Catchment, the distinguishing feature of which is the upward motion synchronized with the stressed syllable.

Excerpt 7.3: “Experiment”

1 T: ex{PER}iment ex{PER}iment
2 {raises head and body twice} Stress C

Figure 7.8. Lines 1-2: “per”

Figure 7.9. Lines 1-2: “per”

3 scientists lo:ve to experiment
4 C: {e ex?}
5 {gazes at T}
6 T: {gazes at class, away from C}
7 T: [scientists]

8 C: [{ex?}]

Figure 7.10. Lines 8-9: “ex?”

9 {gazes at T, raises body and RH bent at elbow, opens palm} Stress C

10 T: {gazes at C}

11 T: {ex}

12 {raises body} Stress C

13 no

14 ex{↑PER}iment=

15 {raises head and body higher than in lines 2 and 12, Stress C

16 widens eyes, raises eyebrows}

Figure 7.11. Lines 14-16: “per”

Figure 7.12. Lines 14-16: “per”

17 C: {raises head and torso, gazes at T, smiles} Stress C

18 =a:h {yeah}

19 {nods head; marks stress in textbook}

At this point, student C produces a request for clarification related to the stressed syllable (line 4). As soon as C establishes mutual gaze with the teacher, she repeats the syllable “ex” and produces gesture involving upward movement. Thus, she raises her body along with the right hand bent at the elbow, simultaneously spreading her fingers (line 9, Figure 7.10). In reproducing
the upward movement of the teacher’s body to mark the stressed syllable, student C creatively
imitates the teacher’s Stress Catchment. Her synchronization of the catchment with the first
syllable, “ex” indicates that she erroneously treats it as the stressed syllable.

The teacher reacts by contrasting C’s response with the correct stress placement. She first
mimics the student’s utterance, laying prosodic emphasis on “ex” and accompanying it with the
Stress Catchment as she moves her body upward (lines 11-12). The teacher next rejects C’s
conjecture with “no” and follows up with a demonstration of correctly placed stress. She
pronounces the full word “experiment” and marks the stressed syllable “per” as previously—
with higher volume and the Stress Catchment (lines 14-16, Figure 7.11-7.12). In order to
highlight the stress more effectively, the teacher embodies it in a more dramatic manner. Not
only does she raise her pitch and her body even higher than before, she adds some theatrical
effect by widening her eyes and raising her eyebrows. We can see how the teacher aligns a range
of multimodal resources in materializing and foregrounding the stress. Synchronously with the
teacher, C also moves her head and torso upward, smiling and gazing at the teacher (line 17). By
doing so, C imitates the teacher’s Stress Catchment and shares her elation. The student reacts to
the teacher’s vivid illustration of the stress by producing signs of new understanding with “ah,
yeah” and making a note (most likely, marking the stress) in her textbook (lines 18-19).

During the untranscribed portion of the interaction that follows, the teacher responds to By’s
question about the number of syllables in the word “experiment.” She mediates the student by
visualizing the syllables through the previously used “chin” gesture (the Syllable Catchment),
which helps By to identify the correct number of syllables. The teacher next walks back towards
C’s desk and reiterates the word “experiment,” marking the word stress with a more moderate
version of the Stress Catchment (lines 26-27).
Excerpt 7.3: “Experiment” (continued)

26 T: {exPERiment}
27 {walks toward C, slightly raises body, moves LH slightly upward @ chest} Stress C
28 C: {raises head, makes eyebrow flash} Stress C
29 T: [ex{peri}ement
30 C: [ex{pe}
31 {raises head, raises RH, extends fingers} Stress C

Figure 7.13. Lines 30-31: “pe” Figure 7.14. Lines 30-31: “pe”

Interestingly, as the teacher faces C, she accompanies the upward movement of her body with a slight upward movement of her hand. In doing this, she seems to mimic the upward hand movement, previously produced by C (see line 9) and in this way the teacher’s catchment incorporates features of the student’s gesture. Student C, in turn, imitates the teacher’s movement by raising her head and producing an eyebrow flash to mark the stressed syllable (line 28). When the teacher pronounces “experiment” one more time, she does not use the upward body movement, marking stress only prosodically (line 29). Student C, however, continues to mediate herself with the Stress Catchment as she synchronizes the second syllable with the upward movement of her head and right hand, extending her fingers (line 31, Figures 7.13-7.14). Thus, C appropriated the teacher’s catchment as a mediational tool to gain control over the correct placement of word stress.
Discussion

To summarize, in this excerpt the teacher employed the upward body movement to visualize the notion of the word stress. She employed it in a consistent way in the form of the Stress Catchment. The upward movement of the body might straightforwardly be interpreted as an iconic depiction of the upward movement of the voice. The gesture, however, is metaphorical. According to Zbikowsky (2009), it is based on a highly conventionalized metaphor, which, is related to “the common construal of musical pitches as situated in vertical space, a construal that follows from the characterization of pitches as “high” or “low” with respect to one another. Although this characterization seems quite natural, it is actually rather arbitrary” (p. 360-361). This metaphor is a result of mapping from the domain of “relationships among points in vertical space” onto the domain of “relationships among musical pitches” reflecting the conceptual metaphor “PITCH RELATIONSHIPS ARE RELATIONSHIPS IN PHYSICAL SPACE” (p. 361). In full accordance with this metaphor, the teacher portrays the higher pitch of her voice by moving her hand upward. The gesture thus makes the invisible “movement” of prosody visible. The student creatively imitates the teacher’s catchment and employs it as a learning tool in regulating herself through mastering the placement of the word stress. Similar to the discussions of “specialize” and “visual,” the excerpt shows the importance of synchronization between the teacher and student in the obuchenie of L2 pronunciation.
7.3 Gesture in Obuchenie of Grammar

This section reports on teacher and student gesture use to visualize such features of L2 grammar as demonstrative pronouns, progressive aspect, and word order. It specifically focuses on the role of metaphorical gesture in visualizing abstract grammatical phenomena. The section also discusses new aspects of thinking-for-teaching as observed in the teacher’s iterative explanations that also exhibited signs of transformation and maturation on her part. The teacher’s gestural visualizations of grammar allowed the students to make further inferences about the issues discussed as was displayed in their gestural interpretations. It should be noted that grammar explanations were mostly produced incidentally due to the format of the Reading class with the predominant focus on reading strategies, discourse structure, and vocabulary.

7.3.1 Demonstrative pronouns

Excerpt 7.4: “Those”

This excerpt is an example of how the teacher employed metaphorical and deictic gestures along with the manipulation of objects to explain the meanings of demonstrative pronouns “this-these” and “that-those.” The interaction occurred in Class 3 during group work focused on the meanings of the most frequent words in English. It involved the teacher and student By, a female speaker of L1 Arabic.

Excerpt 7.4: “Those”

1    By:  {and the last one those}
2    {points at notebook}
3    T:  {those?}
4    {points at By’s notebook}
5    (0.4)
6    T:  alright
7 {i like}
8 {raises LH to chest}

9 T: {this}

10 {shifts gaze downward, grabs By’s eraser}
11 By: {shifts gaze downward}

12 T: {eraser.}
13 {shifts gaze to By, raises eraser slightly and puts back down}

14 {(1.0)}
15 T: {holds eraser, gazes at By}
16 By: {nods head; shifts gaze to T}

17 T: {i like}
18 {raises LH to chest}

19 T: {that}
20 {points toward opposite desk}

21 T: {bottle.}
22 {makes a pointing beat}
23 By: {shifts gaze to opposite desk}
24 {(1.0)}
25 T: {holds pointing gesture, gazes at By}
The excerpt begins as the student asks the teacher about the vocabulary item “those.” The teacher responds with an explanation, where she first clarifies the meanings of the demonstrative pronouns in singular: “this” and “that.” She generates an example to illustrate the meaning of “this,” accentuating the pronoun prosodically: “I like this eraser.” While uttering “this,” the teacher takes By’s eraser, lying on the end of By’s desk closest to the teacher (lines 9-10, Figure 7.15). By using an object located close to her, the teacher illustrates the meaning of “this” as “the thing that is closest to you” (This, n. d.). She also directs the student’s attention to the closest location by gazing downward at the eraser. By orients to this deictic function of the teacher’s gaze accordingly—by also directing her gaze downward (line 11). Playing the role of a deictic, the teacher’s gaze seems to contribute to conveying the meaning of “this,” which includes a deictic element. The teacher next shifts her gaze back to By as she utters, “eraser,” slightly raising it and putting it back on the desk (lines 12-13). By doing this, the teacher most likely attempts to make sure that By understands the meaning of the word. The teacher concludes the first segment of her explanation with a pause “filled” with a gestural hold combined with eye gaze fixed on By (lines 14-15). These actions serve to solicit signs of understanding on By’s part, who is still gazing downward. As soon as By produces a head nod and returns her gaze to the teacher, she continues her explanation (lines 16-17).

The teacher goes on to provide an example with “that,” accentuating the pronoun prosodically: “I like that bottle.” She accompanies “that” with a pointing gesture, directing her hand toward the opposite desk, where the bottle is probably located (lines 19-20). The gesture produced in the saggital plane has a markedly larger gesture box than the previous grasping movement. In this way, it visualizes the contrast between the meaning of “this” as referring to a closer location and the meaning of “that” as referring to a farther location. Notice that the teacher’s speech contains
no explicit reference to a closer or farther location. This important information about the crucial elements of the pronouns’ meanings is conveyed only through the teacher’s gesture. In the teacher’s message, speech contains the examples, while gesture provides the necessary underlying definitions. These two strands of information delivered concurrently make her explanation multifaceted and complete.

The teacher next layers her pointing gesture with a beat, marking a new referent—“bottle” (21-22). At this point, By shifts her gaze from the teacher to the location of the bottle and maintains it through the ensuing pause (lines 23-24). The teacher completes another segment of her explanation with a pause combined with a gestural hold and gaze directed at the student (lines 24-25). This pattern established on lines 14-15 appears to serve as a multimodal comprehension check. It also points to the consistent nature of the teacher’s instructional strategies.

*Excerpt 7.4: “Those”*(continued)

26  T:  {i like}
27  {retracts—moves BH toward body}
28  By:  {shifts gaze to T}
29  {(0.4)}
30  T:  {moves BH toward space above eraser}

31  {the:se}

**Figure 7.16.** Lines 31-32: “these”

32  {moves BH apart and downward drawing two arks;}
33  rotates palms, fingers loosely splayed}
The verbal examples offered by the teacher to illustrate the meanings of “this-that” and “these-those” are also patterned. Thus, her next example, referring to the meaning of “these,” follows the same formula: “I like these papers.” It is also accompanied by the gestural illustration. The teacher moves her hands closer to her body, positioning them above the spot where the eraser is located (lines 28–29). In this way, she signals that the meaning of “these” also involves a closer location. She maintains consistency in her explanation by returning to the space where “this” was “placed.” The teacher next produces a stroke on “these” in which she draws a spherical shape with her hands (lines 30–32, Figures 7.16–7.17). She then rotates her hands several times as she utters the word “papers” (lines 33–35).
The spherical gesture synchronized with “these” seems to iconically portray a pile of papers. The rotating motion accompanying the word “papers,” however, does not seem to resemble the actual pile of papers but more generally refers to “many things,” conveying the idea of plurality. In van Compernolle & Williams (2011), for example, a student produced a similar circular motion to refer to plural *vous* (many individuals to be addressed by the second person plural pronoun). In a sense, the teacher abstracts the grammatical category of plurality from concrete papers, “raises” it into the air and visualizes it through gesture, which acquires a metaphorical quality. Notice also that the actual papers are located to the right of the teacher’s gesture-box. This is due to the teacher’s strategy of referring back to the same gestural space where “this” was depicted. Thus, the similarity of “this” and “these” is depicted through reference to the same location. The difference between them is highlighted through the “plurality” gesture. In this way, the teacher’s gesture conveys important grammatical information obscured in her verbal expression. The resulting explanation of “these” can be formulated as: “*these* also means “closer to you” and is the plural of *this*.” The teacher’s gesture seems to demonstrate the dialectic of similarity and difference in meaning—similarity shown through the same referential space (meaning closeness) and the contrast visualized through the rotating gesture (meaning plurality).

The teacher continues by making a contrast between “these” and “those” as she produces another patterned example: “I like those papers.” She accentuates the pronoun prosodically and depicts its meaning by fully extending her right hand forward, pointing at the opposite desk (lines 38-39, Figure 7.18). This elicits a sign of understanding from By, who slightly raises her head, uttering an elongated “ah” (lines 40-41). In her pointing gesture, the teacher makes the contrast between the meanings of “these” and “those” visible by creating the distance between “these papers” and “those papers.” This information, again, is conveyed predominantly through
the gesture and is absent from the verbal expression. The idea of a longer distance is also conveyed prosodically in the elongation of “these.” The pointing, however, fails to convey the idea of plurality, highlighting only the meaning “farther away” (That, n. d.).

Excerpt 7.4: “Those” (continued)

Figure 7.19. Lines 47-48: “this”

47 T: {this}

48 {moves LH from waste to chest and back to waste, palm shaped as finger bunch}
49 { (0.4) }
50 T: {holds}
51 {that:}
52 {moves RH forward and upward, forming an arc, index finger extended}

Figure 7.20. Lines 55-56: “these”

55 {these}

56 {rotates BH towards and away from body}
57 {plural}
58 {continues rotation}
59 By: {nods head}
60 T: {and}
61 {moves RH upward to head, index finger extended}
62 {those}
After more signs of understanding on By’s part (line 46), the teacher summarizes her previous explanation. She first highlights the contrast between “this” and “that” by pointing at the locations closer to herself and father from herself respectively (lines 47-54, Figure 7.19). These
locations coincide with the ones used as reference points for “this” and “that” in the teacher’s preceding explanation, which helps to maintain visual coherence of her instructional discourse. Notice again that the teacher’s speech only consists of naming the pronouns. It is the gestural channel that conveys their meanings. The teacher then summarizes the meanings of the plural forms of “this” and “that.” To portray “these,” she returns her hands to the closer location—the spot above the eraser—and produces several large-size rotations with both hands (line 56, Figure 7.20). This is the familiar “plurality” gesture that is now turned into a catchment referred to as the Plurality Catchment. By orients to the teacher’s actions and displays her understanding through head nods.

The teacher next pronounces “those” and points to the farther location, where the previous referents, the bottle and papers were located (lines 62-63). As indicated earlier, the teacher’s pointing gesture does not convey the idea of plurality. The lack of this missing grammatical element of the pronoun’s meaning is sensitively oriented to by the student, who overlaps the teacher with the utterance, “plural” (line 64), thus indicating recognition of the relevant grammatical feature. Simultaneously, By visualizes plurality by imitating the teacher’s Plurality Catchment as she makes several rotations with her hands (line 65, Figure 7.21). In doing this, By makes an inference that if “these” is plural, then “those” has to be plural, too. She also shows signs of appropriating the concept of plurality in relation to these demonstrative pronouns by appropriating the teacher’s catchment.

Discussion

To summarize, in this excerpt, the teacher employed metaphorical gesture, deictic, spatial arrangement, and object manipulation to illustrate the meanings of demonstrative pronouns “this-these” and “that-those.” The teacher’s gesture-based mediation allowed the student to develop
new understanding of demonstrative pronouns to the extent that she was able to make an inference and elaborate on the teacher’s explanation by referring to the grammatical category of plurality. The student also appropriated the teacher’s Plurality Catchment and employed it as a learning tool while generating her elaboration.

The teacher’s instructional use of gesture allowed her to visualize two crucial elements of the pronouns’ meanings: 1) closer versus farther location; 2) singular versus plural. She tailored the use of diverse multimodal resources to fit specific elements of meaning to be explained. Thus, the meanings of closer/farther location were visualized through gestural reference to closer/farther spaces, where visibly present objects (eraser, bottle, and papers) were located. This is where object-manipulation and deictic became instructionally relevant. The meanings of singularity and plurality were not contrasted as clearly as those of closeness and distance. The aspect that received major gestural emphasis was plurality, depicted through the metaphorical gesture, involving a rotating hand movement. The teacher’s use of body movement in this excerpt also seems to show how gesture can be effective in visualizing similarities and differences between related concepts. Thus, the similarity of “this-these” and “that-those” was depicted through the same referential space (closer location) while their difference was highlighted in the Plurality Catchment. An interesting role in expressing grammar-related meanings was played by the teacher’s gaze. Directed to the closer location, it served a deictic function, which most likely contributed to conveying the deictic meaning of the demonstrative “this.”

In the teacher’s composite speech-gesture units, the “semantic contribution of gestures” was significantly higher than that of speech (Gerwing & Allison, 2011, p. 314). The teacher’s speech offered only illustrative examples of the pronouns while explanations of their meanings were
conveyed entirely through gesture. In this way, the student received two obuchenie messages simultaneously with examples presented in speech and definitions delivered in gesture. This parallels Golden-Meadow’s (2003) findings regarding math instruction, where the teacher expressed one strategy for solving problems in speech and an alternative strategy in gesture.

The teacher demonstrated consistency in her instructional strategy, particularly, in the ways she employed a multimodal comprehension check. The three-part combination of a pause-hold-gaze (fixed at the student) consistently employed by the teacher at the end of each segment of her explanations appeared to play important instructional functions. A pause gave the student more time to “digest” the previous segment before moving on to the next one; the hold maintained the topic of the discussion in the student’s visual field; the gaze directed at the student solicited verbal or non-verbal feedback from her in terms of showing understanding or lack there of. After obtaining signs of understanding from the student, the teacher continued her mediation.

7.3.2 Teacher’s gesture in explaining progressive aspect

Excerpt 7.5: “Two things”

This excerpt is an example of how the teacher used metaphorical gesture to portray the progressive aspect of the past tense in relation to the meaning of the subordinating conjunction “while.” The interaction occurred in Class 3 during group work centered on the meanings of the most frequent words in English. Preceding the excerpt, By asked the teacher about the meaning of “while.” The teacher explained that it is most commonly used to indicate a short period of time. The teacher and By next moved on to the discussion of “those” (Excerpt 7.4). Before moving away from By’s group, the teacher returns to the word “while” and points out that it has another meaning. This is where Excerpt 7.5: “Two things” begins.
Excerpt 7.5: “Two things”

1  T:  {the other one on whi:le (0.5) is we all}
2   {points to By’s notebook}
3   {use that a lot when we sa:y um}
4   {retracts, straightens up, shifts gaze to window}
5   {(1.0)}
6  T:  {makes an inbreath, raises BH to chest, palms cupped; holds}
7   {<while (. ) the students (. ) were taking a test>}
8   {shifts gaze to By, makes a beat on each stressed syllable,}
9   moving BH from left to right}

Figure 7.22. Lines 7-9: “while”

10 By:  {gazes at T; nods at “students”}
11   {(1.0)}
12  By:  {nods head}
13  T:  {<i: was reading a book >}
14   {gazes at By, makes a beat on each stressed syllable,}
15   moving RH from center-center to right, palm cupped}

Figure 7.23. Lines 13-15: “reading”

16   {(1.0)}
17  By:  {shifts gaze to notebook}
The teacher first refers to the ways “while” is used in speech and shifts her gaze away from
the student in an effort to generate an appropriate example (lines 3-4). After a pause, she
produces a subordinate clause beginning with “while:” “while the students were taking a test…”
Each of her words is synchronized with a bilateral gesture, in which she produces downward beat
movements on the stressed syllables with her hands cupped (lines 7-9, Figure 7.22). At the same
time she moves her hands in the transversal plane from left to right. This metaphorical gesture
resembles “placing” gestures described in Cooperrider & Núñez (2009, p. 188). In their data,
such gestures were used by narrators to locate abstract entities along the timeline from left to
right, metaphorically depicting the movement from the past to future. The authors refer to studies
(e. g., Boroditsky, 2008; Tversky, Kugelmass, & Winter, 1991) showing that at least in Hebrew
and Mandarin the temporal gestures “parallel the predominant writing directions in their
cultures” (Cooperrider & Nunez, 2009, p. 199-200). Thus, the transversal left-to-right timeline
gesture is likely to originate from the Western writing pattern and is therefore, culture/language
specific. (This pattern would be different from the one in By’s native language, Arabic, where
writing is organized from right to left).

In light of these gestural connections to temporal reasoning, the teacher’s gesture appears to
serve at least two major functions. On the one hand, it spatially lays out the syntactic elements of
the sentence, making them visible to the student. On the other hand, it shows the progression of
the action as it unfolds from past to future. The teacher’s gesture also appears to serve both self-
regulatory and other-regulatory functions. On the one hand, the teacher may be mediating herself
through gesture in order to produce a spontaneous, unplanned example to help the student better
understand the meaning and function of the conjunction (a similar mediational function of beats
was observed in Hall & Smotrova’s (2014) data as the teacher was rehearsing a problematic
phrase in an attempt to respond to a student question). On the other hand, the teacher’s gesture is oriented to the student by making the syntactic structure of the sentence visible to her. This may facilitate By’s understanding of a complex sentence consisting of two clauses, which can be challenging for a beginning-level student. The teacher’s beats are finely aligned with the slow pace of her delivery, inserted pauses marking the rhythm, and clear emphases (line 7). The student closely attends to the teacher’s actions as indicated by her teacher-focused gaze and signs of understanding in the form of head nods (lines 10, 12).

The teacher continues to lay out the sentence gesturally as she utters the main clause: “I was reading a book” (lines 13-15, Figure 7.23). As the teacher completes her example, the student reacts with what can be viewed as a dispreferred response in that she shifts her gaze away from the teacher and down to her notebook (line 17). The teacher orients to that by holding the gesture and gazing at By, seeking confirmation.

**Excerpt 7.5: “Two things” (continued)**

19 T: {it means}
20 moves BH to center-center, palms facing each other, index fingers extended forward and upward
21 {two things that}
22 alternately moves BH forward and backward
23

**Figure 7.24.** Lines 22-23: “things”

24 T: {[/happen]}
25 {continues gesture}
26 B: {[/yea:h]}
The teacher continues by offering a definition of “while: “two things that happen at the same time.” Simultaneously, she depicts the “two things” with a metaphorical gesture, in which she alternately moves both hands forward and backward with her index fingers extended and slanted upward (line 23, Figure 7.24). In this metaphorical gesture, the teacher’s hands symbolically depict the actions while the forward movement shows that they are in progress at the same time. The gesture also imposes boundaries on the two actions, which imparts a quality of “things,” objects.

The pointing gesture produced on the saggital plane seems to highlight the idea of simultaneity while the previous “timeline” gesture produced in the transversal plane seems to foreground the idea of progressivity. The teacher gesturally breaks down the meaning of the conjunction “while” into two parts: progressivity and simultaneity. In this sense, the alternating
pointing gesture disambiguates the “timeline” gesture: instead of presenting the two actions as unfolding linearly, one after the other, it clearly depicts them happening co-temporally. Thus, by combining the transversal and saggital planes in producing her gestures, the teacher appears to provide a more holistic illustration of the meaning of “while.”

Half-way through the teacher’ utterance, By produces a token of agreement, “yeah” accentuated and elongated, simultaneously shifting her gaze to the teacher (lines 26-27). Having established the mutual gaze, By produces her interpretation of the teacher’s explanation: “one thing…” (the ending is not distinguishable in the recording) and accompanies it with a creative imitation of the teacher’s gesture. Holding both hands in front of her chest, By rotates both palms simultaneously, moving them towards and away from her body, while gazing at the teacher (lines 31-32, Figure 7.2). In doing this, she turns the gesture into a dialogically created catchment referred to as the While Catchment. The crucial feature of this catchment is the concurrent movement of similarly shaped hands. The student’s gesture seems to incorporate both facets of the meaning of “while.” It depicts the idea of simultaneity in the concurrent movement of both hands held at the same level and the idea of progressivity in the rotating palm movement. By’s creative imitation of the teacher’s gesture seems to show the synthesis of the elements of meaning presented by the teacher separately.

The student’s speech-gesture interpretation receives the teacher’s acknowledgment in the form of “yep,” head nods, and an interactional gesture, where she points at By with her open palm facing downward (line 34). According to Kendon (2004), this type of gesture is often used to indicate that the statement “is deemed complete or sufficient, requiring no further inquiry or comment” (p. 255). In fact, By orients to this accordingly as she nods her head, shifts her gaze toward her notebook, and retracts her gesture (line 35).
**Discussion**

To summarize, in this excerpt the teacher employed metaphorical gesture to illustrate the meaning of the subordinating conjunction “while.” In her gesture, she divided the meaning of “while” into two elements: progressivity and simultaneity depicted through different gestures. Progressivity was highlighted through the metaphorical gesture produced in the transversal plane. It laid out the syntactic elements along the writing path from left to right and at the same time, used it as a timeline to show the actions as unfolding from past to future. The teacher’s “simultaneity” gesture produced on the sagittal plane complemented and clarified the “timeline” gesture by foregrounding the idea of simultaneity. Similar to the explanation of “those,” the teacher’s gestures appeared to convey important grammatical information related to the meaning of “while.” This information was synthesized in the student’s gesture—a creative appropriation of the teacher’s While Catchment, which incorporated both ideas: simultaneity and progressivity.

**Excerpt 7.6: “At the same time”**

This excerpt occurs five minutes after Excerpt 7.5: “Two things.” In this segment of the class, the teacher reviews the items discussed by the students during their group work, clarifying the difficult points. She draws the student’s attention to the meaning of “while” and explains it to the whole class. Interestingly, her metaphorical gesture is markedly different from her gestures used in the previous explanation of the same concept. These features appear to be related to the emergent nature of her thinking-for-teaching. Preceding the transcribed part of the interaction, the teacher wrote the following example involving “while” on the board: “I was watching TV while my husband was cooking.” She follows up by asking the students which action happened first. One of the students provided the correct answer, “both,” acknowledged by the teacher. She
next expanded the student’s response with a definition of “while” as a conjunction. This is where the excerpt begins.

_Excerpt 7. 6: “At the same time”}_

1  T: { _while_ means that they were happening }
2  { draws two wavy lines on board, one below the other }

Figure 7.26. Line 2

3  { **at the same time** }
4  { moves BH towards each other in center-center in a “wavy” movement as her LH moves to the right and RH moves to the left across body, palms facing downward, fingers extended and drawn together }

Figure 7.27. Lines 3-7: “at the same time” Figure 7.28. Lines 3-7: “at the same time”

8  Ss: { gaze at T }
9  { (2.0) }
The teacher first provides a definition of “while” formulated as two actions that “were happening at the same time.” She accompanies it with embodied illustrations of the definition produced in different modalities. She engages the visual modality by drawing two wavy lines on the board (one below the other) as she was pronouncing the phrase, “while means that they were happening” (line 2; Figure 7.26). In this visual metaphor, the two lines symbolically depict the two actions mentioned in the sentence that were in progress simultaneously. The image seems to incorporate both elements of the meaning of “while” discussed in Excerpt 7.5: “Two things.” The progressivity of the actions, their ongoing and continuous nature, were portrayed through the
wavy shape; and their simultaneous nature was depicted through the relative positioning of her hands.

The teacher next converts the graphical image created by her and displayed on the board into the gestural modality. She accompanies the final part of her definition, “at the same time,” with a gesture mimicking the image on the board. The teacher produces a “wavy” movement with both hands as she positions them above each other and moves across her body in the opposite directions (lines 4-7; Figures 7.27-7.28). This gesture is markedly different from the hand movements employed by her in the initial explanation of “while” spontaneously produced during group work (Excerpt 7.5: “Two things”). In those hand movements—the “timeline” and “simultaneity” gestures—the meaning of “while” was divided into two elements, progressivity and simultaneity. In the current explanation produced for the whole class, the teacher’s gesture appears to bring both elements of meaning together in a single “wavy” gesture. Due to these features, the teacher’s instructional gesture seems to become more well-shaped and clearly designed in her second explanation of “while.” In this sense, the first explanation may have served as an experimental arena or rehearsal of a more mature instructional strategy.

Another interesting aspect of the current explanation is the relationship between the graphical image on the board and its mirroring in the teacher’s gesture. In a sense, the two create a multimodal catchment produced across the graphical and gestural modality. This catchment will be referred to as the Wavy Catchment. The teacher’s use of the two modalities also allows for comparing their instructionally relevant qualities. The obvious downside of the graphical image to compare with gesture is that it is two-dimensional and more static. This also serves as an advantage since the image stays permanently in the students’ visual field and is therefore easily accessible for continuous reference. The advantage of the gestural image is that it is three-
dimensional and more dynamic, actively engaging the motor modality. At the same time, gesture is fleeting and transient. As if trying to capture her gesture in time, the teacher terminates it with a hold maintained through ten lines (9-19, Figure 7.29) and spanning five seconds of the interaction.

The teacher’s actions appear instructionally relevant: she maintains the image of “while” in her workspace, providing continuous access to the students for their “digestion” and contemplation. The teacher also suspends her speech, highlighting the importance of the completed segment. She also walks toward the class, carrying her “exhibit” to the students as if bringing the new meaning closer to them in terms of space and, metaphorically, in terms of understanding (lines 9-10). These actions certainly display recipient design: the students need sufficient time to process the teacher’s multilayered explanation and comprehend the meaning. The question remains, however, as to how well the frozen image of “while” captures its core meaning, since the teacher’s hands are held in a crossed position rather than hierarchically with one hand below the other (as in the image on the board). In any case, the students closely attend to the gestural hold as all of them maintain their gaze on the teacher (line 8). Even more so, A and F gaze specifically at the teacher’s hands, following her movement as she walks, as if mesmerized by her gesture (line 11, Figure 7.30).

The teacher complements her pause-hold-gaze comprehension check with a verbal one (line 12), which elicits signs of understanding from several students (lines 14-15; 18). She repeats the definition and resumes gesturing by placing the stroke on the phrase “at the same time,” elongating the words to enhance the effect of duration (lines 19-20). She reiterates the Wavy Catchment and terminates it with another hold, which elicits signs of understanding from Sr and
C (lines 22, 24). It is only after receiving signs of shared understanding that the teacher retracts her gesture.

Excerpt 7. 6: “At the same time” (continued)

16 T: {they were happening}
17 {stops walking, holds gesture}
18 C: {nods head}

19 T: {at the same time.}
20 {resumes “wavy” movement; holds}
21 A: {shifts gaze to blackboard at “time”}
22 Sr: time yeah
23 T: aright,
24 C: {> yeah<}
25 {nods head several times}
26 T: retracts

Discussion

To summarize, in this excerpt the teacher used metaphorical gesture and graphical image to explain the meaning of the conjunction “while.” She maintained the visual coherence of her discourse by mimicking and animating the features of the graphical image in her gesture. By doing this, she created a cross-modal catchment referred to as the Wavy Catchment. This gesture synthesized the meaning of the two gestures produced by the teacher in her previous explanation of “while” (the “timeline” and “simultaneity” gesture). It merged the ideas of progressivity and simultaneity in a single Wavy Catchment. Observed across the two explanations of the same concept, the teacher’s gesture appeared to externalize her evolving thinking-for-teaching. Her initial gesture-based mediation transformed into a more well-designed and expressive strategy.
The excerpt also demonstrates instructionally relevant aspects of the relationship between such semiotic modes as graphic versus gestural imagery. The two modalities seemed to complement each other with the graphical image being more durable and static and the gesture being more fleeting and dynamic. The gestural hold served to compensate for the transient nature of gesture by making it more permanent and reaccessible for the students. The teacher continued her previously established pattern of concluding each segment of her explanation with a multimodal comprehension check—a combination of pause-hold-gaze, which helped to elicit student signs of understanding.

### 7.3.3 Adjectives: Degrees of Comparison

This section considers teacher and student use of metaphorical gesture for visualizing the differences between degrees of comparison for adjectives. Two similar explanations across two classroom sessions are considered: the first occurred during student group work, while the second was produced when the teacher was explaining to the class the most difficult points that emerged during group work. Comparing these two explanations confirms and complements the features of the evolving thinking-for-teaching identified in the two explanations of “while” (Excerpts 7.5-7.6).

*Excerpt 7.7: “Better and Best”*

This excerpt is an example of how the teacher addressed a student question about the relationship between the adjectives “better” and “best” by using metaphorical gesture to depict them as different degrees of comparison. This is the teacher’s first explanation of this particular grammatical concept, which occurred in Class 8 during student group work focused on the list of most frequent words in English. The interaction involves the teacher and students G (female, L1 Spanish) and W (male, L1 Arabic).
Excerpt 7.7: “Better and Best”

1 G: teacher
2 T: yes
3 G: question
4 T: {okey}
5 {walks towards group}
6 G: bitter (0.4) bist, u:h synonyms
7 T: no:
8 good try
9 {they’re related}
10 {holds BH @chest, fingers curled, index fingers shaped as hooks, pulses BH inward, bringing index fingers into contact}
11 {they have a connection}
12 {holds}
13 {if I say:}
14 {shifts gaze downward}
15 {(0.4)}
16 T: {moves LH upward to chest, palm flat, facing upward, shifts gaze upward, to her left}
17
18 {↓this apple}

Figure 7.31. Lines 19-20: “this”

19

{(1.0)}
The discussion is initiated by G, who asks the teacher whether “better” and “best” (pronounced as “bitter” and “bist”) are synonyms (line 6). The teacher rejects the conjecture, but adds that the words are in fact related (lines 7-12). She goes on to illustrate the connection between “better” and “best” by offering an example, “this apple is good.” As the teacher prefaces the example with “if I say,” she directs her gaze downward, switching into the private mode in an attempt to construct a sentence (lines 14-15). Her search for the example continues as she silently begins a preparation for a gesture but her gaze is still directed away from the student. Thus, she moves her left hand upward to the chest level with her palm flat, facing upward (lines 16-18). She positions it as if depicting a step or level. This is followed by a beat on “this” as the teacher also shifts her gaze onto her gesturing hand (lines 19-20, Figure 7.31), which may allow her to attain more “visual awareness” of her gesture (Streeck, 2013, p. 87). The teacher’s gaze moving away from the student along with elongated “say” and pausing appear to display her cognitive effort in providing adequate mediation.

The teacher shifts her gaze back to G, completing the phrase “this apple is good” and marking the adjective with another beat (lines 21-22). Rather than illustrating the semantic meaning of the word “good,” the teacher’s gesture refers to its grammatical meaning—the positive degree of comparison. This is indicated by her metaphorical gesture, placing “good” at a certain level or
step depicted with a flat hand shape in the teacher’s peripersonal space. In this way, the abstract grammatical category of degree of comparison is presented in terms of space.

In line with the pattern followed in the previous excerpts, the teacher completes this segment of her explanation with a pause-hold-gaze comprehension check (lines 23-24). G orients to this as a bid for her reaction and produces several small head nods as she also shifts her gaze toward the teacher’s gesturing hand (line 25, Figure 7.32). The student’s shift in gaze direction points to the importance of gestural holds (among the other functions discussed in this chapter) as an instructional means of forwarding the student’s attention toward the teacher’s hand movement. In this case, the teacher’s gesture is prominent in G’s visual field as it is maintained close to the level of her eyes.

Excerpt 7.7: “Better and Best” (continued)

26 T: {oh}
27 {holds LH, raises RH to the level of LH @chest}

28 T: {↓this apple }

Figure 7.33. Lines 28-29: “this”

29 {flips RH—palm flat facing upward as a beat}
30 G: {shifts gaze to T}
31  T: {is \textbf{better}}

**Figure 7.34.** Lines 31-32: “better”

32  \{makes a beat\}  \hspace{1cm} \text{Comparison C}

33  \{when I have two things,\}

34  \{shifts gaze to hands, touches her LH palm with her RH index finger;\}

35  touches her RH palm with her LH index finger multiple times;

36  \{shifts gaze to G at “two things”\}

**Figure 7.35.** Lines 33-36: “two”

37  \{I can say\}

38  \{shifts gaze to hands, raises RH slightly above LH\}

39  G: \{shifts gaze to T’s hands\}

40  T: \{one is\}

41  \{shifts gaze to G, flips RH palm to face upward\}

42  G: \{shifts gaze to T\}

43  T: \{\textbf{better}\}

**Figure 7.36.** Lines 43-44: “better”

44  \{raises RH to shoulder; holds\}  \hspace{1cm} \text{Comparison C}

45  \{(1.0)\}

46  G: \{nods head; shifts gaze in front of herself\}
The teacher moves on to illustrate the comparative degree, “better,” by producing an example, “oh, this apple is better.” She marks the distinction between the examples of “good” versus “better” with “oh” (line 26). This distinction, however, does not seem to be marked in the teacher’s gesture, as she continues to hold her left hand at the chest level to depict “good.” Simultaneously, she raises her right hand to the same level, flips it to face upward and produces beats at “this” and “better” (lines 28-32, Figures 7.33; 7.34). By repeating the gesture previously used for “good,” the teacher turns it into a catchment referred to as the Comparison Catchment. Notice that the teacher’s hands referring to two different degrees of comparison, positive (“good”) and comparative (“better”) are held at the same level. This similarity in the embodiment of “good” and “better” seems to obscure the contrast between them, which may be confusing to the students. The teacher seems to perceive this downside and attempts to compensate by providing an explanatory meta comment. This may require more cognitive effort as indicated by the teacher’s gaze shifting toward her hands (line 34). As the teacher utters, “when I have two things,” she alternately points at each palm, operating on her previous gesture (lines 33-36, Figure 7.35). A similar action occurred in Excerpt 4.4: “Waves,” when the teacher gazed and pointed at her own gesture for instructional purposes.

As the teacher approaches her portrayal of “better,” she prefaces it with “I can say” and engages in more thinking over her gestural strategy, shifting gaze to her hands again (lines 37-38). Her gaze is oriented to by G as a deictic since she, in turn, shifts her gaze to the teacher’s hands (lines 38-39). Thus, the teacher’s unfolding gesture becomes the object of joint attention. She continues by uttering, “one is better” and illustrates the comparative with a distinctive upward movement of her hand raised to shoulder level (lines 43-44, Figure 7.36). In this version of the Comparison Catchment, the teacher places “better” at a distinctly higher level than good,
effectively marking the contrast between the two degrees of comparison. The teacher’s second gesture for “better” seems to serve as an embodied “repair” of her previous gesture—when “better” was placed at the same level as “good.” The teacher’s new depiction of “better” elicits a sign of understanding from G, who nods her head (line 46) and shifts her gaze to her front in contemplation.

Excerpt 7.7: “Better and Best” (continued)

![Figure 7.37. Lines 47-49: “best”](image)

47 T: but **best**

48 {**BH index fingers extended, moves LH across body toward RH**}

49 { (0.5) }

50 T: **holds**

51 G: **nods head slightly**

52 T: **means more** [than]

53 ![Figure 7.38. Lines 54-55: “more”](image)

54 W: **[[yeah more yeah]]**

55 {**makes two beats by pointing with RH upward @face**} Comparison C

56 T: **two things**

57 {**gazes at W, nods head**}

58 W: **the best is the**

59 {**raises RH to face, palm facing downward**} Comparison C

60 { (1.0) }

61 W: **moves RH downward**

62 {**(total)**}
G: \{ raises RH to face, palm facing downward \}

Comparison C

Figure 7.39. Lines 64-66

{(1.0)}

Comparison C

65

G: \{ raises RH to head, palm hanging loosely; 
shifts gaze upward; slightly lowers RH \}

Comparison C

67

\{ best, \}

Figure 7.40. Lines 67-68: “best”

68

\{ smiles, closes eyes, raises RH up above head \}

Comparison C

69

laughs

70

T: yeah

Figure 7.41. Lines 71-73: “best”

71

\{ the highest the best \}

72

\{ shakes head, raises RH up above head and waves palm 
 at stressed syllables \}

Comparison C

73

74

G: \{ [o:ke] \}

75

\{ raises head; nods \}

76

W: \{ [yeah best yeah] \}

77

\{ nods head \}
The teacher expands her explanation onto the superlative degree of comparison (even though that was not part of G’s question). She makes a contrast between “better” and “best” by using the conjunction “but;” “but best means more than two things.” This verbal contrast, however, is not supported with gestural contrast since the superlative “best” is not accompanied by a distinct gestural illustration (the teacher points to her right—lines 48-49, Figure 7.37). As if compensating for the absence of the gestural image of “best,” student W joins the discussion by offering his visualization of the superlative. He agrees with the teacher on the meaning of “best” and produces two versions of the Comparison Catchment: palm pointing upward (line 55, Figure 7.38) and a closer imitation of the teacher’s catchment—palm facing downward (lines 59, 63).

W’s actions may compel G to express her own understanding of “best.” She externalizes the process of forming her interpretation through non-verbal behavior. G first raises her hand, palm hanging loosely, to the head level and directs her gaze upward, displaying thinking effort (lines 65-66, Figure 7.39). Student G then smiles, closes her eyes, and raises her hand far above her head, producing a stroke on “best” (lines 68-69, Figure 7.40). She pronounced it with uncertain, rising intonation and concludes her turn with laughter, perhaps to compensate for the awkwardness of her uncertain gestural conjecture. In her metaphorical gesture depicting “best,” G creatively imitates the teacher’s Comparison Catchment, showing signs of understanding the concept.

The teacher reacts by acknowledging G’s conjecture and verbalizing the information conveyed in her gesture: “the highest, the best” (line 71). We can see how she treats G’s gestural illustration as a legitimate contribution. Even more so, she imitates G’s catchment as a sign of agreement. Thus, the teacher vividly visualizes the contrast between “better” and “best” by
raising her hand above her head and waving it twice (lines 71-73, Figure 7.41). In this way, she incorporated the students’ gestures into her own mediational strategy.

Discussion

To summarize, in this excerpt the teacher employed metaphorical gesture in the form of the Comparative Catchment to visualize three degrees of comparison. This gesture allowed her to provide a concrete visualization of the abstract grammatical category. The degrees of comparison were materialized by the teacher through spatial arrangement as she located these on an ascending scale. However, the layout of the positive, comparative, and superlative degrees as “located” one above the other was not visualized by the teacher in a clear and consistent way. It required time and effort on her part to generate a three-part spatial model of degrees of comparison.

The teacher’s struggle to produce an adequate explanation on the spot was exhibited in her gaze often directed away from the students. Her gaze aversion was often synchronized with the phrases introducing her examples and with the preparation phase of gesture (15-17, 38). In several instances, the teacher’s gaze was directed at her gesturing hands, which may have signaled her conscious effort in shaping her instructional gesture. In one such case, it seemed to help the teacher to shape a new gesture by operating on the previous one (pointing at her palms depicting “two things” on lines 34-35). In another case, the teacher’s gaze directed at her hands served as a deictic for the student, who also shifted her gaze to the teacher’s gesture.

This excerpt presents an interesting case where students attempted to compensate for the gestural elements missing from the teacher’s explanation. However hesitant and uneven the teacher’s portrayal of degrees of comparison was, it allowed G to make an inference about the meaning of “best,” which she appropriated from W and externalize in her own gesture. The
teacher, in turn, imitated G’s catchment and used it as an instructional tool. It is through this collaborative process of reciprocal imitation that the superlative “best” finally received its distinct gestural portrayal consistent with those of “good” and “better.”

The teacher’s depiction of the degrees of comparison raises a question about the importance of gesture in visualizing the connections between related concepts. It appears important for the teacher to decide whether her speech-gesture units need to highlight similarity or contrast. In this excerpt, it was important to foreground the contrast between “better” and “best” while the teacher’s gesture initially portrayed them as similar.

Excerpt 7.8: “Good, Better, and Best”

This excerpt features the teacher’s second explanation of degrees of comparison, which was addressed to the class and appeared to be more well-formed and consistent, particularly in terms of gesture. This explanation of “good,” “better,” and “best” occurred during the same class, some twenty minutes after the initial explanation. Having concluded the group work, the teacher reviewed the items discussed by the students in groups and explained the most difficult ones.

Excerpt 7.8: “Good, Better, and Best”

1  T: > we talked a little bit about better and best,<
2  we have {good,}
3  {raises BH to chest (RH, holding highlighter, slightly higher than LH), Comparison C palms facing downward, bent at knuckles}
Figure 7.43. Lines 8-10: “better”

8  T: {better,}
9  {raises BH to neck (RH slightly higher than LH),
   palms facing downward, bent at knuckles}   Comparison C
10  {(1.0)}
11  T: {holds, gazes at class }

Figure 7.44. Lines 13-15: “best”

13  {best=}
14  {widens eyes, raises eyebrows, raises BH to head;  
   extends and spreads fingers—makes a beat}   Comparison C
15

16  Ss: {=best yeah}
17  {nod heads}
18  T: {holds}

The excerpt opens as the teacher draws the students’ attention to the words “better” and “best” (line 1). She continues by naming the adjectives “good,” “better,” and “best,” producing a gestural illustration for each. As the teacher utters the items in the order of increasing degrees of
comparison from positive to superlative, she also places them on three ascending levels through her gesture. While uttering, “good,” she raises both hands to chest level with her palms facing downward and fingers slightly bent at the knuckles (lines 2-4, Figure 7.42). This gesture is a bilateral version of the Comparison Catchment introduced in Excerpt 7.7: “Better and Best.” Despite the differences in palm shape, the gesture retains the crucial feature—raised hand/s fixed at a certain level in the peripersonal space. The teacher marks the importance of this segment with a pause, gestural hold, and gaze directed at the class, which elicits a sign of agreement from student A (lines 5-7).

The teacher moves on to the comparative degree and places “better” at a higher level by raising both hands to the level of her neck (lines 8-10, Figure 7.43). She terminates this version of the Comparison Catchment with a pause-hold-gaze action while the students silently gaze at her. The teacher continues the ascending scale by uttering the superlative, “best,” and placing it higher in her gestural space—at the level of her head. She also accompanies the superlative with a more emphatic embodied performance, aligning her upward hand movement with widening of her eyes and raising of her eyebrows (lines 13-15, Figure 7.44). The teacher’s gesture is also more expressive as she spreads her fingers and makes a beat at “best,” holding the gesture. These non-verbal features seem to contribute to the meaning of “best,” highlighting its positive connotation. The students react to this performance by latching onto the teacher, echoing, “best” and producing head nods (lines 16-17).
Excerpt 7.8: “Good, Better, and Best” (continued)

19  T:  {one things is}

{Figure 7.45. Lines 19-21: “one”}

20  {moves BH downward to chest, shifts gaze downward;}
21  {flips RH palm to face upward;}
22  {good,}
23  {makes a beat;}
24  {this apple is;}
25  {picks up apple from desk;}
26  {good,}
27  {shifts gaze to class, raises LH to chest, holding apple;}

28  T:  {holds;}
29  Ss:  {yeah;}
30  {nod heads;}

31  T:  {if i have;}
32  {shifts gaze downward, raises BH higher toward shoulders;}
33  {two apples,;}
34  {alternately moves BH upward and downward, LH holding apple,}
35  {shifts gaze to class;}


{i can say}

{shifts gaze to LH and then—RH}

{the green apple is}

{shifts gaze to LH}

{[better]}

{shifts gaze to class, raises LH to shoulder, holding apple}

Comparison C

R: [better]

T: {more good,}

{holds through line 51, nods head, squints; smiles}

Ss: {yeah, nod heads}

T: aright,

but we never say more good

bl-l-l-l

{and then if i have}

{shifts gaze to apple}
{three apples or four apples}

Figure 7.49. Lines 51-53: “four”

{shifts gaze to class, rotates BH @chest}

moving them outward at stressed words

Plurality C

{or a hundred apples,}

Figure 7.50. Lines 54-55: “hundred”

{moves BH upward and to the right, forming two arcs}

{I can say}

{holds BH @waste}

{but this}

{shifts gaze to LH, moves it upward to head, makes a slight beat}

{apple}

{moves LH higher, above head, widens eyes, raises eye brows}

Comparison C

{is the: (0.4)}

Figure 7.51. Lines 62-63: “is the”

{shifts gaze to class, moves LH forward and backward}

{best best}
The teacher follows the three-part model (positive at the lowest level-comparative at a higher level-superlative at the highest level) in the second half of her explanation as well. This time, she highlights the number of objects that can be compared. As previously, she uses the ascending order and begins with the positive degree, indicating that “good” can apply to one object. She first depicts “one thing” with an open palm (lines 19-21, Figure 7.45). Shifting her gaze downward toward her gesture, she notices an apple lying on her desk (it is the same apple that was prominent in Excerpt 6.1: “An apple a day”) and immediately incorporates this resource into her mediation. She picks up the apple and exhibits it to the students in her center-center workspace with the stroke on “good” (lines 26-27), eliciting signs of understanding from several students (lines 29-30).

Moving on to the comparative degree, the teacher indicates that it involves two objects (“two apples”) and highlights the number with a “weighing” gesture, alternately moving both hands upward and downward (lines 33-35, Figures 7.46-7.47). The teacher directs the students’ attention toward her gesture by gazing at her hands (line 32). Her gaze also moves from one apple to the other (an imaginary one) as she is deciding on which one is better (line 37). In this sense, the teacher’s gaze seems to contribute to conveying the meaning of comparison. Concluding that “the green apple is better,” she illustrates the comparative with an upward hand movement, raising the apple to shoulder level (lines 40-41, Figure 7.48). Student R pronounces “better” in synch with the teacher, predicting her conclusion.

The teacher next provides a side comment, maintaining a gestural hold throughout (lines 43-48). It is important that the hold is produced with both hands, and the two gestures are
maintained in the students’ visual field simultaneously: her right hand depicts a “good” apple placed at a lower level while her left hand holds a “better” apple at a higher level. According to Alibali et al. (2013), gestures that present related ideas simultaneously can enhance the learning outcomes by allowing learners to “better grasp the relationships between them” (p. 213).

The teacher completes her three-part model of explanation with the superlative, indicating that it is used when comparing more than two objects. She highlights the idea of a larger number of objects by using the Plurality Catchment considered in Excerpt 7.4: “Those.” The teacher produces three rotations with increasing amplitude by moving her hands outward and making strokes on the numbers, “three,” “four,” and “hundred” (lines 51-55, Figures 7.49; 7.50). She concludes by exhibiting “the best” apple as she moves her hand above her head, placing the superlative at the highest level in accordance with her three-part model (61-63, Figure 7.51). She also adds a dramatic facial expression by widening her eyes and raising her eyebrows, highlighting again the positive connotation. She elicits “best” from the students by elongating “is the…” and waving her hand, holding the apple, gazing at the class (lines 62-63).

**Discussion**

To summarize, in this excerpt the teacher provided a more well-planned and well-designed explanation of degrees of comparison as displayed in her speech-gesture units. Similar to her first, more spontaneous explanation of “good,” “better,” and “best,” the teacher conceptualized the relationship between them in terms of space. She used the Comparison Catchment to locate the three degrees of comparison on the vertical axis from the lowest, the positive degree, to the highest, the superlative degree. However, this time her gesture-based mediation was noticeably more consistent as she produced the three-part model at the very beginning of her explanation in a confident manner without hesitations, gaze aversion, or deviations from the ascending scale.
Her gesture was produced with both hands and had a clearer shape. The teacher also punctuated the presentation of her three-part model with the pause-hold-gaze behavior, eliciting the students’ attention. We can see how the thinking-for-speaking has been shaped across the two explanations. The excerpt also contributes to the discussion of shaping gesture in the explanations of related concepts. It provides an example where two gestures referring to two related categories, positive and comparative degrees, are maintained in the students’ view at the same time, which can help the students to make a connection between them. The excerpt also presents another instance of a “traveling” catchment—the Plurality Catchment—employed to in this excerpt to highlight the idea of multiple entities.

The interaction also demonstrates how other multimodal resources contributed to conveying grammatical meanings. The teacher’s gaze appeared to actively contribute to the meanings explained, as happened when her gaze moved between the compared apples (one of which was imaginary) to enhance the visualization of comparison. The meaning of superlative expressed in speech and gesture was also enhanced with affective performance and colored with positive emotion as expressed in widened eyes and raised eyebrows. The idea that teaching grammar can be enlivened with emotion appears to be important and relevant to enriching the practices of language teaching. Affect is also part of the grammar related interaction considered in the next session, which presents an example of the teacher’s gestural recast and the student’s gestural uptake.

7.3.4 Word Order

Excerpt 7.9: “Cat Owners”

In this excerpt, the teacher and student used metaphorical and deictic gestures to make word order visible. It is also an example of the teacher’s recast provided in speech-gesture modality
and the student’s uptake provided in gesture only. The interaction occurred in Class 2 during the discussion of a text about cat owners. Prior to the transcribed part of the interaction, the teacher asked the students about the main idea of the text. Sr initiated his response by indicating that the text presents results of a scientific study. The teacher reacted by soliciting specification, which is where the excerpt begins.

Excerpt 7.9: “Cat Owners”

1 T: {what was this}  

Figure 7.52. Lines 1-3: “was”

2 {shifts gaze at BH held @chest, palms flat facing upward, moves them alternately forward and backward}  

3 {be-be-[beh laughs]}  

4 {shifts gaze to window, holds through line 18}  

5 Sr: {{re re }  

6 {raises BH to chest, moves them apart to the sides, palms half-cupped, facing upward}  

Figure 7.53. Lines 6-8: “re”

7 Sr: {u:h}  

8 {puts hands on desk}  

9 T: {shifts gaze to Sr, laughs}
12 Sr: {relationships}

**Figure 7.54.** Lines 12-13: “relationship”

13 {raises BH to chest, palms half-cupped, facing upward}
14 {between}
15 {moves BH slightly to right at “be”; then slightly to left at “tween”}
16 {u:::h}
17 {puts hands on desk; moves LH slightly upward, thumb extended}

18 Sr: {cats,}

**Figure 7.55.** Lines 18-20: “cats”

19 {moves LH to left and downward, thumb pointing backward, leans body slightly to left}
20 T: {moves RH to right and forward, palm facing upward, fingers splayed, nods head}

**Figure 7.56.** Lines 21-22: “cats”

23 Sr: {and uh owners}
The teacher first attempts to formulate a question addressed to Sr, “what was this…” (line 1). Her utterance remains incomplete as she produces an odd sound signaling that she is tongue-tied (line 4). An important part of semantic information in this utterance is conveyed through the teachers’ gesture as she alternately moves both hands forward and backward with open palms facing upward (lines 2-3, Figure 7.52). On the one hand, this gesture is similar to the “palm addressed” (PA) gestures defined by Kendon (2004) as showing desire to obtain some specific information from an interlocutor. At the same time, the teacher’s hand movement differs from PA gestures in that it is produced with both hands and involves an alternating movement. It becomes clear from Sr’s ensuing reaction that the teacher’s gesture also has a metaphorical meaning, depicting the idea of relationship between two things. By integrating the information conveyed in the teacher’s speech and gesture, her question can be reconstructed as “What was this relationship?”
As the teacher struggles through her utterance, Sr overlaps her by attempting to offer a completion. He hesitantly produces the first syllable “re” and imitates the teacher’s gesture by raising both hands and moving them apart (lines 6-8, Figure 7.53). His palms are half-cupped as if he was holding two objects. In imitating the teacher’s gesture, Sr produces a catchment referred to as the Relationship Catchment. The teacher, however, is gazing away from Sr, who temporarily terminates his gesture by placing his hands back on the desk (line 10). He produces a hesitation marker “uh” and as soon as the teacher re-enters the mutual gaze, Sr restarts his utterance beginning with “relationship” (see Goodwin, 1981, on hesitations as a way to time the utterance with the establishment of the mutual gaze) (lines 9-12). Simultaneously, Sr resumes his gesture, again raising both hands to chest level (Figure 7.54) and making two strokes at “between” as he moves his hands slightly to the right at “be” and then to the left at “tween” (lines 14-15). In his gesture, Sr appears to metaphorically portray two entities that are connected in a relationship. This is another version of the teacher’s Relationship Catchment.

The student continues by naming the two related entities—cats and their owners. He first produces a stroke on “cats” by pointing with his left thumb to the space behind him (lines 18-20, Figure 7.55). The teacher acknowledges his gesture with a head nod and imitates Sr’s actions by moving her right hand to the right and forward simultaneously with him (lines 21-22, Figure 7.56). Thus, both interactants produce a stroke on the same word, “cats” resulting in another instance of collaborative growth point (see Excerpt 5.5: “Town-City” and Excerpt 9.7: “Below-Under”). In this case, the student provides both the verbal and gestural components, creating the psychological predicate, which can be phrased as, “cats constitute one part of the relationship.” The teacher acknowledges the student’s verbal contribution by imitating his gesture. We can possibly formulate her psychological predicate as “yes, I agree, the first element of the
relationship is “cats.” In Goodwin’s (2013) terms, she “delaminates” the student’s speech-gesture unit, extracting his gesture and making it part of her own utterance. Reworked in the teacher’s utterance, Sr’s gesture serves a different function—it contributes to the teacher’s acknowledgement of his response. The teacher’s gesturing in synch with the student allows her to provide continuous feedback without interrupting the student’s line of thought.

The student next names the second element of the relationship—“owners.” He refers to them in gesture by pointing with his right thumb at the space behind him (lines 23-25). The teacher continues to silently mirror Sr’s body movement by moving her left hand to the left (lines 26-27, Figure 7.57). The student next adds the word “cats,” producing an erroneous phrasing, “owners cats” instead of “cat owners” (line 28).

**Excerpt 7.9: “Cat Owners” (continued)**

![Figure 7.58. Lines 31-34](image)

31  { (0.5) }
32  T:  { moves BH upward and toward each other, index fingers extended, other fingers curled; moves RH over and to the left of LH }
33  Sr: { or }
34  { moves RH upward and forward @shoulder, palm half-cupped, holding pencil }
Figure 7.59. Lines 38-39: “cat”

38  T:  {cat}
39  {holds pointing}
40 Sr:  {moves BH slightly downward}
41 W:  °cat ow[ners°
42 T:  {{owners}
43  {moves RH above LH back to the right, index finger extended}
44 Sr:  {turns BH palms to face each other}

Figure 7.60. Lines 42-44: “owners”

45 Sr:  {a:h [ahaha:}
46  {moves BH upward (RH @face, LH @chest), index fingers extended}
47 W:  {turns to Sr and smiles}
48 T:  {holds}
49 T:  {{YEA:H}
50  {smiles, turns to her left, holding BH @waste, index fingers extended}
51 Sr:  {moves RH above LH to its left}
Before providing a verbal correction, the teacher breaks away from Sr’s gesturing pattern by moving her hands upward and toward each other with index fingers extended (lines 32-33, Figure 7.58). She then draws an arc with her right hand (standing for “owners”) by moving it over her left hand (standing for “cat”) as if placing “owners” in its proper slot preceding the word “cat” (line 34). Thus, before providing a verbal recast, the teacher enacts the correction through her metaphorical gesture. In this gesture, two syntactic elements are symbolically depicted with both hands. The space between the teacher’s hands metaphorically turns into a “written” sentence, where each syntactic element has its slot. The teacher operates on this imaginary syntactic structure by moving the incorrectly placed elements into their proper positions. Through her metaphorical gesture, the teacher makes the abstract syntactic structure visible to the student.

Sr sensitively orients to the teacher’s non-verbal recast by displaying signs of an impending problem. He initiates an alternative response with “or” and begins to mimic the teacher’s gesture.
by moving his right hand upward and forward (lines 35-37). The teacher next begins producing the verbal correction by uttering “cat” and holding her deictic gesture, which points at the correct syntactic slot (lines 38-39, Figure 7.59). At this point, student W joins the interaction and interjects the correct response, “cat owners,” which overlaps with the teacher’s “owners” (lines 41-42). She synchronizes a “backward” hand movement with her utterance, where she moves her right hand over the left hand back to its right. This gesture seems to point at the syntactic slot of “owners” (lines 42-43, Figures 7.60-7.61). Sr reacts with a token of new understanding, elongated “ah” and imitates the teacher’s gesture by moving his right hand over his left hand with index fingers extended (lines 45-46, 51, Figures 7.62-7.63). His gesture signals that Sr understands the nature of his error and acknowledges that the correction requires switching the syntactic slots. Even though Sr did not show uptake of the teacher’s recast verbally, he externalized it through his gesture, visually displaying signs of correct understanding. Sr also laughs at his own mistake and the interaction concludes with joint laughter shared by Sr and students A and W while other students and the teacher join the humorous mood by smiling (lines 50; 54-56).

Discussion

To summarize, in this excerpt the teacher and student employed metaphorical and deictic gestures to make the word order visible. Reciprocal use of the Relationship Catchment depicting the relationship between two entities (“cats” and “owners”) was further transformed in its function to visualize the syntactic structure. Such flexibility of gesture allowed the teacher to transition from acknowledging student responses by imitating his gestures to offering grammatical correction by breaking away from his pattern. The use of a deictic gesture allowed the teacher to provide a recast in the non-verbal modality before it was formulated verbally. This
was accomplished through the metaphorical mapping where the teacher’s hands symbolically depicted syntactic elements, making them visible and actionable.

In terms of semantic coordination between gesture and speech in this excerpt, the teacher’s gesture often conveyed information absent from her speech. Such was the case when expressing the idea of relationship in her alternating PA gesture and the grammatical correction provided in gesture before its verbal formulation. Importantly, this information conveyed predominantly in the gestural modality was attended to by the student. Thus, the teacher’s Relationship Catchment allowed Sr to make an inference and predict the completion of her question, provided by him in the verbal expression (“What was this relationship?”). The teacher’s recast provided first in the non-verbal modality allowed Sr to perceive that his word order was problematic. It also enabled him to express his correct understanding of this grammatical issue in his imitation of the teacher’s “corrective” gesture.

The teacher and student produce another type of collaborative growth point, which brings together the student’s response to the teacher’s question and her feedback to it. Expressed concurrently through the student’s speech-gesture unit and the teacher’s gesture, these two strands of information (response-feedback) converge in a single psychological predicate that marks the achievement of shared understanding. On the whole, the excerpt shows the importance of interactional synchrony and coordination of action in grammar instruction. Thus, the simultaneity of the teacher’s mimicking created affective alignment with the student by adding a humorous element to their interaction. This mood was then shared by other students as expressed in their joint laughter and smiling. Interactional synchrony was particularly important in providing continuous feedback to the student. When the teacher discontinued her
synchronization with Sr, it immediately signaled the problematic nature of his language production.

**7.4 Summary and Conclusions**

This chapter examined the use of teacher and student gesture in the *obuchenie* of L2 pronunciation and grammar. With regard to pronunciation, the analysis focused on the instructional functions of gesture employed for mastering syllabification and word stress. In relation to grammar, the role of gesture in the *obuchenie* of demonstrative pronouns, degrees of comparison, progressive aspect, and word order was examined. Findings provide evidence for the beneficial impact of the teacher’s gestures in developing student understandings of the features of pronunciation and grammar listed above. The information conveyed in the teacher’s gesture allowed the students to make further inferences; complement and elaborate the teacher’s explanations, which displayed their deeper level of understanding.

In teaching pronunciation, the teacher employed metaphorical, haptic, and deictic gestures to make such intangible phenomena as syllables and stress visible and “graspable.” Thus, her “chin” and “counting” gestures served the instructional purpose of facilitating the identification of syllables while the upward movement of the body allowed for marking word stress. The important feature of these body movements is that unlike the gestures employed in teaching vocabulary and grammar, produced spontaneously and mostly unconsciously, pronunciation gestures were specifically designed as instructional tools (as acknowledge by the teacher in her interview). Methodologically, these body movements fail to fit into the existing classifications of gesture. In relation to McNeill’s (1992; 2005) framework, the teacher’s pronunciation gestures do fall under the category of gesticulations since they are synchronized with speech. However,
unlike gesticulations, they do not seem to convey additional meaning. Rather, they serve instructional functions of visualizing specific aspects of pronunciation. These gestures do not seem to fit into McNeill’s (1992; 2005) classification of gestural dimensions either (iconic, metaphorical, deictic, and beat), involving haptics and the movement of the whole body. This study proposes to establish a separate category of gesture and label it as *intentional instructional gestures* (IIG), which embraces gestures specifically designed for instructional purposes.

Instructional gestures are different from spontaneous gestures occurring in ordinary conversations that can be used for instructional purposes (as was the case with gesture employed in the *obuchenie* of vocabulary and grammar in this study).

In the *obuchenie* of grammar, metaphorical gestures allowed the teacher and students to make grammar visible and “handlable.” Thus, the deictic meanings of demonstrative pronouns, the degrees of comparison of adjectives, progressive aspect, and word order of a sentence were conceptualized by the teacher and students through gesture. In these visualizations, the advantages of gestures with regard to their capacity to portray spatial arrangement, assign meaning to specific locations in space, and produce dynamic movement through space were particularly important in embodying grammatical relationships. Metaphorical gestures were also effective in highlighting contrasts between related categories and meanings such as degrees of comparison and demonstrative pronouns. In the teacher’s explanations of grammar, her gaze appeared to be used as an instructional tool that contributed to conveying the meanings of demonstratives and degrees of comparison. The teacher also combined gesture with graphic imagery to make her explanations more complete. She consistently employed a combination of pause-hold-gaze as an embodied comprehension check and a bid for shared understanding.
The students actively contributed to the visualizations of grammar as they often projected and compensated for the missing elements of the teacher’s explanations. Such was the case with By, who made an inference and assigned the grammatical category of plurality to the pronoun “those.” In a similar way, students W and G offered a gestural conceptualization of the superlative, “best,” complementing the teacher’s explanation. These actively co-constructed instructional discussions of grammar show that rather than attempting to understand grammatical phenomena inside their heads, the students participated in experiencing grammar through gestural “conceptualization-in-interaction” (Cooperrider & Núñez, 2009, p. 198). Driven by mutually shared purposes of obuchenie and recipient design, where the teacher adjusted her explanations to the level of student understanding while students shaped their contributions in accordance with the teacher’s mediation, both parties extensively employed diverse semiotic resources in co-constructing “composite conceptualizations” of grammar—“multimodal cognitive acts that include at least motoric action, speech, and mental imagery” (Cooperrider & Núñez, 2009, p. 188).

In terms of “semantic coordination” (Gerwing & Allison, 2011, p. 309) between words and gestures, the excerpts considered in this chapter show that the teacher’s gesture often conveyed important information absent from her instructional speech. In the excerpts discussed in previous chapters, we often observed that students relied more on gesture in conveying their messages because of a lack of linguistic resources in their L2. In the teacher’s case, the prevailing role of gesture in communicating grammar information can be explained by recipient design. As the teacher orients to the level of student understanding, the semantic load may shift towards the end of gesture. Importantly, the students attended to the instructional information conveyed in the teacher’s gesture and incorporated it in their evolving understandings of grammar.
The interactions focused on pronunciation and grammar contribute to the discussion of thinking-for-teaching initiated in the previous chapters. In teaching pronunciation, the question arises which elements of sound production have to be foregrounded in the teacher’s instructional gesture to make it effective. Thus, for the purpose of visualizing the syllables, the teacher chose to highlight such features as the downward movement of the chin. One can imagine other ways of visualizing the syllables production. Criteria for a “successful” instructional gesture remains an important and intriguing question. In terms of grammar instruction, the teacher’s explanations of the same concepts produced twice—first spontaneously during group work and then in a more planned manner during whole-class discussion—allowed for observing the thinking-for-teaching unfolding in flight. The data show that the teacher’s initial explanations produced spontaneously to some extent provided an opportunity to experiment and rehearse the second explanation. During such spontaneous explanations, the teacher’s gaze was often directed at her own gesture behavior. This may have played an important role in gaining awareness of her instructional gesture and constructing a more well-formed and effective gesture in the iterated explanation. Indeed, the gestural strategies employed by the teacher in those later explanations became more well-planned, consistent, and clearly designed, which improved their instructional effectiveness. These findings point to the possibility that instructional gesture can be improved through appropriate planning and rehearsal if treated as an important instructional tool on a par with speech (which is usually pre-planned and often rehearsed by teachers).

Importantly, the chapter provides another example of an embodied recast. It was embodied both on the teacher and the student’s part with the latter displaying his uptake exclusively in the gestural modality. This is an important finding since as mentioned in Chapter 6, current research on corrective feedback predominantly considers teacher recasts and student uptake exclusively in
the verbal modality. The data discussed in this chapter seems to point to the importance of considering body movement as a medium of providing non-intrusive corrective feedback and a means of displaying students’ appropriation of the correct understanding. Overlooking this information conveyed in teacher and student gesture may obscure the picture of teaching strategies and student learning.

The interactions discussed in this chapter also demonstrate the importance of coordination and synchronization of teacher and student actions both in the obuchenie of pronunciation and grammar. The significance of interactional synchrony appears more obvious for mastering pronunciation, which has been discussed in prior studies. Thus, research on gesture points to the intrinsic relationship between verbal sounds and body movement. According to Kendon (1972), the hierarchies of speech units and kinesic units are parallel, which raises the importance of tying them together in learning the pronunciation of a new language. Studies focused on teaching L2 pronunciation show that teachers often realize the importance of this connection and employ such kinesic mediational means as clapping, rocking the upper body, stretching a rubber band, pointing, beating out the rhythm, and even using dance steps (Murphy, 2004; Baker, 2013). The importance of interactional synchrony and coordination of action in the obuchenie of grammar, however, is something that has not received much attention in the second language acquisition research. An exception is Churchill, Okada, Nishino, & Atkinson’s (2010) study of alignment in the obuchenie of grammar occurring in a one-on-one tutoring session. Their analysis reveals an important role of fine coordination of the tutor and student actions with multimodal resources in the environment in the process of mastering English tense and aspect. In Excerpt 7.9: “Cat Owners,” interactional synchrony allowed the teacher to provide feedback concurrently with the student’s response and signal the problematic point in his language production. The teacher’s
simultaneous mimicking of the student’s body movement, which almost looked like “dancing around grammar” helped to create affective alignment in dealing with a grammar issue. The teacher also managed to incorporate an affective element into her explanation of degrees of comparison, adding positive connotation to the superlative through her non-verbal behavior. The importance of affect in grammar explanations is something rarely discussed in the research focusing on grammar instruction.
Chapter 8

Student Gesture and Teacher Responsivity

8.1 Introduction

This chapter presents findings related to how the teacher oriented to the students’ gesture and reshaped her mediation in accordance with their understandings expressed in the gestural modality. The chapter presents evidence that the teacher attended to students’ gestures as a display of their current level of understanding, which helped her to tailor her teaching strategies to more appropriately meet their needs. These findings point to the importance of attending to student gesture as reflecting the ongoing process of appropriating second language meanings and forms.

The first section of the chapter focuses on student externalizations of their understandings of L2 meanings produced predominantly in gesture with minimal verbal contributions. Such gestural illustrations allowed the students to seek confirmation of their perspectives on vocabulary meanings presented by the teacher. If not for gesture as an available embodied resource, the students would most likely have found it difficult, if not impossible, to externalize their understandings since they had not yet appropriated the necessary linguistic means of expressing their uptake of the teacher’s explanations. In the second section, the focus is on student gesture as signaling confusion about L2 meanings and forms. Attending to such gestures allowed the teacher to identify significant errors in the students’ understandings of the items in question, which in turn enabled her to provide the necessary mediation and resolve the students’ confusion. If not for her close attention to student gesture, their errors would have remained unnoticed and learning opportunities would have been missed.
8.2 Student Gesture in Seeking Confirmation

This section reports on how the students used gesture to make their perspectives on the meanings of L2 items visible and accessible to the teacher. This enabled the teacher to assess student understanding and provide appropriate feedback. The student gesture attended to by the teacher therefore served important obuchenie functions as a crucial resource under the conditions where the necessary verbal expression in L2 is not always available to the students. The section presents two examples of such interactions, occurring during group work. They were preceded by discussions of L2 meanings in which students were not able to agree upon a particular meaning. They therefore turned to the teacher for clarification and confirmation.

Excerpt 8.1: “Carry is...”

The following excerpt is an example of how a student illustrated the meaning of a vocabulary item by means of gesture and object manipulation with the purpose of confirming her understanding. The interaction occurred during group work in Class 4 and involved the teacher and two students, G (female, L1 Spanish) and F (male, L1 Arabic). Prior to the excerpt, the group was discussing the meaning of the word “carry” and failed to come to an agreement. To resolve the confusion, G turned to the teacher for help.

Excerpt 8.1: “Carry is...”

1 G: carry {is u:h u:h}
2 {raises BH, holding phone, to shoulders;}
3 moves BH toward T as if giving phone to her}
4 T: {moves RH toward phone}
Figure 8.1. Lines 1-4: “is uh uh”

5   G:  {[carry is]}
6   {moves BH slightly downward}
7   T:  [uhum,]
8   {yes}
9   G:  {moves BH upward to face and forward, forming arc,
10          glances at F}
11  T:  {i will carry your [phone]}
12  {takes G’s phone; starts moving away}

Figure 8.2. Lines 15-18: “is uh uh”

13  F:  {[↑oh=oh=oh]}
14  {raises RH to face, index finger extended in T’s direction}
15  T:  {to the table}
16  {carries G’s phone to teacher desk}
17  G:  {ye:s}
18  {raises head slightly}
19  laughs
The excerpt opens with G’s attempt to express her understanding of “carry” to the teacher. She begins her utterance with “carry is…,” but then produces several hesitation markers, displaying difficulties in proceeding with the verbal formulation (line 1). G completes her statement with a gesture combined with object manipulation. She picks up her phone with both hands and raises it upward, moving toward the teacher as in the act of giving (lines 2-3, Figure 8.1). By doing this, G provides an embodied illustration of her definition of “carry” in the absence of the proper verbal affiliate. The teacher aligns with G by participating in her multimodal action as she moves her right hand toward the phone (line 4).

This is followed by G’s new attempt to explain the word as she may be still looking for the verbal means of externalizing her understanding. G repeats the incomplete phrase, “carry is” and moves her hands, holding the phone, slightly downward (lines 5-6). At this point, the teacher acknowledges G’s conjecture with “uhum” and “yes.” Thus, despite the missing verbal explanation of “carry,” she treats the student’s statement as a legitimate and correct contribution (lines 7-8). The teacher’s approval seems to encourage G to produce an amplified illustration of “carry”—this time, as a confirmation of G’s understanding and its reassertion intended for F, who previously disagreed with G on what “carry” means. Contemporaneously with the teacher’s “yes,” G raises her phone higher and then forward, toward the teacher, forming an arc (lines 9-10). Importantly, on the way, she glances at F, as if indicating: “see, my conjecture is correct.”

The teacher reacts with a more extended confirmation of G’s correct understanding of “carry.” She does so by producing an illustration of the verb’s meaning similar to the one provided by G. The teacher takes the phone from the student and carries it toward her desk, simultaneously describing her actions: “I will carry your phone to the table” (lines 11-12, Figure 8.2). By generating a grammatically complete sentence including “carry,” the teacher seems to
compensate for the verbal component missing from G’s utterance. In this sense, she reworks the information conveyed in G’s gesture and converts it into a verbal expression. At this point, student F reacts by uttering “oh”—a change-of-state token (Heritage, 1984)—marked with emphasis and higher pitch as a sign of new understanding (lines 13-14). He makes his display more emphatic with a pointing gesture directed at the teacher. As the teacher completes her embodied confirmation, student G enthusiastically utters “yes,” raising her head and laughing (lines 17-19).

Discussion

To summarize, in this excerpt the student employed gesture and object manipulation to visualize her understanding of the meaning of an L2 vocabulary item as she experienced difficulties in expressing herself verbally in her second language. Her gestural enactment of the meaning appeared to be a crucial resource in this instructional interaction aimed at verifying the correctness of the meaning in order to resolve the students’ confusion. Similar to student-student interactions that will be discussed in Chapter 9, body movement appeared to serve as a crucial semiotic resource under the conditions where the teacher and students do not share their native language. At the same time, Beginner level of proficiency does not always provide the students with the necessary verbal resources to express themselves clearly in their L2.

The gestural illustration of “carry” enabled G to make her understanding visible and publicly accessible to the teacher, who carefully attended to the student’s gesture. If not for gesture, G’s view of the meaning would have remained “invisible.” The visualization enabled the teacher to evaluate G’s understanding and confirm its correctness, which helped to resolve the students’ confusion. The way the teacher employed body movement in acknowledging G’s statement was also important. It helped to establish alignment through the teacher’s imitation of G’s actions and
served specific instructional purposes through recipient design. The teacher included the embodied demonstration of “carry” in her confirmation to ensure that the students understood the meaning. In fact, her enactment did help student F to reach a new understanding of “carry.”

In terms of more traditional ways of analyzing classroom interaction, it seems interesting to consider the verbal part of this exchange, devoid of the transcribed non-verbal moves:

G: carry is…carry is…
T: uhmm, yes.

Focusing exclusively on the teacher and student’s verbal utterances creates an impression that the teacher’s reaction is somewhat irrelevant or that she is attempting to read the student’s mind. The analysis of the excerpt shows that in fact, she is, but only to the extent that the student’s mind is externalized through gesture.

Excerpt 8.2: “Stay”

The next excerpt provides an additional example of how a student externalized her understanding of an L2 vocabulary item through gesture. The information conveyed through gesture was attended to and reworked not only by the teacher but also by a fellow student. The exchange of gestural enactments allowed for building shared understandings of the L2 meaning. The interaction, which focused on the meaning of the verb “stay,” occurred in Class 12 and involved the teacher, student C (female, L1 Portuguese), and student G (female, L1 Spanish).

Excerpt 8.2: “Stay”

1 C: {stay}
2 {points at the word in her notebook}
3 T: {gazes at notebook}
4 {0.4}
5 C: {moves RH upward to face, index finger pointing downward}
6 {u:h}
7 {holds, gazing at notebook}
Figure 8.3. Lines 6-7: “uh”

8 G: stay {here}
9 {moves RH from shoulder downward to desk, palm half-cupped, index and middle fingers extended downward, holding pen}
10 T: {shifts gaze downward, moves BH upward to chest and then downward to waste, index fingers pointing downward}

Figure 8.4. Lines 8-12: “here”

13 T: {repeats gesture}
14 C: {shifts gaze to T}
15 C: {[stay, stay]}
16 {nods head, makes slight beats with RH pointing downward}
17 T: {[uhum uhum]}
18 {nods head and repeats gesture multiple times; shifts gaze to C at the second “uhum”}
20 C: {stay here, at (xxx)}
21 {shifts gaze to RH, moves RH slightly upward, forward, and downward;}
22 shifts gaze back to T, holds}

23 T: {uhum}
24 {makes slight beats, nods head}

The interaction begins as student C draws the teacher’s attention to the word “stay” by pronouncing it and pointing at the word in her notebook (lines 1-2). She then suspends her verbal production by pausing as her utterance continues to unfold through gesture. C first moves her right hand upward to the face level with her index finger pointing downward (lines 4-5). She produces a hesitation marker, elongated “uh,” holding the gesture and gazing at the word in her notebook (lines 6-7, Figure 8.3). C’s actions seem to indicate that she is experiencing difficulties in formulating the meaning of “stay” verbally and attempts to illustrate it through gesture. In doing this, C employs a deictic gesture, which points at a location within her peripersonal space, close to her body. This illustration seems to refer to the meaning of “stay” as “to continue in a place or condition” (Stay, n. d.).

Student G, who has been following her partner’s actions, displays a collaborative stance by offering a verbal completion of C’s utterance, “stay here” (line 8), synchronized with a gestural illustration, which appears similar to the one produced by C (lines 8-10, Figure 8.4). This gesture is now turned into a catchment referred to as the Stay Catchment. As she points with her right hand downward, however, student G places the stroke on “here” rather than “stay.” In this psychological predicate, she appears to interpret the meaning of “stay” conveyed in C’s gesture: staying in the same place, “here” (which correlates with the dictionary definition cited above). In doing this, G seems to convert the information conveyed in C’s gesture into her verbal
expression as she attempts to assist C in her search for the word’s meaning. Simultaneously with G, the teacher initiates her response to C by producing it silently in the kinesic modality. She becomes tightly engaged with her gestural performance as her gaze shifts downward toward her hands. This shift also plays a deictic function by signaling the importance of attending to the teacher’s incipient gesture (line 11). She continues by imitating the Stay Catchment introduced by C as she moves both hands upward and downward, pointing downward with her index fingers (line 12, Figure 8.4). Her gesture is a noticeably more dynamic and emphatic version of C’s catchment as it engages both hands and a downward movement produced repetitively through subsequent lines. The teacher’s actions synchronize with G’s gesture as they produce their strokes simultaneously while C is still holding her gesture.

What we observe here is the ongoing shared cognition centered on the L2 meaning and externalized through concurrent gesture. It may also be another case of a collaborative growth point, in which each interactant contributes a different element to the overall meaning of the word. Thus, C contributes her embodied conjecture depicting “stay” as “stay in the same place,” G offers its verbal formulation “stay here” while the teacher provides the evaluation of both meanings as correct and reinforces them with her emphatic hand movement.

It is important to consider the nature of the feedback provided by the teacher to student C. Notice that in Excerpt 8.1: “Carry,” the teacher’s confirmation was produced through speech and gesture. This time, the teacher’s confirmation of the meaning of “stay” is produced silently through gesture only. This difference seems to be instructionally relevant. Similar to the teacher’s non-verbal feedback in Excerpt 7.9: “Cat Owners,” in her gestural depiction of “stay” the teacher provides concurrent and non-intrusive feedback, which may open more room for the student to arrive at the verbal explanation on her own rather than receiving a ready-made
definition from the teacher. In fact, student C does generate a verbal formulation as will be shown below.

Shifting her gaze to the teacher, C becomes cognizant of her gestural confirmation and expresses agreement by repeating “stay” twice and nodding her head. She also imitates the teacher’s catchment by moving her pointing hand downward several times (lines 15-16). The teacher aligns with C by uttering “uhum” twice and continuously nodding her head (lines 18-19). The teacher’s confirmation seems to encourage C to make another attempt at the verbal formulation (line 20). She borrows the verbal elements from G by uttering, “stay here at…” as the remainder of her utterance remains unclear. C is mediating herself through gesture by making a small “step” forward with her right hand while at the same time gazing at this gesture (line 21). Throughout C’s actions, the teacher repeats the Stay Catchment multiple times as if providing continuous access to the meaning of “stay” (lines 18, 24). The iterated catchment serves as a visual link and an anaphoric reference, helping to maintain coherence of the teacher and student discourse and thinking.

It is only in line 25 that the teacher initiates the verbal component of her explanation. She offers an example, which consists of an imperative produced as direct speech: “Don’t go! Stay” (lines 25-29). This is probably intended as a clarification of the meaning of “stay” by opposing it to the meaning of “go”—a verb that the students are likely to know at this level of proficiency. The teacher attempts to enhance the meaning of the imperative with a pragmatic gesture by moving her hands, palms facing obliquely downward, toward C (line 26, below). This gesture is described by Kendon (2004) as belonging to the “Open Hand Prone,” “palm down” family, with the shared “semantic theme of stopping or interrupting a line of action that is in progress” (p. 248-249).
Excerpt 8.2: “Stay” (continued)

25  T:  { **don’t ↑ GO** }
26  { opens palms facing obliquely downward, moves BH toward C;  
27  makes beat at “go”  }
28  C:  { parts lips as if saying “ah,” moves RH toward body and upward,  
29  making arc, index finger points upward at the end  }

Figure 8.5. Lines 29-33: “stay”

29  T:  { **stay** }
30  { moves BH upward from waste to chest and downward to waste,  
31  palms flat, facing each other; makes two beats with effort  }
32  C:  { stay stay=  
33  { nods head, moves RH downward  }
34  T:  { =uhum  }
35  { nods head  }
36  G:  { **we stay**  }
37  { moves RH to the right, forward, and backward, drawing a circle  
38  that includes C and T  }
39  C:  { yeah  }
40  T,C:  { shift gaze to G  }
41  T:  { uhum  }
42  { nods head  }

C reacts to “don’t go” by showing her understanding as she parts her lips as if saying “ah”  
and produces a gesture, in which she reorients her pointing upward and draws an arc by moving  
her right hand toward her body and up above her head (lines 28-29). This unusual metaphorical
gesture seems to align with the meaning of “ah” (a marker of new understanding, Seo & Koshik, 2010) and depicts the change in the flow of C’s thought and the emergence of a new idea. It therefore seems to mark the “aha” moment. The teacher produces a stroke on “stay” by bringing both hands closer, palms facing each other and making a distinct downward movement (lines 30-31, Figure 8.5). C reacts with agreement expressed in multiple ways—with echoing “stay” twice, nodding her head, and imitating the teacher’s downward movement (lines 32-33). G also expresses agreement by providing an example, “we stay” and illustrating it with a different gesture—drawing a circle, including the teacher and C. This elicits signs of agreement between C and the teacher as they both shift their gazes to G for the first time in this interaction (line 40).

Discussion

To summarize, in this excerpt student C employed gesture to make her understanding of an L2 word visible to the teacher in search for her confirmation. Gesture appeared to be a crucial resource in completing her verbally incomplete utterance, which allowed C to express her understanding of an L2 meaning before she developed a discursive framework in L2 to do so. Similar to Excerpt 8.1: “Carry,” the teacher attended to C’s gesture and accepted it as a legitimate contribution. She employed the information conveyed exclusively in C’s gesture to assess her understanding of the meaning as correct. The information communicated through C’s gesture was sensitively oriented to not only by the teacher but also by student G, who converted it into her verbal expression.

The teacher’s embodied confirmation of C’s understanding of “stay” produced in the absence of speech served an important instructional purpose of providing concurrent non-intrusive feedback to the student without intervening in her ongoing thinking. This in turn may have provided the student with enhanced learning opportunities. The teacher’s Stay Catchment
produced multiple times throughout C’s struggles provided continuous access to the correct meaning, maintained coherence, and guided C in her search for the verbal expression of the meaning of “stay.” The teacher’s silent confirmation and G’s verbal interpretation, “stay here” helped C to generate the verbal formulation of the meaning of “stay.”

The three participants demonstrated interactional synchrony as they appeared to produce a collaborative growth point. Their verbal and gestural messages converged in a triadic psychological predicate uniting C’s gestural conjecture, G’s verbal interpretation, and the teacher’s gestural confirmation. The interaction also demonstrated the role of gesture as contributing to the collaborative and dialogical nature of instructional conversations. Put forward for each other to observe in the shared interactional space, gesture allowed the interlocutors to exchange their perspectives on the meaning in question and in this way, reach shared understanding. In this sense, shared gesture contributed to the teacher’s and students’ intersubjective alignment. The interaction shows a high degree of the interactional synchrony and alignment among the participants. This may be related to the fact that it occurred in the last class of the semester, which suggests that by that point in the instruction, teacher and student actions had become better coordinated than at the outset of the course.

This section reported on the cases where student gesture was crucial in confirming with the teacher their understandings of L2 meanings. The interactions predominantly consisted of student externalized understanding and teacher confirmation. The interactions discussed in the next section constitute more complex cases, where student gesture displayed erroneous understandings, enabling the teacher to shape her mediation accordingly in order to resolve the confusion.
8.3 Student Gesture in Resolving Confusion

This section discusses the excerpts that demonstrate the importance of the teacher’s attending to the students’ gestural moves as a valuable source of information on their ongoing thinking process and the level of their current understanding of L2 meanings and forms. The analysis shows that the teacher sensitively oriented to the information conveyed in student gesture and then appropriated it to tailor her instructional strategies to more effectively mediate student learning. The section presents two extended examples: the first illustrates the resolution of multilayered confusion involving lexical, grammatical, and spelling issues, and the second relates to differentiating between homonyms.

8.3.1 Resolving multilayered confusion

Excerpt 8.3: “Thought”

This excerpt is an example of how attending to the students’ gesture helped the teacher to identify their confusion related to different aspects of L2 knowledge and facilitated their arriving at the correct understanding. The interaction focused on the meaning of “thought” occurred in Class 2 during student group work. It involved two students: C (female, L1 Portuguese) and Sr (male, L1 Arabic).

Excerpt 8.3: “Thought”

1 Sr: {points at a word in C’s notebook}
2 T: {leans forward, gazing at the word}
3 thought. =
4  C:  {=uh thought}

**Figure 8.6.** Lines 4-7: “thought”

5  {moves BH upward to face, palms facing obliquely downward, RH palm cupped, LH fingers extended; moves LH forward and upward}

8  {(0.2)}

**Figure 8.7.** Lines 8-10

9  C:  {moves LH towards body, palm facing downward; moves RH forward}

11  {[a cater]}

**Figure 8.8.** Lines 11-13: “cater”

12  {moves LH forward, pointing at T with index finger; moves RH slightly toward body; holds}

14  Sr:  {[pa:st]}

15  {moves RH towards R shoulder, points behind himself with thumb}

16  C:  {pillar}
The excerpt begins as the teacher approaches the group and reads aloud the word “thought,” pointed at by Sr (lines 1-3). C initiates her conjecture on the meaning of “thought,” which is difficult to understand without knowing the context of the preceding classroom interactions; specifically, the joint reading of the children’s book, *The very hungry caterpillar* (Carle, 1974). C repeats the verb “thought” and externalizes her understanding of its meaning through her gesture as she raises both hands to the face level, palms facing obliquely downward, and moves them alternately backward and forward (lines 5-7 and 9-10, Figures 8.6-8.7). This gestural movement does not seem to reflect the meaning of “thought,” which is confirmed in C’s verbalization that follows: “a caterpillar.” As she pronounces the word, C holds her gesture and points with her left hand to the teacher (lines 11-13, Figure 8.8). By doing this, she refers to the children’s book that the teacher and students had read together previously. Thus, C’s forward and backward movement appears to iconically portray the movement of the caterpillar while her pointing gesture refers to her shared experience of reading the book with the teacher.

The other student, Sr, also expresses his understanding of “thought” by indicating that it is related to the past. He utters “past” and points with his right hand behind his back—a conventional way of referring to the past in Western culture (Gullberg, 1998). His conjecture goes unnoticed as the teacher’s gaze is fixed on C, who continues her alternating hand movement...
(lines 18-20). The lack of the teacher’s response signals her difficulty in understanding what C means, which motivates the student to question her own conjecture with “no?” (line 21). The teacher continues to contemplate the meaning of C’s actions as she shifts her gaze away from the student, to her right (line 23). At this point, the teacher shapes her interpretation and enthusiastically responds: “that was “through.” She reinforces the pragmatic force of her utterance by pointing at C with both hands, conveying positive emotion related to her successful inference (lines 26-27). C next confirms that the teacher’s interpretation was correct by repeating “through” twice and pointing at the teacher (lines 28-29).

Excerpt 8.3: “Thought” (continued)

24 T: {that was
25 {raises BH hands to chest level, index fingers pointing at C
26 {through
27 {makes a beat by slightly lowering BH, pointing at C
28 C: [through through]
29 {points at T with LH index finger twice}
30 T: [through.]
31 {shifts gaze onto her hands, moves RH towards LH,
32 RH index finger extended, LH palm flat, facing upward}

Figure 8.9. Lines 33-34: “through”

33 T: {th r o u
34 {uses RH index finger to imitate writing on the LH;
35 C: {yeah yeah
36 {nods head several times}
The segment of the exchange discussed above clearly demonstrates the patience and attention with which the teacher treated C’s non-verbal and verbal actions. If we look at the verbal part of the transcribed sequence, it would hardly seem coherent or make much sense:

T: thought.
C: a caterpillar.
T: that’s “through.”

In this exchange, the interactants have reached shared understanding through the background knowledge that they shared within the local context of this classroom. It is also due to the teacher’s close attention to C’s gesture and a conscious effort to comprehend the embodied meaning that shared understanding was achieved.

The teacher next provides the spelling of “through,” probably considering this aspect to be the source of C’s confusion. She imitates the process of writing as she spells the word “through,” gazing at her hands as she gestures (lines 33-34, Figure 8.9). Rather than referring to spelling verbally, the teacher engages the visual and motor modality to draw the student’s attention to the troublesome aspect of her language production. This iconic gesture, depicting the writing process, exhibits instructional design: rather than illustrating the meaning of a word, it highlights the whole aspect of the language that needs to be attended to.

Excerpt 8.3: “Thought” (continued)

37    T:  {[g h]}
38    {shifts gaze to Sr}
39    Sr:  {[[thought?] (0.4)]}
40    {rotates RH, index finger extended in front of his mouth}
Figure 8.10. Lines 39-40: “thought?”

41 Sr: {thought=thought.}<
    {makes “talking” gesture with RH, moving extended fingers
    toward and away from thumb repetitively}

Figure 8.11. Lines 41-43: “thought thought”  Figure 8.12. Lines 41-43: “thought thought”

44 T: {thought, (0.2)
    {points at Sr with LH palm}
45 Sr: {continues “talking” gesture}
46
47 T: {that's}
    {makes a beat, pointing at Sr with LH index finger extended}
    {(0.8)}
48 T: {shifts gaze upward}
49 {talk}
    {shifts gaze to Sr, makes a beat, pointing at Sr with LH index finger,
    directed slightly downward}
50 {(0.6)}
51 T: {smiles}
52 Sr: *yeah.*
Halfway through the teacher’s spelling, Sr initiates another conjecture in relation to the meaning of “thought.” He pronounces the verb and accompanies it with a rotating movement of his right hand produced in front of his mouth (lines 39-40, Figure 8.10). The fact that the gesture is performed in the area close to the speaker’s mouth seems to indicate that it does not reflect the meaning of “thought.” As the teacher shifts her gaze to Sr, he reshapes his hand movement by imitating the movement of the mouth produced while talking (lines 42-43, Figures 8.11-8.12). In doing this, he switches from the emblematic to iconic gesture in a possible attempt to make it more understandable. (One might wonder if that change was due to Sr’s realizing that the teacher may not be familiar with the emblematic gesture.) The teacher attends to Sr’s gesture and attempts to interpret it by uttering “that’s” and then pausing and shifting her gaze upward (lines 49-50). She next generates the interpretation and indicates to Sr that the verb he depicted was “talk” (line 51). Similar to her response to C, the teacher reinforces her interpretation with the pointing gesture directed at Sr. At the same time, she mitigates the correction with a broad smile (lines 51-53).

In response, Sr expresses agreement with “yeah,” following which the teacher initiates her correction. She produces a DIU, attempting to elicit the correct item from Sr: “thought is the irregular past tense of…” As soon as she pronounces “past,” Sr illustrates it by pointing behind himself, thereby indicating that he understands that “thought” is a past tense form of the verb (line 62, Figure 8.13). This signals that it was the meaning of the verb that he was confused about rather than its grammatical form. The teacher also elongates the final syllable as a bid for Sr’s completion (lines 58-61). He seems to realize that he is expected to provide the completion

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9 This gesture may have cultural origins. In Tunisia, for example, it is an emblematic gesture referring to talking nonsense (B. Boughalmi, personal communication, April 8, 2014).
but experiences difficulties with generating it and explicitly asks the teacher, “which verb?” (63-65). The teacher still delays the correct response by using pantomime as a clue (Figure 8.14). She silently taps on her forehead with her index finger as Sr repeats “thought” and then generates the correct response, “think.” He also imitates the teacher’s gesture by pointing at his left temple with his left hand (line 72). By doing this, he turns the teacher’s gesture into a catchment referred to as the Think Catchment. This is the first catchment employed in this interaction, and its emergence marks the point at which shared understanding has been achieved. The teacher acknowledges Sr’s response with an energetic “think, you got it” while pointing at Sr with a beat gesture (lines 73-76, Figure 8.15). Sr aligns with the teacher by pointing at her and uttering, “yeah.”

Excerpt 8.3: “Thought” (continued)

58 T: {↑thought is the <irregular p(h)ast
59 {points at the word in C’s notebook with RH index finger;
60 shifts gaze to Sr at “past”}

61 T: {tense o::v}
62 Sr: {points behind himself with LH thumb; holds}

Figure 8.13. Lines 61-62: “tense ov”

63 Sr: {which}
64 {holds}
Figure 8.14. Lines 65-66: “verb”

Sr: {verb?}

T: {moves RH upward toward forehead, index finger extended}

{(1.0)}

T: {taps forehead with RH index finger}

Sr: {thought}

{extends LH fingers upward}

{↑think}

{moves LH toward left temple}

T: {↑think.}

{points at Sr as a beat with RH index finger}

Figure 8.15. Lines 73-75: “think”

Sr: {points at T}

T: {[you godit]}

{retracts}

Sr: [yeah]

yeah
Discussion

To summarize, in this excerpt the students’ gestural enactments of L2 meanings in the discussion of “thought” allowed them to externalize the aspects of their confusion invisible in their verbal language. In C’s case, her struggle was related to the lexical meaning and spelling, while in Sr’s case it was related to matching the grammatical form with the lexical meaning. Although both students used the same lexical item, “thought,” in their speech, their gesture made it clear that they ascribed to it entirely different meanings: “through” and “talk.” We can see how gesture visualized diverse aspects of student understanding of L2 vocabulary. If not for gesture, this important information about the status of student knowledge would have remained “invisible.”

The teacher carefully attended to student gesture, which was crucial in identifying and solving the problematic issues related to L2 forms and meanings. Treating the students’ gesture seriously allowed the teacher to identify the information conveyed in their hand movements and convert it into designing an adequate and effective mediational strategy. As a result, the teacher was able to provide appropriate corrections and help the students to achieve proper understandings of the L2 meanings in question. In her attempt to comprehend the meaning conveyed through the students’ verbally incomplete messages, the teacher demonstrated a great deal of patience, alignment, and sensitivity to the students’ non-verbal moves. In addition, she effectively drew upon the background knowledge shared with the students in the local context of this particular classroom. The teacher also introduced an affective element into the process of resolving confusion. She accomplished this through a pointing gesture directed at the students. Through her gesture, prosody, and facial expression, the teacher expressed a happy feeling about figuring out what the students meant and mitigated her correction with a smile.
The teacher herself employed gesture in the absence of speech (a deictic pointing at her forehead) as an illustration of “thought.” This gestural clue facilitated Sr’s correct response—the present form of “thought,” “think.” In this sense, the teacher’s gesture created more learning opportunities for the student by providing enough room for his thinking about the word’s meaning. The way the student oriented to the teacher’s gestural clue is a good example of how students can sensitively orient to the teacher’s gesture and convert the information conveyed in it into their L2 verbal expressions.

This excerpt is also a rare example of teacher-student interaction in which only one dialogical catchment emerged, and it occurred at the very end of the sequence. This reflects the dialogical nature of a catchment—as a means of creating alignment between the interlocutors and a sign of embodied thinking unfolding along similar lines. In this case, the students expressed their divergent understandings of “thought.” The absence of catchments indicated that their current understandings were dis-aligned. As soon as the teacher and Sr achieved the shared understanding of “thought” as the past form of “think,” a dialogical catchment emerged. This confirms the role of a catchment as a means of building intersubjective alignment.

The excerpt also points to an interesting instructional function of an iconic gesture. On the surface, the teacher’s gesture imitating the writing process seemed to illustrate the meaning of the verb “write.” However, in the context of that particular interaction, the gesture served an important pedagogical function of drawing the students’ attention to the aspect of language knowledge, spelling, which seemed to be the source of the student’s confusion.

Finally, Sr’s use of an emblematic gesture—the rotating movement to show “talk”—raises an intriguing question related to the cultural aspects of employing gesture in a classroom where the teacher and students come from different cultural/language backgrounds. If Sr did not switch to
the iconic “talk” gesture, his use of emblems may have caused confusion, given that the teacher was not familiar with this gesture, coming from a different culture. Thus, in shaping their instructional gestures teachers may want to be sensitive to the possible cultural differences in the ways their students interpret them.

While the previous section focused on the role of student gesture in resolving multilayered confusion, the next section presents an extended example of dealing with a specific language issue—differentiating between homophones.

### 8.3.2 Differentiating homonyms

*Excerpt 8.4: ”Whole-Hole” (Part 1)*

In this excerpt, a student visualized his erroneous understanding of a homophone through iconic gesture. Orienting to this, the teacher provided a correction and in turn used iconic gesture to portray the correct meaning of the word in question. The distinction between two homophones visualized in the teacher’s gesture was appropriated by the student, as demonstrated later in his correct portrayal of the homonym’s meaning. This interaction occurred in the first session of Class 8 during a group discussion centered on the meaning of the adjective “whole.” The discussion involved a group of three students: N (female, L1 Arabic), Ar (female, L1 Arabic), and A (male, L1 Arabic).

*Excerpt 8.4: ”Whole-Hole” (Part 1)*

1  A: {gazes at notebook, moves RH slightly downward @ chest twice}
2  T: {approaches A, gazes in direction of his desk}
Figure 8.16. Lines 1-2

3 T: which kind of hοl is that

4 A: {"hole"}

{shifts gaze to T, raises RH to face, palm facing downward;

moves it downward to chest, palm pointing downward; holds}

Figure 8.17. Lines 4-6: “hole” Figure 8.18. Lines 4-6: “hole”

7 T: {that’s a [homonym]}

8 {touches A’s shoulder with her RH}

9 (0.4)

10 A: [ah]

11 T: {h o l e}

12 {RH makes two pointing beats from left to right @waste} Writing C
Figure 8.19. Line 12: “hole”

13  {is a (0.2) hole in the ground.}  

14  {shifts gaze downward and then to A, moves BH downward to lap, Hole C}  
15  index fingers pointing downward; makes beats by moving  
16  BH slightly upward and downward}  

Figure 8.20. Lines 14-16: “hole”

17  A:  {shifts gaze to notebook, makes a note}  
18  nods head  

Preceding the transcribed part of the interaction, the group (Ar, N, and A) was attempting to figure out the meaning of “whole.” During the discussion, A visualized the meaning by moving his right hand downward. He continued to mediate himself with gesture, gazing silently at the word in his notebook and producing slight downward hand movements (line 1). The teacher was gazing in the direction of A’s desk as she approached him (line 2). She seemed to have noticed
his gesture since she asks him for clarification, “which kind of /hɔːl/ is that” (line 3). The student responds by pronouncing /hɔːl/ and illustrates it with the gesture that has a markedly larger amplitude than his previous private gesture as he moves his hand downward from face level to waste level (lines 4-6, Figures 8.17-8.18). This iconic gesture appears to depict /hɔːl/ as the noun “hole” rather than the adjective “whole,” which is the item included in the vocabulary list.

The teacher orients to A’s actions by indicating that what he understands as /hɔːl/ is actually a homonym (line 5). After a pause, A produces the change-of-state token “ah,” followed by the teacher’s clarification, in which she provides the spelling of “hole” (lines 10-11). Simultaneously, she performs a gesture similar to the “writing” gesture in Excerpt 8.3: “Thought” and the “timeline” gesture in Excerpt 7.5: “Two things.” She produces two beats from left to right as if pointing at the imagined letters (line 12, Figure 8.19). This appears to be another case of a “traveling” catchment referred to as the Writing Catchment and employed by the teacher across classes to refer to writing or spelling. By providing the spelling of “hole,” the teacher helps the student to differentiate it from “whole,” and it is at this point that he makes a note in his notebook (line 17).

As the student is writing, the teacher explains the meaning of “hole” as a “hole in the ground” and illustrates it through iconic gesture. She imitates A’s gesture by moving both hands downward and makes it more expressive by pointing downward and layering the gesture with beats (lines 14-16, Figure 8.20). The beats seem to highlight the problematic aspect of the student’s understanding—the meaning of “hole.” By imitating A’s gesture, the teacher turns it into a catchment referred to as the Hole Catchment. Her gaze moving onto her hands and then to A seems to indicate that he needs to attend to her gesture. The student, however, continues to
gaze at his notebook while making a note. The teacher’s gesture might be in his peripheral visual field, given that she produces it in a lower area, at the level of her lap. The student reacts to the teacher’s explanation by nodding (line 18).

Excerpt 8.4: ”Whole-Hole” (Part 1—continued)

19 T: {this one}
20 {points at A’s notebook}
21 like if I say
22 {I ate the}
23 {makes two beats with BH}

24 {whole}
25 {brings BH together @waist; moves them slightly upward and apart forming two arcs, palms half-cupped}
26 Ar, N, By: {gaze at T}

Figure 8.21. Lines 25-26: “whole”

28 T: {pizza}
29 {makes a beat}
30 A: ↑oh
31 (0.5)
32 T: what does that mean
33 A: {every}
34 {moves RH to left and then to right, making arc} Whole C

Figure 8.22. Lines 25-26: “whole”
Figure 8.23. Line 34: “every”

35  T: {every piece of it}
36  {nods head and smiles}
37  A: {smiles}
38  yeah
39  T: {whole is (0.4)}
40  {moves BH upward to chest, palms cupped, index and middle fingers in contact}
41  A: {gazes at T}

Figure 8.24. Line 39-42: “every”

43  T: {all the parts}
44  {moves BH upward to face; moves them downward and apart, palms half-cupped; brings BH together @chest} Whole C
45  By: {gazes at T}
The teacher next explains the meaning of the other homophone, “whole.” She constructs her explanation in a similar way, by using the adjective in context and illustrating its meaning through gesture. Her verbal example, “I ate the whole pizza,” is accompanied with an iconic depiction of “whole,” in which she moves her hands slightly upward and apart, drawing a semi-circle resembling the shape of a pizza (lines 25-26, Figures 8.21-8.22). While student A’s gaze is still averted from the teacher, her gesture is attended to by students Ar and N (from the same group) and student By (from the neighboring group—line 27). The teacher’s example of “whole” elicits signs of understanding on A’s part as he says “oh.” He displays more comprehension by interpreting “whole” as “every” and employing an arc shaped gesture to illustrate it (line 34, Figure 8.23). It is unclear whether A’s gesture is an imitation of the teacher’s gesture since he was gazing at his notebook when it was produced (although, noticing it with peripheral vision was still possible). Yet, his gesture contains a crucial feature—the arc shape, which connects it to the meaning of “whole” depicted by the teacher, and therefore, it constitutes a catchment referred to as the Whole Catchment.
The teacher concludes her explanation by summarizing the meaning of “whole” as “all the parts together.” She accompanies it with a more expressive gestural portrayal of “whole.” The teacher makes this version of the Whole Catchment more visible and emphatic as she produces it higher in the visual space and shapes it as a full circle rather than two arcs (lines 39-45, Figures 8.24-8.25). This time, student A attends to the teacher’s gesture, maintaining his gaze on her hand movements (line 42). The teacher’s actions are also followed by By (line 46).

Excerpt 8.4:” Whole-Hole” (Part 2)

The second part of this excerpt occurred after the break, at the beginning of Section 2 of the same class. In this segment, the teacher was reviewing the list of the words discussed in the groups, checking the students’ comprehension. The interaction begins as the teacher spells the word “whole” (displayed in the PowerPoint slide) and asks the students about its meaning (line 1). The students seem to experience difficulties in recognizing the word by its spelling and fail to provide the correct response (lines 1-4).

Excerpt 8.4:” Whole-Hole” (Part 2)

1 T: what does w h o l e mean
2 Ss: u:h
3 (xxx)
4 G: w what?
5 T: [whoːle]
6 N: [whole,]
7 Ss: whole
8 N: { [like all-]}
9 { holds BH @ chest; moves them slightly apart; Whole C
10 rotates twice}
After the teacher pronounces the word in the usual way, two students, N and By, provide their responses simultaneously. Recall that both of them were part of the groups that observed the teacher’s explanation of “whole.” They also attended to the teacher’s depictions of “whole,” as was signaled by their gaze directed at the teacher. In her response, N verbalizes the meaning of “whole” as “like all,” reiterating part of the teacher’s earlier definition (“all the parts”). She also depicts the meaning through her iconic gesture by rotating both hands. In doing this, she imitates the teacher’s Whole Catchment with noticeably smaller amplitude, engaging only her palms rather than arms—the way the teacher did (lines 8-10, Figure 8.26). Student By also initiates her response by producing her speech-gesture unit synchronously with N (lines 11-12). It remains unclear what she means in the verbal part of her utterance, “as.” However, its gestural component clearly resembles the teacher’s Whole Catchment, involving a double circular motion.
produced with her right (line 12, Figure 8.26). By’s gesture has even more restricted amplitude than N’s and is produced with only one hand. The teacher acknowledges By’s response by gazing at her, nodding, and producing an amplified version of the Whole Catchment. She outlines a circle by moving her hands upward from chest level to her head and then to the sides and downward (lines 14-15).

The teacher continues by asking the students to provide a homonym of “whole” (line 16). She marks the word “homonym” with a beat, highlighting the point that appeared to be problematic (at least for student A). Several students respond by pronouncing “[hɔʊl],” without disambiguating which word they are referring to. Student A, however, employs a different strategy by providing the spelling of the word “hole” (line 19). In doing this, he displays his new understanding of “hole in the ground” spelled as “hole” rather than “whole”—the way he used to think before the teacher’s explanation. The teacher acknowledges A’s response by writing it on the board.

*Excerpt 8.4: ”Whole-Hole” (Part 2—continued)*

<table>
<thead>
<tr>
<th>Line</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>T: what is its homonym.</td>
</tr>
<tr>
<td>17</td>
<td>{extends LH index finger upward, makes a beat}</td>
</tr>
<tr>
<td>18</td>
<td>Ss: (hɔʊl)</td>
</tr>
<tr>
<td>19</td>
<td>A: {h o l e}</td>
</tr>
<tr>
<td>20</td>
<td>T: {writes the word on the blackboard}</td>
</tr>
<tr>
<td>21</td>
<td>h o l e</td>
</tr>
<tr>
<td>22</td>
<td>same pronunciation</td>
</tr>
<tr>
<td>23</td>
<td>and {what kind of hɔʊl is thi. }</td>
</tr>
<tr>
<td>24</td>
<td>{points at the word on the board, making beats with chalk}</td>
</tr>
</tbody>
</table>
The teacher goes on to discover whether the students understand the meaning of the homonym “hole” (line 23). Student A initiates a response, provided first in the gestural modality.

He produces the Hole Catchment by moving his hand from face level downward to waste level, pointing to the floor (lines 25-28, Figures 8.27-28). His confident manner is also expressed in the beat-like motion of the gesture. Recall that previously A coupled the Hole Catchment with the wrong word, “whole,” while now the correct speech-gesture relationship has been established. This demonstrates that the student has appropriated the teacher’s correction and understands the differences between the two homophones, “hole” and “whole” in terms of their meaning and spelling. Having expressed his correct understanding in gesture, student A adds a verbal
explanation, “down, hole,” which was absent in the previous discussion of “hole” (line 29). The teacher acknowledges A’s response by elaborating it and producing the Hole Catchment (lines 30-31).

Discussion

To summarize, in this excerpt, a student employed iconic gesture to visualize his understanding of an L2 meaning. He first used it for self-regulation as part of his private speech. The teacher sensitively oriented to the student’s private gesture, even though it was not addressed to her. The information conveyed in his self-regulatory gesture allowed the teacher to identify the student’s confusion as related to homophones. Such gesture-based “diagnostics” enabled the teacher to generate an adequate mediational strategy, which facilitated resolution of the student’s confusion and enabled him to develop a new understanding of the L2 meanings in question.

The teacher’s mediation appeared to be beneficial, as reflected in the students’ signs of having appropriated the meaning of “whole.” Thus, student A’s response in Part 2 signaled that he was able to make a distinction between the homonyms, as displayed in his correct spelling of “hole” and correct gestural illustration. Not only did student A, who initially experienced confusion, benefit from the teacher’s mediation, but students N and By also benefited from the interaction. They appropriated the correct understanding of “whole” and employed the teacher’s Whole Catchment as a mediational tool in illustrating the correct meaning.

The shape of the participants’ gestures employed in this excerpt confirm and complement the differences between the teacher and student gestures identified in Chapter 4. Thus, the teacher’s gestures were mostly bilateral and involved the movement of the arm; they had an expanded gesture box and non-restricted amplitude. On the contrary, the students’ gestures involved mostly
the movement of the palms, which correlated with a smaller gesture box and restricted amplitude (except for A’s Hole Catchment). The teacher’s expanded gesture box attracted the attention of a student from the neighboring group and encouraged her participation, as shown in her imitation of the teacher’s gesture in Part 2 of the excerpt. Another distinctive feature of the teacher’s gestures was the presence of beats. Compare, for example, the student’s depiction of “hole” produced mostly without beats and the teacher’s performance enacted with multiple beats. A similar example occurred in Excerpt 8.2: “Stay” when C produced the Stay Catchment statically, while the teacher employed its dynamic version layered with beats. This observation allows for the possibility that the prominence of beats in the teacher’s gestural repertoire may be motivated by their instructional purposes. They often highlighted a problematic language element that was the source of student confusion.

Finally, the excerpt provides another example of a “traveling” catchment employed by the teacher in different classroom sessions in referring to a similar idea or phenomenon. In this case, the Writing Catchment depicted the process of writing from left to right. In the discussion of “whole,” the catchment was employed to visualize the process of spelling, which helped to highlight this aspect of vocabulary. In fact, A’s response to the teacher’s question in Part 2 shows signs of appropriating the spelling of “hole,” which was one of the sources of his confusion.

8.4 Summary and Conclusions

The analysis presented in this chapter focused on the ways students employed gesture to express their understandings in L2. It reveals that such externalizations of the students’ perspectives of L2 meanings played a diagnostic instructional function, allowing the teacher to gain access to their ongoing thinking and to identify the points of confusion. This information
gleaned from the students’ gesture was reworked by the teacher and converted into her gesture-based mediation. It allowed the teacher to assess the students’ current understandings and to provide them with the necessary feedback, in which she either confirmed the correctness of student conjectures or offered the mediation necessary to resolve their confusion.

These findings point to the importance of treating student gesture as a valuable source of information about their current level of understanding of L2 meanings and forms. In the context of math education, learners’ gestures were found to occur in the moments of “cognitive instability,” reflecting students’ “undigested thoughts” (Goldin-Meadow, 2003, p.70). The data discussed in this chapter suggests that this finding is relevant for the language learning context as well. The cognitive instability was exhibited in the breakdowns of growth points, where the lack of L2 linguistic resources compelled the students to rely on gesture, abandoning speech. Their “undigested” thoughts also became apparent when the students matched an L2 item with the “incorrect” gesture, that is, gesture depicting an incorrect meaning. The students generously exhibited such incipient understandings in the shared interactional space for the teacher to access, assess, and assist.

We were able to observe how much care and effort the teacher allotted to identifying what it is that the students know but are unable to express in L2 speech. Even the student’s private gesture was attended to by the teacher and allowed her to identify the source of confusion. The benefits of attending to student gesture for the joint process of obuchenie seem quite obvious. However, such sensitivity to student gesture as a legitimate and valuable part of their questions and responses may not always be the case. In fact, according to Crowder & Newman (1993), teachers often disregard the gestural elements of student utterances that are limited in linguistic expression even if they are important for the ongoing discussion. In another study, Goldin-
Meadow (2003) reported on disappointing results where “teachers were no better at gleaning information from the children’s gestures than were the undergraduates” (p. 87). These observations point to the necessity of sensitizing language teachers to gesture as an important aspect of their students’ contributions to obuchenie and as a source of information about their language development that may be missing or obscured in their verbal expression.

The chapter also discussed an example of the teacher’s embodied feedback provided in the absence of speech (Excerpt 7.2: “Stay”). The design of such gestural confirmations appears to pursue important instructional purposes of providing ongoing feedback to the student in a non-intrusive manner so as not to intervene with their unfolding thinking. Such a strategy may leave more space for the student’s agency in achieving new understandings. It is similar to the way the teacher provided continuous feedback through her body movement in the discussion of “cat owners” (Excerpt 7.9).

The interactions analyzed in this chapter also point to the important role of catchments as a means and a sign of achieving intersubjective alignment. When the teacher and students’ understandings of meanings diverged, so did their gestures. The dialogical catchments only appeared at the point where the shared understanding between the teacher and the student was unfolding.
Chapter 9

Student Gesture in Peer Interactions

9.1 Introduction

This chapter reports on the ways students employed gesture in peer interactions that occurred during group work. The analysis focuses on how students used gesture as a mediational tool in discussing L2 vocabulary meanings since this was the focus of the majority of group interactions over the period of data collection. They involved discussions of vocabulary items from the list of “500 Most Frequently Used Words” in English (Kress, 1993), introduced by the teacher in addition to vocabulary from the textbook. Every class, the instructor introduced approximately 25 words from the list. She then broke the students into groups and asked them to discuss the meanings of the words and generate their synonyms, antonyms, and homonyms.

The chapter first examines the students’ use of gesture in their discussions of meanings of particular L2 items. It presents the analysis of how gestural visualizations of students’ understandings of L2 meanings allowed them to 1) reach agreement on a particular L2 meaning; 2) identify the points of disagreement and turn to the teacher for help; and 3) clarify the meaning of an item. The second section presents the analysis of students’ discussions of semantic relationships between L2 items, those of similarity and opposition—synonymy and antonymy. The analysis focuses on the ways students visualized abstract semantic phenomena through iconic and metaphorical gesture and how/whether such mediation facilitated their developing new understandings of semantic relationships between L2 items. Both sections report on the findings related to the ways students employed iterative gesture in the form of catchments to mediate their discourse and thinking about L2 meanings and relationships between them.
9.2 Gesture in Student Discussions of Word Meaning

This section reports on the analysis of the ways students employed gesture to illustrate particular L2 meanings. The examples are drawn from group interactions where students attempted to figure out the meanings of the “500 Most Frequently Used Words.” In such discussions, gestural externalizations of students’ perspectives on L2 meanings enabled them to make their understandings publicly accessible. This in turn afforded the students the opportunity to compare their understandings and either reach agreement or identify the points of disagreement and turn to the teacher for clarifications. In this way, gestural externalizations of students’ understandings of L2 meanings helped to move forward their joint accomplishment of an instructional task.

9.2.1 Reaching agreement

In student peer interactions discussed in this section, the students’ gesture-based communicative strategies allowed them to reach an agreement concerning vocabulary items in question. Although the students often demonstrated a high degree of alignment in their externalized understandings of L2 meanings, the conjectures that they agreed upon were not always correct.

*Excerpt 9.1: “Grow”*

This excerpt is an example of how gestural visualizations of L2 meanings enabled students to share their understandings and agree upon the correct interpretation. The discussion centered on the meaning of the vocabulary item “grow” occurred in Class 4 and involved a group of three students: R, Ar, and B. Students R and Ar are females, who speak Arabic as their native language, while B is a male student, whose L1 is Vietnamese.
The interaction opens as R announces the next item on the list, “grow,” and gazes at B, soliciting his response (lines 1-2). He reacts by expressing agreement and passes the turn back to R, shifting his gaze to her (lines 5-6). B’s verbal agreement does not seem to suffice for R, who continues the discussion by offering a gestural illustration of the verb’s meaning. She synchronizes “grow” with a gesture, where she moves her hand upward with her palm facing upward (lines 7-8). By enacting the meaning of “grow” through iconic gesture, R externalizes her understanding of the verb as involving an upward movement and makes it accessible to her group mates. She solicits their reaction by moving her gaze from B to Ar (line 9).

*Excerpt 9.1: “Grow”*

1  R:  {grow}
2  {raises head, shifts gaze from iPad to B}
3  B:  {yeah grow}
4  {gazes at notebook}
5  {yeah}
6  {shifts gaze to R}

7  R:  {grow}
8  {moves RH upward to head, palm facing upward; shifts gaze from B to Ar}
9  B:  {grow}
10  {moves RH upward above his head, Up C
11  palm facing downward, gazes at R and Ar
12  Up C

13  Ar:  {grow,}

*Figure 9.1. Lines 14-15: “grow”*

14  {gazes at B; moves RH upward to chest, palm facing upward, Up C
shifts gaze to R; makes a slight beat before retrieving

R, B, Ar: (retrieve simultaneously)

Both students orient to R’s utterance by providing their own understandings of “grow.” B pronounces the verb simultaneously with R, but his hand motion begins somewhat later as he moves his right hand upward (lines 11-12). This slight delay may indicate that B produces his image of “grow” in reaction to R’s gesture, which is now turned into a catchment referred to as the Up Catchment. The catchment indicates that the students align in their understandings of the verb’s meaning as expressed through their iconic images of “grow.”

Halfway through R and B’s gesturing, Ar joins in by mirroring her group mates’ behavior (lines 13-15, Figure 9.1). She begins by gazing at B as she reiterates “grow” and moves her hand upward with her palm facing upward. In the process of gesturing, she shifts her gaze from B to R, thus indicating that her utterance is intended for both of them. We can see that Ar reiterates the Up Catchment, previously employed by her group mates, an indication that their understandings of “grow” align. This use of the catchment across the three speakers helps to maintain coherence in their discourse and thinking related to the meaning of “grow.” In fact, the repetitive image of the catchment may have served as a tool for reaching agreement. As soon as agreement is achieved, the students synchronously retrieve their gestures and return their gazes to the word lists.

Discussion

In this excerpt, the students employed gesture as a mediational tool for externalizing their understandings of the meaning of the vocabulary item under consideration. The iconic gesture used for depicting “grow” enabled the students to convey the core of the verb’s meaning; that is, the upward movement accompanying the process of growth. Such visualization allowed the students to share their view of the L2 meaning. Reiterated as the Up Catchment, the image of
“grow” enabled the students to maintain coherence of their discourse and thinking and in this way, come to an agreement and advance their completion of the instructional task forward. Gesture appeared to be a crucial communicative resource for the three students since one of them does not share the native language with the other two. In addition, due to their beginner level of proficiency, the students are not yet equipped with sufficient verbal resources for explaining new L2 meaning. Under these circumstances, gesture appeared to be one of the few communicative resources readily available and easily manageable by the students.

Importantly, the students oriented to each other’s gesturing as an important part of their communication, carefully attending to the hand movements, as indicated by their reciprocal eye gaze. The speakers tended to establish mutual eye gaze with the other interlocutors before producing the gesture. The students also employed eye gaze as a deictic to nominate the next speaker, which enabled them to smoothly manage their group discussion. Finally, the students exhibited a high degree of interactional synchrony as they spoke and gestured co-temporally at several points in the interaction. Such fine-tuned coordination of action and alignment can be viewed as important prerequisites for learning (Atkinson et al., 2007). The analysis of the excerpts that follow, however, reveal some problematic aspects of students’ attempts to reach unanimous agreement on the correct meaning of a word.

**Excerpt 9.2: “White-Wet-Weight”**

We will see in this excerpt how iconic gesture helped the students to come to an agreement; however, the L2 meaning that they agreed upon appeared to be incorrect. The interaction occurred in the same group of students (R, Ar, and B) just seconds before the one focused on “grow.” The students discuss the meaning of “white;” another word from the list of the “500 Most Frequently Used Words” in English.
Similar to the previous excerpt, the discussion is initiated by R, who reads the next item from the list with continuing intonation and shifts her gaze to Ar, soliciting her response (lines 1-2). The way R pronounces the word makes it sound similar to “wet.” However, according to the list of the words in the teacher’s PowerPoint, the item in question is actually “white.” None of the group mates initiates a correction. Student Ar just echoes the word with a similar pronunciation, gazing back at R (lines 3-4). R reacts by depicting her understanding of “wet” through an iconic gesture. As she utters “wet,” R moves her hand from below the desk upward, palm shaped as a finger bunch. She then moves her hand slightly downward, upward, and downward again as if weighing a small object (lines 6-8; Figure 9.2). This gestural image seems to indicate that in R’s understanding, the word pronounced by her as “wet” conveys the meaning of “weight.” The discrepancy between the student’s verbalization and gesture signals that she experiences a double confusion about the item in terms of its form (“white” pronounced as “wet”) and meaning (“white/wet” portrayed as “weight”). R’s multimodal utterance does not elicit a correction from her group mates. In fact, Ar produces a similar “weight” gesture synchronously with R (lines 9-11; Figure 9.2). Used across the two speakers, the gesture turns into a catchment and indicates that the students have similar understandings of the meaning of “wet.” Such unique synchronicity and almost identical shape of the catchment produced by R and Ar, who share the same native language and culture, makes one wonder whether the image carries some culture specific features.

Excerpt 9.2: “White-Wet-Weight”

1 R: {wet, \\
2 \quad \{raises head; gazes at Ar\} \\
3 Ar: \{"wet,"\} \\
4 \quad \{gazes at R\}
Thus, R and Ar demonstrate unique interactional synchrony as they move their hands up and down in the same rhythm and retrieve their gestures simultaneously. Such synchronicity of physical behavior is important since, according to Bernieri & Rosenthal (1991), it may reflect “congruence of mental states between interactants” (p. 409). In this particular context, the students’ aligned depictions of “wet” (the mispronounced version of “white”) indicate that both students experience a double confusion. Throughout the interaction, the third student, B, does not make any verbal or gestural contributions. He does attend to R and Ar’s gesture, however, as he shifts his gaze from his folder towards R and Ar without producing any commentary (line 12). It remains unclear whether B disagrees with his group mates; however, the very lack of his externalized understanding of “white/wet” may signal his uncertainty or confusion about the meaning of the item.
Discussion

To summarize, in this excerpt the students employed iconic gesture to visualize their understandings of an L2 meaning. The gesture produced by the students synchronously as a catchment signaled similarity of their internal states. They both experienced double confusion about the form and meaning of the item as they pronounced “white” as “wet” and portrayed the meaning of “wet” as “weight.” Thus, gesture allowed for revealing the students’ erroneous understanding of the item’s meaning, which otherwise would have remained invisible. Would B have expressed his disagreement with his group mates, the trouble spot would have been identified and the students could have turned to the teacher for help. Were the teacher (who was busy interacting with another group) attending to the students’ gesture at that moment, she would have been able to glean valuable information about the level of their appropriation of the item and assist in resolving the students’ confusion. A similar unanimous agreement on the incorrect interpretation of an L2 word meaning as displayed in students’ gesture is observed in the excerpt below.

Excerpt 9.3: “Pull”

This excerpt is another example of how making students’ understandings of L2 meanings publicly visible allowed them to agree upon an incorrect interpretation of a word meaning. This interaction occurred in Class 7 in the group of two students, Sr and B, discussing the meaning of the verb “pull,” also on the list of the “500 Most Frequently Used Words” in English. Sr is a male student, who speaks Arabic as a native language. As mentioned earlier, B is a male student, a native speaker of Vietnamese.

The discussion is initiated by Sr, who pronounces “pull” as “poll” as he locates the item in the list (lines 1-2). He then asks B whether he knows its meaning, which elicits a positive response
on B’s part (lines 6-7). B’s verbal agreement does not seem to suffice for Sr, who follows up by repeating the question and providing his own interpretation of the meaning of “pull” in gestural modality (line 10, Figure 9.3). Moving his hand away from his body, palm facing outward, Sr creates an iconic image, which looks like an illustration of “push” rather than “pull.” Unfolding on his hands, Sr’s thinking reflects his confusion about the word’s meaning. B is following his group mate’s hand movement, keeping his eye gaze on Sr’s gesturing hand. Sr terminates his gesture with a hold and maintains his eye gaze on B, soliciting his response (line 13).

B reacts by providing his own gestural image of “pull,” which appears to coincide with that offered by Sr (lines 15-16, Figure 9.4). The fact that B was closely following his group mate’s hand movement and produced his own gesture only after that suggests that he imitates Sr’s gesture and turns it into a catchment referred to as the Away Catchment. As B performs the

Excerpt 9.3: “Pull”

1   Sr: {poll}
2   {points to word in his folder, gazes at folder}
3   B: {gazes at Sr’s folder}
4   Sr: {you know poll,}
5   {shifts gaze to B}
6   B: {yeah}
7   {nods head}
8   Sr: poll, you know poll,
9   {poll}

Figure 9.3. Line 10: “poll”

10   {moves RH away from body, palm facing outward, gazes at B}
catchment, he shifts his gaze to the space in front of him, which points to the private (along with the social) function of his gesture as he seems to continue contemplating the meaning of “pull.” Sr gesturally aligns with B by making a slight beat in synch with B’s “pushing” movement, which is followed by more signs of agreement on B’s part as he says “yeah” and nods his head (lines 18-20).

Discussion

We could observe in this interaction that, similar to the previously discussed excerpts, the students treated each other’s gesturing as an important part of their instructional communication. They closely attended to their hand movements, as indicated by gaze direction and by the fact that B imitated his group mate’s gesture. Importantly, in this and in “Grow” excerpts B’s verbal agreement related to the meaning of the discussed item was not sufficient for his interlocutors. To move the task completion forward, they found it necessary to share their gestural interpretations of the meaning. Thus, R and Sr insisted that B demonstrate his understanding of
“grow” and “pull” before moving on to the next item. They treated gestural illustrations of the meaning as an important component of their interaction driven by the instructional purposes at hand. Indeed, the students’ gestural externalizations of their understanding allowed them to come to an agreement as to the meaning of an L2 word; however, similar to the “White-Wet-Weight” excerpt, the meaning they agreed upon appeared to be incorrect. Thus, from the researchers’ perspective gesture provided important insights into the students’ thinking about L2 meanings and made their confusion visible.

Unlike this section, the next section reports on the interactions where students’ gestural illustrations of L2 word meanings allowed them to reveal their divergent rather than convergent understandings. This enabled the students to identify the trouble spots and seek help from the teacher.

9.2.2 Identifying a gap

In this section, we will also observe how students employed iconic gesture to visualize their understandings of an L2 meaning. However, in contrast to the previously discussed interactions, the students disagreed in their views of the word meaning, which motivated them to turn to the teacher for help in resolving their confusion.

Excerpt 9.4: “Carry”

One example of how iconic gesture helped students to identify points of disagreement is the discussion of the word “carry,” which occurred in Class 4, just a minute after Excerpt 9.1: “Grow.” The group included the same three students: R, Ar, and B. The excerpt begins with R’s announcement of the item and solicitation of Ar’s response (lines 1-2). Ar reacts by producing an utterance solely in gestural modality (lines 4-7, Figure 9.5). She first switches into the mode of
private speech by shifting her gaze to her right hand. Ar next resumes her social “speech” as she shifts her gaze to R and continues gesturing by turning her half-cupped palm upward and raising it. She terminates her gesture with a hold and continues gazing at R, soliciting her response.

Excerpt 9.4: “Carry”

R: {carry,}

{shifts gaze from iPad to Ar}

{(2.5)}

Ar: {shifts gaze from notebook to R}

shifts gaze to RH

Figure 9.5. Lines 6-7

{moves RH upward to chest, palm half-cupped, facing upward, shifts gaze to R; holds}

{(1.5)}

R: {shifts gaze downward, puts pencil on desk; touches iPhone, makes inbreath, shifts gaze to B}

you know {carry?}

Ar: {shifts gaze to B}

{(4.0)}

B: {searches in his notebook}

R: picks up iPhone and starts searching

{you know?}

{gazes at B}

B: shakes head

{(10.0)}

R: {uses iPhone}

what’s u:h carry,
T: carry means

Figure 9.6. Line 24: “I want to carry your pencil to the table”

{I want to carry your pencil to the table=}

{cups BH and carries a pencil to her desk}

R: =yeah yeah

smiles, turns to Ar, raises LH, index finger extended upward;

makes a beat in Ar’s direction

Instead of providing a verbal or gestural reaction to Ar’s illustration of “carry,” R disengages by shifting her gaze downward and making a noticeable inhalation. Her behavior can be viewed as a dispreferred response (Hutchby & Wooffitt, 2008), indicating a lack of agreement on her part. R next puts down her pencil and makes a move to pick up her iPhone (lines 9-10) but then shifts her gaze to B and asks him whether he knows the meaning of “carry.” B experiences difficulties in providing his conjecture as he spends four seconds flipping through his folder (lines 13-14). R reacts by turning to another external resource—her iPhone, most likely in an attempt to find a translation. She does not give up on B though, as indicated by her repeated question addressed to him (line 16). B responds negatively, and after ten seconds of clicking on the iPhone, R turns to the teacher for help (line 21).

The teacher provides an embodied explanation of “carry” by actually carrying R’s pencil to the teacher’s desk and verbally describing her action (line 24, Figure 9.6). This elicits agreement on R’s part, followed by her expression of affect. She smiles and makes a joking gesture addressed to Ar (lines 26-7). It is produced as an abstract pointing, specifically, “nomination
deictic” (Kendon, 2004, p. 142), drawing Ar’s attention to the teacher’s explanation. The humorous flavor is added by R’s beat movement, which makes the gesture look like a parent or teacher’s wagging finger of reprimand.

Discussion

In this excerpt Ar’s externalization of her understanding of “carry” allowed R to identify the point of disagreement and uncertainty related to the word’s meaning. Although Ar’s utterance did not contain a verbal element, R treated it as a legitimate and meaningful response. Moreover, she used the information conveyed in Ar’s gesture for identifying the point of disagreement. This motivated her to seek help from the teacher, which ultimately resulted in resolving the students’ confusion. The excerpt also shows how gesture can play a role in expressing affect in conjunction with instructional aspects of interaction.

A facilitative role of student gesture in clarifying an L2 meaning for a peer will be discussed in the next section. In one such interaction, a student employed gesture as a mediational tool for helping his peer to gain a better understanding of an unfamiliar L2 meaning.

9.2.3 Clarifying the meaning

This section presents an example of a beneficial usage of gesture in peer interactions as a mediational tool for clarifying an L2 meaning. A gestural illustration of an L2 meaning produced by one of the students allowed the other to achieve its better understanding. In other words, the first student stepped into the role of an expert and provided gesture-based mediation for his peer.

Excerpt 9.5: “Pass”

In Class 8 during a group discussion related to the new unit named “Setting Goals and Facing Challenges,” the teacher broke students into groups of two or three and asked them to discuss their short-term and long-term goals. Two students participate in the interaction: Sr, a male L1
speaker of Arabic, and G, a female L1 speaker of Spanish. At the beginning of the excerpt, Sr formulates his short-term goal as “to pass this semester” (line 2). He accompanies the phrase with a metaphorical gesture by pointing to the space in front of him and assigning a spatial location to the semester (line 3, Figure 9.7). G seems to express agreement by nodding her head but then repeats the item “pass” and gazes at Sr, soliciting his clarification (lines 4-6). Sr responds by repeating “pass” twice and accompanying it with two different gestures. He first produces the same abstract deictic gesture as in line 3, when he located the semester in the “near” space (line 8). The shape and meaning of this gesture does not seem to reveal much about the meaning of “pass.” Thus, Sr reshapes his mediation by moving his hand laterally forward (line 10, Figures 9.8—9.9). He terminates his gesture with a hold and continues gazing at G, seeking her reaction. Without providing any verbal response, G for a moment shifts her gaze to Sr’s hand, attending to his gestural explanation (Figure 9.10).

Sr orients to the lack of response on G’s part by continuing to mediate and undertakes a different strategy. He makes his verbal explanation more specific by saying, “go to level two” (lines 13-16). Simultaneously, he moves his hand slightly upward and downward several times at “go to” and then raises his hand markedly higher at “level two” (Figures 9.11—9.12). His gesture synchronized with “go to” metaphorically depicts Level 1, which is not mentioned by Sr verbally. It therefore conveys important information absent from the verbal expression. The gesture coupled with “level two” depicts the second level of proficiency as located above the first one. Both gestures ground the abstract notion of student proficiency in the visible physical space. They provide a concrete illustration of the metaphorical meaning of “pass” as a movement.

10 In this intensive English program, the students are placed according to four levels of proficiency, Level 1 being the lowest and Level 4—the highest.
from a lower space to a higher space. The iconic side of these gestures also visually highlights the contrast between the two levels.

*Excerpt 9.5: “Pass”*

1 Sr: ok my (short-term goal)

2 to {**pass this semester**}

3 {points downward with RH, makes small beats}

4 G: nods head

5 {pass.}

6 {gazes at Sr}

7 Sr: {pass}

8 {points downward with RH}

9 Sr: {pass}

10 {makes a lateral movement with RH}

11 Sr: {holds, gazes at G}
Figure 9.10. Line 12

Figure 9.11. Line 14: “go to”

Figure 9.12. Line 16: “level two”
It is at this point that G shows multiple signs of comprehension by producing a token of new understanding, “ah” (Seo & Koshik, 2010) followed by “ok ok” (line 17). She then elaborates on Sr’s explanation by verbalizing the information that was only present in his gesture: “level one” (line 19). G also pictures Level 1 gesturally by moving her hand upward and slightly to the right (Figure 9.13). She visualizes Level 2 similarly, moving her hand upward and slightly to the left (lines 20, 24; Figure 9.14). In doing this, G creatively imitates Sr’s gesture and turns it into a catchment referred to as the Down-Up Catchment. We can see how G has picked up Sr’s catchment and employs it as a tool for mediating her own thinking about the meaning of “pass.”
Discussion

To sum up, in this excerpt a student effectively employed gesture as a mediational tool in clarifying an L2 meaning for his group mate. As a mediator, Sr was able to flexibly reshape his gesture-based strategies, sensitively orienting to G’s reaction. By providing a metaphorical visualization of the figurative meaning of “pass,” Sr facilitated G’s achievement of a better understanding of the item’s meaning. His gesture synchronized with “go to” conveyed important information absent from the verbal channel. Importantly, G attended to the content expressed by Sr solely through gesture and was able to convert it into her verbal expression (“level one”). She also imitated Sr’s gesture, employing it as a tool for developing and confirming her understanding of the new L2 meaning.

Semantic relationships enacted in students’ gesture are also central to the next section, which presents the analysis of more complex discussions focused on relationships between two or more L2 word meanings. It appears that gesture plays an important role in providing iconic and metaphorical visualizations of such relationships and in this way, mediates students’ thinking about abstract semantic phenomena.

9.3 Gesture in Student Discussions of Semantic Relationships

This section reports on the students’ use of gesture in a more challenging task of identifying synonyms and antonyms of L2 items from the word list. Unlike the excerpts presented above, where discussions centered on the meaning of just one vocabulary item, what follows is the analysis of discussions of semantic relationships between two or more L2 words. Synonymy and antonymy as well as the appropriate use of metalanguage describing them are often confusing to
students. The analysis will show that gesture plays a significant role in helping the students to understand these complex semantic relationships.

9.3.1 Discussing Opposition

This section presents an example of how one of the students in a group adopts the role of mediator in explaining two opposing L2 meanings to his peer. He effectively employs iconic and metaphorical gesture to visualize the relationship of opposition to his group mate, which facilitates her developing a better understanding of the antonymic relationships between the items.

Excerpt 9.6: “Top—Bottom”

This group discussion occurs in Class 9 and centers around the meaning of the word “top” and its antonym, “bottom.” The group includes three students, W, G, and R, where W is a male student, whose L1 is Arabic. The discussion is initiated by W, who matches the word from the list, “top,” with its antonym, “bottom” (line 5). In response, G expresses confusion in relation to “top,” producing a hesitant, incomplete utterance (line 7). W first helps G to locate the item and then, orienting to the lack of response on her part, provides an explanation of “top” (lines 11-12). He illustrates the word’s meaning by raising his hand to his head, palm facing downward (Figure 9.15). This iconic gesture portrays “top” as located in the upper space.

W’s mediational strategy elicits signs of understanding on G’s part, who mirrors both facets of W’s utterance (lines 14-16). She synchronizes “top” with its iconic image, mimicking W’s gesture and turning it into a catchment referred to as the Up Catchment (Figure 9.16). G does not retrieve the gesture immediately, but suspends it, fixing her gaze on W. Holding the topic of
conversation in the mutually accessible visual space, G signals that for her, the discussion of “top” is still open. Her actions serve as a bid for further confirmation or explanation on W’s part.

Meanwhile, W exhibits difficulties in constructing his response to G, as signaled by his non-verbal behavior: he turns away from the interlocutor, directing his gaze upward. W’s struggle is also expressed through multiple pointing beats (line 19). As will become clear from W’s subsequent discourse, he is looking for proper categorization of the semantic relationship between “top” and “bottom.” Halfway through W’s word search, G lowers her gesturing hand to shoulder level and maintains a hold (Figure 9.18). (It is unclear whether she does so in a meaningful way or just because her hand becomes tired.) When W begins articulating his conjecture “s sy,” G makes a collaborative move by attempting to predict and complete his utterance with her own suggestion, “synonym?” (line 22). She accompanies her conjecture with a beat, introducing a new referent while still maintaining the hold (Figure 9.18). Thus, “top” and “synonym” become visually connected through two concurrent gestures: the iconic Up Catchment and the beat. This “gesture bundle” visualizes the semantic bond and grounds the abstract semantic relationship of synonymy in a concrete image.

Excerpt 9.6: “Top—Bottom”

1  W:  first u:h
2   (0.5)
3  W: top,
4   (1.0)
5  W:  top, u:h bottom
6   (1.5)
7  G:  to::*uh*
8  W: points at G’s notebook
9    top, bottom.
10   (0.5)
11 W: \{top,\}

**Figure 9.15.** Line 12: “top”

12 \{raises RH above head, palm facing downward\}

13 (0.5)

14 G: \{top,\}

**Figure 9.16.** Lines 15-16: “top”

15 \{raises RH upward to head, palm facing downward;\}

16 holds through line 20, gazes at W\}

17 W: u::h \{(2.0)\}

18 \{turns head away from G, gazes upward,\}

19 points upward with RH index finger, makes beats\}

20 G: lowers RH to shoulder; holds through line 27

**Figure 9.17.** Line 20

21 W: s sy u::h turns pages

22 G: \{synonym,?\}
G’s conjecture, however, is rejected by W, who continues flipping through his notebook. G reacts by terminating the hold and retrieving her gesture (line 27). We can see how the gesture bundle referring to synonymy is retracted as soon as the topic of synonymy is abandoned.

W finally formulates the categorization of semantic relationship between “top” and “bottom” as “opposite” (line 30). Simultaneously, he portrays it with a metaphorical gesture, alternately rotating the palms of both hands (Figure 9.19). The two palms appear to symbolize the two opposing meanings that “face” each other and alternate but never come into contact. This portrayal of antonymic relationships is followed by the specific mentioning of “top-bottom,” accompanied by another metaphorical gesture. This time, W moves both hands slightly to the right with the stroke on “top” and then produces a larger movement to the left with a stroke on “bottom” (lines 33-35, Figure 9.20). This hand movement seems to continue W’s previous rotating gesture (in line 31) by splitting it in two parts. In assigning two distinct spaces to the opposing meanings, W maps abstract semantic relationships onto physical space, making them visible and concrete.

Since no response follows on G’s part, W continues his mediation by switching to a more specific, iconic illustration of the two antonyms. He depicts the meaning of “top” with the Up Catchment and then moves his hand downward to portray the meaning of “bottom” (lines 36-40; Figure 9.21). This iconic portrayal of the antonymic pair “top-bottom” seems to visually highlight the contrast between the two meanings. It elicits first signs of understanding on G’s
part—a series of head nods that continue through lines 41-44. She follows up with more indications of understanding as she mimics another utterance of W and continues nodding. G repeats “bottom” and couples it with a downward hand movement (lines 43-44, Figure 9.22). The gestural portrayal of “bottom” turns into a catchment referred to as the Down Catchment. G also adds “ah!”, which can be viewed as a sign of new understanding. However, the self-touching gesture synchronized with it signals the presence of some uncertainty (line 46). After a pause, G repeats W’s categorization, “opposite,” thus agreeing with him on the nature of semantic relationships between “top” and “bottom” (line 48). The sequence concludes with a highly coordinated action, where both students reiterate “opposite” in unison.

In line 52, G still attempts to label the two words as synonyms. Her confusion this time might be related to the use of metalanguage to describe semantic phenomena. Similar uncertainty is observed throughout the data, where students and even the teacher\footnote{In Class 2, for example, the teacher tells a group of students: “Synonyms are opposite” and moves her hands apart.} continue to confuse the terms “synonym” and “antonym” even if they know the nature of the concept in question. W orients to G’s confusion by providing a correction (line 53). It becomes clear from the rest of the excerpt (lines 54-69) that although G agreed with W on the understanding of “bottom” as the opposite of “top,” she is still unsure about its exact meaning, which makes her turn to the teacher for help. (Interestingly, the teacher employs the same strategy as W in explaining the meanings of “top” and “bottom” and couples the Up Catchment with the Down Catchment in lines 71-73).

Excerpt 9.6: “Top—Bottom” (continued)


tables

\begin{tabular}{ll}
24 & W: & >no no< \\
25 & & \{(3.0)\} \\
26 & W: & \textit{turns pages in his notebook} \\
27 & G: & retrieves \\
28 & R: & >“asks something in Arabic”<
\end{tabular}
29  W:  > "responds in Arabic" <

30  { opposite opposite u::h

Figure 9.19. Line 31: “opposite opposite u::h”

31  { makes alternate rotating movements with his palms, facing each other }

32  { top, }

33  { moves BH slightly to his right, palms facing each other }

Figure 9.20. Lines 34-35: “bottom”

34  { bottom. }

35  { moves BH to his left, palms facing each other }

Figure 9.21. Lines 37-38: “top”

36  { top, }

37  { shifts gaze to the space above head; }

38  moves RH up above head, palm facing obliquely downward } Up C

39  W:  { bottom }

40  { moves RH downward to chest }

41  G:  { nods head lightly several times }

42  (1.0)
Figure 9.22. Line 44: “bottom”

43  G:  {bottom}

44  {keeps nodding, moves RH downward to chest, palm facing downward}  Down C

45  {a:h}

46  {moves RH towards her mouth, touches lips}

47  (1.5)

48  G:  opposite

49  (opposite

50  W:  [opposite

51  (2.0)

52  G:  uh s s [s?

53  W:  [antonym

54  G:  xxx

55  W:  b o

56  (0.5)

57  G:  b?

58  W:  b o t o m

59  G:  u:h

60  (4.0)

61  W:  and u:h

62  G:  xxx I don’t know about bottom

63  W:  bottom? synonym under

64  (2.0)

65  G:  I don’t/can understand

66  W:  okey

67  G:  teacher, bo:

68  W:  bottom

69  G:  bottom,

70  T:  is the: antonym
Discussion

In this excerpt, student W provided gesture-based mediation to his group mate G to resolve her confusion about two opposing meanings. In doing this, W first employed an iconic gesture to portray the meanings and highlight the contrast between them by using the upper space for “top” and lower space for “bottom.” The gesture was employed repetitively throughout W’s mediation in the form of Up and Down Catchments that form a gestural model (Lozano & Tversky, 2006, p. 52) further referred to as the Up-Down Model. The student also employed two metaphorical gestures to visualize the phenomenon of antonymy, which allowed for grounding abstract semantic notions in concrete visualizations.

As a peer mediator, motivated by the shared instructional purpose of completing the task, student W exhibited high level of sensitivity to his group mate’s cognitive needs. We can see how he flexibly reshaped his mediation orienting to G’s reaction. As shown by G’s multiple verbal and non-verbal signs of understanding, W’s mediational strategy did facilitate her understanding of the nature of the semantic relationship between “top” and “bottom.” Thus, G imitated both of W’s iconic gestures, the Up and Down Catchments, confirming her understanding of the words’ meanings and their relationship. Even though she still needed to clarify the exact meaning of “bottom,” G was able to understand the nature of the semantic connection between “bottom” and “top” as that of opposition.

12 According to Lozano & Tversky (2006), in “gestural models” several gestures are “coordinated to portray either structure or action” (p. 52). In this data, the gestural model portrays the “structure” of the semantic relationship of opposition.
Gesture for portraying semantic relationships between the items was also employed by G. She depicted synonymy through a gesture bundle, where two gestures, the iconics and the beat, became linked together, depicting a “synonym of “top.” G also employed gesture for managing the interaction, using holds as a way of soliciting further explanation/confirmation on W’s part. Thus, the hold sustained by G through a relatively extended segment of interaction (lines 16-27) allowed for maintaining the issue of “top” in the mutually accessible visual space, “on stage,” signaling that it had not been resolved.

Finally, an important role was played by catchments employed by both students. In full accordance with McNeill (1992; 2005), the Up and Down Catchments allowed the students to maintain coherence in their thinking and speaking about the L2 meanings. It appears that in the context of a classroom, catchments play an additional role by contributing to maintaining coherence and consistency in the students’ learning strategies with the possibility of creating patterns. We will see more of that tendency in the excerpts discussed below. Their analysis focuses on the role of students’ gesture in their discussions of semantic relationships of similarity.

9.3.2 Discussing Similarity

This section reports on the ways students employed gesture in peer interactions as they attempted to understand semantic relationships of similarity between L2 items. Although similarity and synonymy are central to the analysis in this section, these concepts are often discussed by the students in relation to antonymy, which is included in the analysis where relevant. In the interactions discussed below, the students did not always arrive at correct conceptualizations; however, gesture helped them to visualize their understandings of the abstract semantic concepts and in this way fostered their ability to develop new understandings.
of the semantic relationships. These interactions also show the importance of catchments as consistent gestural patterns that helped the students to maintain coherence in their thinking/talking through complex semantic phenomena in L2.

**Excerpt 9.7. “Below and Under”**

In this interaction, the students employed iconic gestures in the form of catchments to visualize semantic relationships of synonymy and antonymy. They used gesture as a mediational tool in their attempt to differentiate between the two semantic phenomena in L2. Thus, one of the students employed the recurrent image of a catchment to link the meanings of two synonyms. The students also produced the Up-Down gestural model observed in the previous excerpts to visualize antonymic relationships.

**Excerpt 9.7: “Below and Under”**

1. F: *gazes at screen*
2. excuse me,
3. { (0.5) below and under }
4. { *shifts gaze first to C, then to Sr* }
5. Sr: uh?
6. F: below,
7. Sr: { xxxx—*speaks in Arabic* }
8. { *opens his notebook and thumbs through it* }
9. C: below,
10. Sr: *ye*a::h*
11. { below, “antonym”* }
12. { *points to the word in C’s notebook; then C points at it, too* }
13. Sr: [**under** under]
14. { *moves RH away from C’s notebook and*
15. *downward, palm facing downward* }

The excerpt, which occurs in Class 2, features a group discussion of the verb “below” (from the list of “500 Most Frequent Words” in English) and its synonyms and antonyms. The group
consists of three students, Sr, F, and C, where Sr and F are male speakers of L1 Arabic, while C is a female speaker of L1 Portuguese. The discussion is launched by F, who matches two words from the list: “below and under” (line 3). Soon after that, Sr categorizes the words as antonyms and adds a gestural portrayal of “under” by moving his hand downward (lines 11-15). This visualization indicates that Sr has correct understanding of the meaning of “under,” although his categorization of “below” and “under” as antonyms is erroneous. (It might well be the case that similar to other students, Sr is confused about the meaning of the metalanguage).

Synchronously with Sr, C produces an alternative pair of words, coupling “below” with “above” (lines 16-18). She also attempts to picture the meanings of both words through iconic gesture, moving her hand upward at “below” and downward at “above.” This is an obvious mismatch, and C swiftly self-corrects by matching “above” with an upward hand movement and “below”—with a downward hand movement (lines 21-27, Figure 9.23). By doing this, C produces the same Up-Down gestural model as the one observed in Excerpt 9.6: “Top—Bottom.” The model iconically pictures two opposing meanings through the Up and Down Catchments, highlighting the contrast between them.

*Excerpt 9.7: “Below and Under” (continued)*

<table>
<thead>
<tr>
<th>Line</th>
<th>C:</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>C:</td>
<td>[be{low a}]</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>{moves RH upward to eye level, palm facing downward, fingers extended} Up C</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>{bove}</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>{moves RH downward to shoulder, palm parallel to floor} Down C</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>gazes first at F, then at Sr</td>
</tr>
</tbody>
</table>
Figure 9.23. Lines 22-25: “above”

22 C: \{flips RH palm so that it faces upward and raises it above head\} \quad \text{Up C}

23 F: \{moves LH slightly upward from the desk, palm facing downward, fingers extended; flips palm so that it faces upward and moves hand back to desk\} \quad \text{Up C}

25 Sr: \{raises RH from waist to chest, palm relaxed, facing downward\} \quad \text{Up C}

Figure 9.24. Lines 27-29: “below”

26 C: \{below\}

27 \{flips RH palm to face downward; moves it downward to chest\} \quad \text{Down C}

28 F: \{moves LH further downward\} \quad \text{Down C}

29 Sr: \{moves RH downward; lands it on desk\} \quad \text{Down C}

30 \{(0.5)\}

31 C: \{holds the gesture, gazing at F\}

32 F: \{gazes at C, raises his LH slightly upward from desk, palm facing upward\}

33 Sr: yeah

34 F: \{okey\}

35 \{flips LH palm so that it faces downward\}

36 C: \{retracts\}
Importantly, C’s group mates imitate both catchments as they continue to silently gaze at her so that the three appear to be gesturing synchronously (lines 23-25, Figure 9.23). F and Sr move their hands slightly upward with the joint stroke on “above” and then—downward with the stroke on “below” (lines 27-29, Figure 9.24). As the three produce simultaneous strokes on “above” and “below,” they generate a collaborative growth point distributed among three speakers, which positions the word pair as a psychological predicate. The growth point is co-constructed, whereby C contributes to both the verbal and the gestural components, while F and Sr provide only the gestural elements. Although C is the only speaker at the moment, her group mates participate in the conversation gesturally by externalizing their on-going thinking through catchments. The use of catchments across the three speakers indicates that Sr and F agree and align with C in her understanding of the meanings of “above” and “below” as involving location in the upper and lower spaces accordingly. (Notice that Sr and F did not mimic C’s mismatching visualization of “above” and “below”).

Having moved her hand downward at “below,” C does not retract her gesture but rather maintains the hold and continues gazing at F, soliciting his reaction (line 31). C terminates the hold only after Sr and F produce signs of agreement (lines 33, 34, 36). At this point, F attempts to return the conversation to the initial topic by repeating his categorization of “below” and “under” as synonyms (lines 37-39).

*Excerpt 9.7: “Below and Under” (continued)*

37    F:  {below under}
38    {points with RH in the direction of C’s notebook}
39    {u::h} synonyms=
40    {gazes upward}

41    Sr:  {=below *u::h*}
42    {points with RH at the item in C’s notebook}
43 {Antonym=
44 {turns head in F’s direction, points with RH index finger upward
45 F: ➞ “antonym?”
46 C: ={antonym is} {above}
47 {points with BH index fingers upward} {points to her left} Antonymy C

**Figure 9.25.** Line 47: “above”

48 (0.8)
49 Sr: below uh below anton-

50 C: {(eit eit xxx)

**Figure 9.26.** Lines 51-53: “(eit eit xxx)”

51 {holds RH @ chest, palm facing downward, fingers extended, Up-Down Model
52 holds LH above RH, palm facing downward, fingers extended,
53 moves LH upward to forehead and downward to RH: repeats five times, gazing at F}

54 F: {below (.)

**Figure 9.27.** Lines 55-56: “below”

55 {moves RH slightly downward @ chest, palm facing downward, Down C
fingers extended parallel to desk, holding a pencil, gazes at C
{under} {(). synonyms}
{makes a beat by moving RH slightly to the left} {holds}

C: {at lines 54-56, raises RH to neck, palm facing downward, fingers extended and holds; holds LH a bit lower @chest, same shape; gazes at F}

F: {maintains hold}
C: {maintains hold; then holds her head with RH}

C: {synonyms below?}
F: {maintains hold}

F: {and}
{moves RH to his right}

C: {under}

F: {moves RH to his left and slightly downward;}

C: °under°
F: °yeah°
Sr disagrees, insisting on his previous conjecture—“antonym” (line 43). After F questions it, C provides a clarification by indicating that the antonym of “below” is “above” (line 46-47). Simultaneously, she portrays the antonymic relationship with a metaphorical gesture. C first points upward with the stroke on “antonym” and then points to her left with the stroke on “above” (Figure 9.25). Similar to W in the “Top-Bottom” excerpt, C assigns a separate space to the antonymic meaning, metaphorically mapping semantic relationships onto physical space. Used across two group discussions, this gesture can be viewed as the Antonymy Catchment.

After Sr reiterates his antonymy conjecture again, C makes another attempt to clarify the issue (line 49). Although the verbal component of her utterance sounds unintelligible, we can clearly see that she repetitively uses the Up-Down model by moving her left hand upward and downward five times (Figure 9.26). No response follows on Sr’s part while F makes another attempt to focus his group mates’ attention on the idea of synonymy by repeating “below-under, synonyms” (lines 54-58). This time, he adds gesture to his verbal expression. F first depicts “below” with the Down Catchment (Figure 9.27) and then reiterates it as a beat, introducing a new referent, “under.” Thus, two verbal elements, “below” and “under,” become linked through the reiterative image of the Down Catchment. The catchment appears to visualize the element of meaning shared by the two synonyms—location in the lower space. Though not concurrently, but at different points in the interaction, Sr too accompanied “below” and “under” with the same image of the Down Catchment (lines 15; 29). His thinking unfolding in gesture is correct; however, his conscious categorization expressed through the verbal channel—“antonyms”—to this point is erroneous. This seems to align with Goldin-Meadow’s (2003) findings that learners’
correct understandings would often come out in gesture before they develop a “knowledge framework” or a “discourse framework” to be expressed verbally (p. 29).

Another important observation concerning Sr’s behavior is that throughout the interaction, he does not attend to F and C’s gesture, gazing either at his notebook or the teacher’s PowerPoint. Consequently, he may be missing important visual information related to the semantic relationship between “below” and “under” conveyed through his peers’ gestures, and as we saw in the previous excerpts, this information can be crucial for understanding L2 semantic concepts.

Contrary to Sr, C actively attends to F’s hand movements by synchronously mirroring his Down Catchment (lines 59-60). She elaborates on F’s gesture by employing both hands to simultaneously depict the two synonyms. Both students end up holding the Down Catchment in the center-center gestural space as they gaze at each other (lines 62-63, Figure 9.28). The image of the synonymic meaning continues to hover between the two, signaling that for both of them the issue remains unresolved. C finally pays attention to F’s idea of synonymy as indicated by her utterance “Synonyms below?” In response, F complements C’s utterance by adding the second synonym, “and under” (lines 64-68, Figure 9.29). He accompanies the verb with the Down Catchment and terminates it with the hold, gazing at C, who softly echoes, “under” (line 71). Following the end of the excerpt, F decides to turn to the teacher for help. In her explanation, she confirms that “below” and “under” are synonyms. Since Sr insists that the two words are antonyms, the teacher provides a more detailed explanation and portrays the two meanings with the Down Catchment. Similar to F, she also employs a catchment to visualize the element of meaning shared by two synonyms just as she did in Excerpt 5.1: “Spot.” Sr imitates the teacher’s catchment and agrees on the categorization of “below” and “under” as synonyms. It appears that
Sr’s attending to, and imitating, the teacher’s gesture was crucial in his developing a new understanding of the semantic relationship between “below” and “under.”

Discussion

To summarize, in this excerpt the students employed gesture as a mediational tool in their attempt to understand the nature of the semantic relationships between the adverbs “below,” “under,” and “above.” The use of iconic gesture allowed them to visualize the meanings of “below” and “under” as belonging to the lower space and “above” as pertaining to the upper space. Coupled together in the Up-Down gestural model, these hand movements highlighted the contrast between the antonymic meanings. The students also employed iconic gesture to depict synonymous relationships. Thus, the same image (the Down Catchment) synchronized with different verbal elements, “below” and “under,” visualized the element of meaning shared by the two synonyms. This is similar to the various ways the teacher employed a catchment to depict the meaning shared by the synonyms for “spot” (Excerpt 5.1: “Spot.”), which points to the important role that catchments can play in instructional discussions of synonymy. The students’ metaphorical gesture allowed them to ground the abstract semantic phenomena of antonymy in a concrete visualization. Thus, C employed the Antonymy Catchment to assign a separate spatial domain to an antonym.

The students imitated each other’s catchments expressing agreement in their thinking. Even when F and Sr remained silent, listening to C, their thinking continued to unfold on their hands (whether they were aware of that or not). This is a particularly good example of how catchments help to maintain coherence not only in students’ discourse but also in their thinking. Such externalized students’ thinking or inner speech would have remained invisible, if not for their gesture. A high degree of interactional synchrony exhibited by the students in imitating each
other’s catchments indicated that their thinking unfolded along similar lines as their understandings became aligned and shared to the extent that they produced collaborative growth points.

Sr’s actions showed that in language learning, similar to mastering math (Goldin-Meadow, 2003), students’ correct understandings can be first expressed solely in gesture before they are transferred into verbal expression. A similar phenomenon was also observed in C’s actions, where her verbalization was unintelligible, while her gesturing clearly reflected her understanding of antonymous meanings (“below” and “above”). Therefore, it is important for teachers to closely attend to their students’ gesture.

Similar to the previous excerpts, the students employed gestural holds to manage the interaction as they moved from topic to topic. Thus, maintaining the hold indicated that the current topic was still open, while terminating the hold signaled its closure. The students also employed gestural holds as an elicitation technique. Maintaining the hold served as a request for response while its termination meant that a satisfactory reply had been received.

The semantic relationship of similarity is also central to the student discussion in the next excerpt. One of the students employed a catchment to visualize an element of meaning shared by synonyms, producing it as part of his private speech. His group mate employed iconic gesture to depict opposing meanings in order to resolve confusion caused by differences in his pronunciation.

Excerpt 9.8: “Upon, Above, Over”

This excerpt is another example of the importance of gesture as a mediational tool in student discussions of semantic relationships of similarity and opposition in L2. It also shows how iconic gesture that visualizes synonymy becomes instrumental in the student’s self-regulation, produced
as private speech. We also observe how the gestural Up-Down model, employed by the students in the previous excerpts, is now used by a student to resolve confusion caused by differences in his pronunciation.

This interaction occurred in Class 11, near the end of the semester. It involved a group of three students, Sr, F, and B discussing the meaning of the word “upon.” The discussion is launched by Sr, who locates the item in his notebook and reads it aloud (line 3-5). He then

Excerpt 9.8: “Upon, Above, Over”

1 Sr: excuse me >excuse me<
2 {(1.0)}
3 Sr: {points at the word in his notebook, B gazes at the word; F gazes in the direction of Sr’s notebook}
4 {(“upon”)}
5 {gazes at his notebook} {gazes in front of himself}
6 {(1.0)}
7 Sr: {shifts gaze to B, who gazes at his notes, parts his lips, raises RH from desk upward to chest and slightly to the side, towards B; shifts gaze downward and raises RH to neck, palm facing downward}
8 {(over, (1.0))}
9 {establishes mutual gaze with B, positions elbow on desk, maintains hold}
shifts his gaze to the space in front of him, away from his interlocutors, as he softly repeats “upon.” Sr’s gaze direction and voice volume exhibit the features of private speech (e.g., Saville-Troike, 1988; Lantolf and Yañez-Prieto, 2003), suggesting that he is contemplating the meaning of the word. As Sr directs his gaze to B, he parts his lips as if preparing to speak and raises his hand in preparation for a gesture (lines 8-9). Sr then directs his gaze downward, away from B, and moves his hand further upward (line 10, Figure 9.30). Sr’s gaze aversion signals that his gesture has more of a private than social function. We can see how Sr first expresses his understanding of “upon” in gesture before producing any verbal explanation. He employed this gesture before, in the excerpt “Below-Under.” It was the Up Catchment picked up by Sr from C,
who used it to portray the meaning of “above” (line 22; p. 369). By employing the catchment now, in relation to “upon,” Sr visually connects the two meanings. Thus, the image of the Up Catchment allows him to maintain continuity in his thinking about the prepositions.

Sr then switches from private to a more social mode by reestablishing mutual gaze with B and uttering “over” with rising intonation, simultaneously suspending the Up Catchment as a hold (lines 11-12, Figure 9.31). Synchronized with “over,” the Up Catchment now connects the meanings of three prepositions—“above,” “upon,” and “over,” indicating that Sr treats them as similar. He then resorts to private speech again as he shifts his gaze away from B to the space in front of him and then downward, softly uttering “above” (lines 13-14, Figure 9.32). Sr synchronizes the word with a slight beat, continuing to mediate his thinking with gesture. Here, Sr produces a gesture bundle similar to G in Excerpt 9.6: “Top-Bottom.” In both cases, an iconic gesture maintained as a hold was coupled with a beat and was related to synonymy. Thus, coherence between synonymic meanings is maintained through interconnected gestures. Sr next reengages with B, seeking confirmation, as he shifts his gaze to him and utters “above” in his usual voice volume with a rising intonation (lines 16-17).

Excerpt 9.8: “Upon, Above, Over” (continued)

18 \{(1.0)\}
19 B: \{shifts gaze to iPad, looks for something on iPad\}
20 F: uh what?
21 Sr: *responds in Arabic*
22 F: what? *speaks Arabic*
23 Sr: *speaks Arabic* upon
24 B to Sr: \{(xxx)\}
25 \{shifts gaze to Sr\}
26 F: u:h [upo-] u:h upon
27 Sr to B: [“upon”]
28 B: (xxx)
Sr: \{\textit{over}\}=
\{raises RH from neck to forehead, palm facing downward, gazes at B; holds\}

B: =eebove,
{(0.4)}

Sr: \{lowers RH to neck by placing elbow on desk, palm facing downward\}

\{\textit{over} (1.5)}\}
\{makes a slight beat; holds through line 45\}

B: eebove,
(1.0)

Sr: \textit{makes a puzzled look}

B: \{\textit{below}\}

\textbf{Figure 9.33.} Lines 40-42: “below”

\{shifts gaze to RH, raises RH from desk to chest, palm obliquely facing downward, fingers extended and drawn together; moves hand downward below desk\}

Sr, F: \{gaze at B\}

Sr: [yeah yeah yeah]

\textbf{Figure 9.34.} Lines 47-48: “above”

\{moves RH upward to forehead, palm facing obliquely upward, shifts gaze to Sr\}
B’s confirmation comes only in line 28 after he looks up the word on his iPad. However, his utterance first sounds unintelligible and then confusing since he pronounces “above” as “eebove” (lines 31, 36). Sr reacts by reiterating the word “over” twice along with the Up Catchment, maintained as a hold (29-30; 34-35). It is likely that Sr makes gesture part of his utterance strategically—to make sure that B understands the meaning. B orients to Sr’s confusion by using a rather sophisticated strategy to resolve it. He employs an antonym coupled with gesture as a tool for explaining the meaning of “above.” B first pronounces “below” and pictures its meaning by moving his hand downward below his desk (lines 40-42, Figure 9.33). We can see that he produces the Down Catchment observed in the previous excerpts. B focuses his attention on the gesture by gazing at his hand. Sr also attends to B’s hand movement, gazing at him as he holds the Up Catchment. B then couples “below” with “above” and depicts its meaning with the Up Catchment, moving his hand upward (lines 47-48, Figures 9.34-35). It is at this point that Sr shows signs of agreement, uttering “yeah” several times and retracting the Up Catchment. By this time, B also completes his Up Catchment, and the two synchronously retract their gestures (lines 50-52).

**Discussion**

To summarize, in this excerpt, the students employed gesture in the form of catchments to mediate their thinking about semantic relationships between L2 vocabulary items and generate their synonyms and antonyms. Thus, Sr employed the Up Catchment to regulate his thinking about the synonyms of “upon.” The gesture, which preceded the verbal expression may have
facilitated Sr’s generation of the synonym “over.” Sr’s self-regulatory gesture enabled us to see his thinking unfolding on his hands as part of his subvocal private speech.

The excerpt also shows the importance of catchments as imagistic devices that allow for maintaining coherence of students’ discourse and thinking. Moreover, this excerpt provides an example of a catchment traveling across classes. Thus, we could observe Sr employing the Up Catchment picked up from C in Excerpt 9.7: “Below-Under” as she portrayed the meaning of “above.” This time, Sr performed the Up Catchment in relation to three synonyms, “upon,” “over,” and “above,” connecting them through the reiterative image. The catchment served the function of visualizing the element of meaning shared by the synonyms—the upper space location. In this way, abstract semantic phenomenon became grounded through concrete gestural visualization. Similar to students in the previous excerpts, Sr employed a gesture bundle—an iconic gesture maintained as a hold and coupled with a beat—to visually connect two synonymic meanings. Such linked gestures appear to be another embodied way of maintaining coherence of students’ discourse and thinking.

Similar to the students in the previous excerpts, Sr and B employed gesture strategically to advance the interaction forward in pursuing their learning goals. Thus, Sr made the Up Catchment part of his utterances intended for B to avoid confusion, while B used gesture to resolve confusion. Along with employing linguistic contrast as a way of clarifying the meaning of a mispronounced word, B effectively used gesture to highlight the contrast. He enacted the same Up-Down model to picture the antonymic meanings of “above” and “below” as the one employed by the students in Excerpt 9.6: “Top-Bottom” and Excerpt 9.7: “Below-Under.” The repetitive usage of the same gestural model by students independently from each other suggests

13 In fact, some thesauruses do list “above” and “over” as synonyms of “upon” (Upon, n.d.).
that gestural visualizations of contrasting meanings is an important mediational tool in
negotiating students’ understandings of L2 semantic relationships.

The students employed gestural holds for topic management and elicitation of the
interlocutor’s response. Thus, Sr terminated the Up Catchment with a hold and maintained the
topic of “upon” and its synonyms throughout the discussion (lines 9-18; 30-52) until confusion
related to B’s understanding of the meanings was resolved. At that point, the two students
retracted their gestures synchronously, which indicates that gestural synchrony can be a sign of
agreement achieved by the speakers.

The ways students employed gesture as a mediational tool in discussing semantic
relationships of similarity is also central to the analysis of the next excerpt, where a student
portrays them through a metaphorical gesture.

Excerpt 9.9: “Between-Then”

This interaction is an example of how a student employed metaphorical gesture to portray
semantic relationships of similarity. Produced repetitively as a catchment, it served as a
mediational tool in confirming the student’s understanding of the nature of semantic
relationships between L2 words.

The excerpt occurs in Class 2, during one of the group discussions focused on words from the
vocabulary list of “500 Most Frequently Used Words” in English. It features a group of students,
C, Sr, and F, discussing the meaning of the word “between.” The excerpt begins as C expresses
her confusion about the items “between” and “then.” She first utters “between,” simultaneously
extending her middle finger upward as she gazes at Sr (lines 1-3, Figure 9.36). C then suspends
the gesture and switches into the private speech mode, gazing upward, away from her
interlocutor. She follows up, uttering “then” and extending her index finger upward (lines 6-8,
Figure 9.37). We can see how C assigns metaphorical meaning to her fingers, which appear to symbolize the two words. We will see later that this is an abbreviated form of the gesture that involves an alternating movement of the two fingers (see lines 27-8). It metaphorically conveys the idea of substitution and similarity. C is unable to formulate her conjecture verbally in lines 1-8. However, her gesture portrays the two words as interchangeable (as will be confirmed later). Thus, what C may be trying to convey is that “between and then are similar.” She then rejects this conjecture by saying “no” (line 9) and seeks reaction on Sr’s part as she gazes at him and maintains the gestural hold. C exhibits more signs of uncertainty by pressing her palm against her lips (line 14). C’s behavior signals that the issue of semantic relationships between the two items is not resolved for her.

Excerpt 9.9: “Between-Then”

1 C: {between}

---

Figure 9.36. Lines 2-3: “between”

2 {raises RH to chest, middle finger extended obliquely upward,
3 gazes at Sr}
4 {and (0.8)}
5 {shifts gaze upward, holds gesture}

---

Figure 9.37. Lines 7-8: “then”

6 {then,}

7 {shifts gaze to Sr, moves RH middle finger downward,
8 extends index finger obliquely upward}
9 (0.2)
In the next part of the interaction, the transcription of which is omitted for the sake of space, Sr orients to C’s confusion by explaining the meaning of “between.” He employs pointing gestures to indicate that he is sitting “between” C and F. This elicits C’s verbal and gestural agreement as she gesticulates synchronously with Sr.

Excerpt 9.9: “Between-Then” (continued)

Figure 9.38. Lines 27-28: “i:: (0.4)”

extends RH index and middle fingers; alternately moves them to right and left, pivoting her hand

words

holds

and

resumes alternating movement produced on lines 27-28

(points to her notebook)

Figure 9.39. Lines 36-37: “then”
{raises RH, extends index and middle fingers;}

{pivots hand to move index finger upward}

{no then}

{writes with LH in her notebook}

{no}

{makes a “Stop” gesture}

{no}

{moves middle finger forward}

Figure 9.40. Line 45: “similar”

The explanation that Sr provides confirms the meaning of “between” without addressing the issue of its relationship with “then.” Thus, C reiterates the problem by producing an incomplete utterance. Her verbal expression provides minimal content: “but I…” (line 26). Its gestural part, however, conveys important information. C alternately moves her middle and index finger to the right and left, metaphorically portraying “between” and “then” as being interchangeable and similar (lines 27-28, Figure 9.38). This gesture coincides with the one produced by the teacher as the Synonymy Catchment discussed in Chapter 4. It allows C to formulate her hypothesis about the similarity of “between” and “then” gesturally while she is unable to shape it verbally.

The gesture also signals to Sr that it is the relationship between the two words rather than the meaning of “between” itself that C is confused about. This is further confirmed by her verbally as she utters, “words,” (using the plural), still holding the Synonymy Catchment (line 29). The catchment is produced by C again on lines 32 and 36-7 (Figure 9.39). This is followed by her
conclusion “no then,” suggesting that there is no similarity between the two items (lines 38-9). C then verbalizes “no similar,” transferring the idea of similarity previously expressed only in gesture into a verbal expression. She still mediates herself with gesture, using the Synonymy Catchment at “no” and bringing the index and middle fingers together at “similar” (line 45, Figure 9.40). We can see how C is only able to verbalize the idea of similarity at the end of the excerpt, having portrayed it multiple times in gesture (the Synonymy Catchment was used by her six times). The excerpt concludes as C confirms to herself her previous conjecture that “between” and “then” are not similar. It is interesting that initially, C was seeking Sr’s perspective on the issue; however, he never contributed his view. Even so, C oriented to Sr as co-present and mediated herself through speech and gesture addressed to him into confirming to herself the correctness of her conjecture. It may be the case that through gestural mediation—embodied portrayals of similarity—the student arrived at the correct understanding of the semantic relationship between “then” and “between” as different rather than similar.

Discussion

To summarize, in this excerpt C employed gesture as a mediational tool in confirming her understanding of the semantic relationship between L2 words. She symbolically portrayed the relationship of similarity through metaphorical gesture of substitution. Thus, similar to the previous excerpt, abstract semantic phenomenon was grounded through concrete visualization, which may have facilitated C’s working out the correct understanding of the relationship between the words “between” and “then” as different rather than similar. The gestural image of similarity was employed by C consistently in the form of the Synonymy Catchment, maintaining continuity of the topic in her discourse and thinking. This catchment enabled C to express her hypothesis gesturally before she was able to formulate it verbally, which only occurred at the end
of the interaction. It may be the case that it is the multiple enactments of similarity through
gesture that facilitated C’s transferring this idea from the gestural into the verbal mode of
expression (as was the case in Goldin-Meadow, Kim, & Singer, 1999).

9.4 Summary and Conclusions

The analysis of the students’ use of gesture for instructional purposes in their peer interactions
presented above focused on the ways the students employed hand movement for discussing L2
word meanings and semantic relationships between them, those of similarity and opposition. The
analysis provided evidence that gesture served as a mediational tool in students’ self- and other-
regulation in the process of developing their understandings of semantic relationships in L2.

The students employed iconic gesture to visualize the meanings of L2 items. This allowed
them to externalize their understandings of word meanings and make them accessible to their
peers. Such visualizations enabled the students to compare their perspectives and either come to
an agreement or identify the points of disagreement and turn to the teacher for help. The students
also employed iconic gesture to visualize semantic relationships *between* L2 meanings. Thus, for
example, the Up-Down gestural model enabled them to visualize relationships of opposition and
highlight the contrast between L2 meanings. In one case, it helped to resolve confusion caused
by differences in a student’s pronunciation. Iconic gesture also helped students to visualize
semantic relationship of synonymy. Thus, synonymous items were visually connected through a
recurrent gestural image, which accompanied each of them—a catchment that visualized an
element of meaning shared by the synonyms. In this way, abstract semantic concepts became
grounded in concrete gestural visualizations.
The students also employed metaphorical gesture to portray abstract semantic concepts in a concrete form. Such gestural images enabled students to provide clarifications as to unfamiliar L2 words that had a figurative meaning in that particular context and in this way, facilitated their understanding of new L2 meanings. Metaphorical gesture also allowed students to visualize abstract semantic relationships of similarity and opposition. In relation to antonymy, they employed an alternating hand movement or assigned separate spaces to antonyms through the Antonymy Catchment. To metaphorically portray semantic relationship of similarity, one student employed the Synonymy Catchment. In this gesture, the alternating hand movement symbolically depicted two meanings as similar and substitutable.

The students pervasively employed repetitive gesture in the form of catchments in their discussions. They creatively imitated each other’s catchments as a means of developing better understandings of L2 meanings. In some cases, they appropriated their peer’s gesture as a mediational tool for thinking about L2 semantic relationships. Thus, one of the students imitated his peer’s catchment (used for “above”) and employed it in a new context in a different class to generate related meanings (“upon” and “over”). In full agreement with McNeill (1992; 2005), catchments helped the students to maintain coherence of their discourse and thinking, sometimes, across group interactions and classes. In addition to the functions of catchments identified by McNeill in relation to ordinary conversation, in instructional context, catchments help to maintain coherence and consistency in the students’ learning strategies with the possibility of creating patterns.

One of the patterns was created by the students in different groups, often independently from each other. It is the gestural Up-Down model, where the upward and downward hand movements were tied together to portray opposing meanings related to the lower and upper space location.
One possible explanation for the commonality of this pattern is, first, that it captures basic spatial relationships and second, that it effectively highlights the contrast when referring to antonymic meanings. As the data show, such visualization of contrasting meanings is an important mediational tool in negotiating students’ understandings of L2 semantic relationships. In addition to catchments, imagistic coherence of students’ discourse and thinking was maintained through the use of gesture bundles, where an iconic gesture maintained as a hold was coupled with a beat. Such linked gestures enabled the students to visually connect synonymic meanings and visualize abstract semantic bonding in a concrete gestural form. Throughout the students’ peer interactions discussed in this section, gesture, especially employed as catchments, served as a means of achieving students’ alignment in their joint effort of accomplishing a learning task. Students demonstrated a high degree of interactional synchrony and coordination of action as they often synchronously imitated each other’s catchments to the extent that they produced collaborative growth points, distributed across speakers.

The students’ gestural externalizations of their understandings of L2 meanings provided important insights into their thinking by revealing the points of their confusion, which otherwise would have remained invisible. Even when students remained silent, their thinking continued to unfold on their hands. In such cases, they employed gesture for self-regulation as part of their private speech, which often played a facilitative role in transferring their understandings communicated in gesture into verbal expression. In this process, the students exhibited correct understandings in their gestures before they were able to formulate them verbally. If not for gesture, their inner speech would have remained invisible. This has important implications for teachers, who need to be aware of the importance of attending to students’ hand movement as a
source of valuable information about their internal states, the level of appropriation of L2 meanings, and the points of confusion.

The students themselves treated gesturing as an important part of their pedagogical communication. As speakers, they employed gesture strategically to advance their obuchenie interaction forward, trying either to avoid or resolve confusion. In doing this, they flexibly reshaped their gesture-based mediation, sensitively orienting to their peer’s reaction and cognitive needs. As listeners, they closely attended to their peers’ hand movements and maintained eye gaze on them. They also established mutual gaze with the interlocutors before initiating gesturing. The students often accepted purely gestural utterances as legitimate responses and employed the information contained only in gesture for advancing the interaction forward. In many cases, the students’ gestures conveyed important information absent from the verbal channel. Their interlocutors attended to the content expressed solely through gesture and were able to transfer it into verbal expression. Importantly, they solicited each other’s gestural interpretations of the word meanings as a necessary component of their instructional interactions. The students also employed gesture for managing their interaction in terms of topic and turn-taking management. They pervasively used gestural holds to indicate that the topic is still open or that the issue still needs to be resolved. Thus, termination of a hold could indicate that the confusion had been resolved and that the participants had reached an agreement. Holds also served as an elicitation technique employed to solicit a confirmation or further explanations, while termination of a hold indicated that a satisfactory response has been received. We were able to see how gesture was a crucial semiotic resource under the conditions where students did not share a native language, while their level of proficiency did not afford them the opportunity to provide adequate verbal explanations of L2 word meanings.
Chapter 10

Conclusion

10.1 Discussion of Findings

The study presented in this dissertation aimed to investigate instructional functions of speech and gesture in naturally occurring L2 classroom interaction. Specifically, the study focused on how a teacher and her students employed gesture in concert with speech and other multimodal resources in mediating the process of second language *obuchenie*\(^{14}\). The investigation sought to answer the following research questions:

1) What are the mediational functions of teacher and student gesturing in the process of classroom L2 learning?
2) Is there evidence of student learning as a consequence of gesture-based mediation?
3) Are there any changes in teacher and student gesturing over the course of the observed classroom interactions? If yes, what is their relevance for the teaching-learning dialectic, that is, *obuchenie*?

Findings demonstrate that classroom gesture was beneficial in developing student understandings and appropriating such aspects of the second language as vocabulary, grammar, and pronunciation. The teacher’s gesture served the following major instructional functions: 1) illustrating vocabulary items; 2) visualizing semantic relationships between them; 3) providing concrete visualizations of abstract concepts; 4) highlighting contrast and similarities between

\(^{14}\) As discussed in Chapter 3, *obuchenie* is the term employed by Vygotsky in his original text to refer to learning and teaching as “a double-sided process, one side of which does indeed refer to learning (a change in the psychological processes and knowledge of the child), but the other of which refers to the organization of the environment by the adult, who…is a teacher in a formal school with power over the organization of the children’s experience” (Cole, 2009, p. 292).
related categories and meanings; 5) making the aspects of pronunciation visible; 6) resolving student confusion; 7) contributing to building affective alignment and positive classroom atmosphere. The students’ gesture served the following learning functions: 1) externalizing their understandings related to L2 meanings that were obscured or missing from their verbal expression; 2) mediating their thinking in the process of self-regulation and development of new understandings; 3) mediating their peers in the process of other-regulation and development of new understandings.

The findings also include evidence that the teacher’s gesture-based mediation contributed to the students’ L2 learning. As for the changes in teacher and student gesturing over the period of data collection, the observations extended over six weeks allowed for tracking the students’ microgenetic development and identifying their uptake of the teacher’s gesture-based mediation, occurring beyond a single instructional interaction. It also allowed for identifying catchments that were employed by the participants across different classes. In the following sections, I address each of the research questions, synthesizing the findings reported in chapters 4 through 9.

10.1.1 Mediational functions of teacher gesture

*Illustration of L2 meanings and concepts in obuchenie of vocabulary and grammar*

One of the major mediational functions of the teacher’s gesture was providing visual illustrations of L2 meanings. Iconic gestures were particularly effective in demonstrating literal meanings of L2 vocabulary. The dynamic nature of gesture made it a potent tool for illustrating action-related meanings conveyed by verbs, prepositions, and on occasion, nouns. Gestural illustrations were also crucial in differentiating between homonyms. Metaphorical gestures were instrumental in conveying figurative meanings, allowing the teacher to present abstract L2
concepts in a concrete and visible form. In such visualizations abstract semantic and grammatical relationships were projected onto space, helping to highlight similarities and differences between related concepts. In this respect, metaphorical gestures were particularly important in the obuchenie of grammar, given that the students’ low level of proficiency did not leave room for complex verbal explanations on the part of the teacher.

Such gestural illustrations fulfilled a range of mediational functions by helping to: clarify L2 meanings and semantic connections between them; resolve the students’ confusion related to L2 vocabulary; develop new/correct understandings of L2 lexical meaning; develop the ability to use the appropriated L2 words in a new context. This was accomplished through the following instructional actions which involved gesture as a crucial element: checking the students’ comprehension of an L2 meaning by offering an illustration of the meaning; providing a gestural clue and eliciting a verbal response from the students.

Importantly, the teacher’s gestural illustrations of meaning were an effective tool in developing student verbalizations in L2. In many instances, students were able to convert the information conveyed in the teacher’s gesture into their verbal expression. This appears to be an important finding that correlates with results of Goldin-Meadow’s (2003) research on math education in which the students attended to problem solving strategies conveyed in the teachers’ gestures and converted them into their own verbal explanations.

Making pronunciation visible

The teacher also employed a combination of metaphorical, deictic, and haptic gestures as well as other body movement to make pronunciation phenomena (syllables, word stress, and rhythm) visible. These gestures are intrinsically tied to the language-learning context and would hardly occur in everyday conversation. Moreover, they were produced by the teacher consciously and
were specifically designed as an instructional tool. Constituting a category of intentional instructional gesture (IIG), identified in this study, the teacher’s pronunciation gestures helped the students to identify the number of syllables in a word, indicate correct stress placement, and gain control over the rhythm of English speech.

Providing evaluative feedback

The teacher’s gesture also played an important role in providing evaluative feedback to student contributions. It involved positive feedback in the form of gestural confirmations accompanying speech or produced on their own. Such favorable acknowledgments of student responses were performed by the teacher either as an imitation of the student’s gesture (a catchment) or as a deictic gesture directed at the student. The teacher also employed gesture to provide corrective feedback by making a student error visible. Among the advantages of evaluative feedback delivered via gesture, when compared to verbal feedback, is that gesture-based feedback does not interfere with a student’s ongoing response. This in turn makes the teacher’s evaluation less intrusive, opening more opportunities for student agency in developing new understandings.

Maintaining coherence of classroom discourse and thinking

Gesture enacted by the teacher iteratively in the form of catchments facilitated maintaining coherence of classroom discourse and student thinking. Monologic catchments helped the teacher to maintain coherence of her extended explanations. Synchronized with different verbal elements (definitions, paraphrases, and examples), they tied together certain segments of her discourse by visualizing the main topic and referring back to it through the same gestural image. Thus, in full agreement with McNeill (2005), catchments served as a “thread of visuospatial imagery that runs through a discourse to reveal the larger discourse units that encompass the
otherwise separate parts” (pp. 116-117). The teacher’s gesture imitated by the students gave birth to dialogical catchments, which extended coherence of classroom discourse and thinking across multiple speakers. Catchments also maintained coherence on a smaller scale by connecting the meanings of synonymous L2 items through a gestural image illustrating their shared meaning.

**Building affective alignment**

Finally, the teacher’s gesture contributed to building affective alignment between the teacher and students in their classroom interactions. It allowed the teacher to introduce an affective element into her acknowledgments of student answers. It also enabled the teacher to add positive emotional coloring to what is often assumed to be a rather insipid, but necessary, activity—grammar explanations. The teacher’s catchments were particularly important in expressing her alignment with the students as she either imitated their gestures as a sign of agreement or incorporated the students’ gestural elements into her own gesture. The positive affect conveyed through the teacher’s gesture was enhanced through her prosody, facial expression, and other body behavior.

### 10.1.2 Mediation functions of student gesture and evidence for learning

The major function of student gesture is that it allowed the students to externalize their understandings of L2 meanings before they developed a discursive framework for expressing them verbally. This concurs with Goldin-Meadow’s (2003) findings where students’ correct solutions in solving math problems first came out on their hands before making their way into verbal expression. The present study showed that a similar phenomenon occurred in language learning as well. The observation that L2 understandings first come out in student gesture finds at least a partial explanation in McNeill’s (1992; 2005) claim that gesture is an externalized form
of inner speech irrespective of language (“pure meaning”). This correlates with Vygotsky’s (1986) claim that “Thought must pass through meanings and only then through words” (p. 252). Visualizations of student understanding afforded by their gestures allowed the teacher to use the information to shape and reshape her instructional strategies. In some cases, the teacher treated student imitation of her catchment as a crucial sign of comprehension. She oriented to imagistic confirmation as a signal that her mediation had been effective in promoting student understanding.

Another important function of student gesture was that it served as a tool for developing understanding and not only as a means for expressing understanding. This was accomplished by imitating the gestures of the teacher and fellow students and appropriating new understandings through bodily movement. Reflecting Vygotsky’s (1987) view of imitation, the students’ gestural imitations were not complete replicas of the teacher’s gesture. Rather, the students creatively reworked the teacher’s hand movements by selectively modifying the non-essential features and retaining the crucial ones (Arnold, 2012). In such selective imitation, students showed that they had captured the meaning of what the teacher was presenting, and meaning, after all, is a prerequisite for learning. Importantly, the students employed catchments in developing their productive knowledge of vocabulary, that is, in generating L2 items and employing them in a new context, another indication of learning.

Similar to the teacher, the students used catchments to accomplish the following obuchenie actions: 1) self-regulation in achieving a new understanding of L2 meaning; 2) signaling the new understanding; 3) confirmation of the student’s prior response; 4) solicitation of the teacher’s clarification; 5) a prompt in the teacher’s word search; 6) elicitation from the teacher of an L2 item searched for by the student.
10.1.3 Changes in teacher and student gesture over time

The longitudinal, or genetic, perspective of the study allowed for tracking the obuchenie trajectory of specific language features across classes rather than within a single snapshot of interaction. Following the development of students’ appropriation of particular language features across sessions/classes provided a more in-depth picture of the process of obuchenie. Specifically, it allowed for identifying the ways students oriented to the teacher’s gesture-based mediation not merely in the immediate context but across contexts, which provided important evidence for student learning. An especially important aspect of the longitudinal perspective is that it also allowed for the identification of delayed uptake of the teacher’s recasts and instances of “traveling” catchments. If not for the extended period of data collection, this important evidence for the beneficial role of gesture would not have been uncovered.

Some of the catchments were used by the teacher and students across different classroom sessions. The most commonly used traveling catchment was the Synonymy Catchment, employed both by the teacher and the students. This metaphorical gesture depicted the idea of substitution in the alternating movement of the hands/fingers. The metaphorical catchment referring to antonymy was much less common and was employed only by the students. These two traveling catchments seem to reflect the most fundamental connections between two related concepts—those of similarity and opposition.

In referring to literal meanings, the most commonly used traveling catchment was the Up-Down model, which consisted of two linked gestures—the upward and downward movement of the hand. It was predominantly employed by the students, helping them to highlight contrast and differentiate between two antonymic meanings. In another case, the Up-Down model facilitated the resolution of confusion arising from the student’s pronunciation problems. The popularity of
this catchment can be explained by the fact that it depicts the most fundamental spatial relationship, emphasizing the contrast between two concepts. Its shared use by participants from different cultural and language backgrounds may indicate that this gestural model can possibly be used as a beneficial instructional tool for highlighting contrast and opposition of meanings. It appears that the two most common catchments, the Synonymy and Up-Down Catchments, are related to depicting the relationships of similarity and opposition—the most fundamental relationships between entities and concepts.

Another catchment, predominantly employed by the teacher, was the Writing Catchment, which iconically depicted the writing process in the form of beats or “writing” movements produced horizontally, from left to right. This catchment was employed for diverse instructional purposes: to visualize the unfolding of complex syntax (which also correlated with the description of actions unfolding along a left-to-right timeline); to draw the students’ attention to spelling; and to visualize a word order in a sentence. The commonality of this traveling catchment can possibly be explained by the fact that it reflects both the writing pattern and the (Western) conceptualization of time in terms of space.

The teacher’s gesture exhibited certain changes on a micro time-scale, which were related to her ongoing thinking-for-teaching. These changes were identified by comparing two explanations of the same concept produced by the teacher: first, as the initial explanation generated during group work and second, as its reiteration directed at the entire class. The teacher’s gesture in the first explanation was more spontaneous, less planned, less clearly shaped, and less consistent. The gesture in the second explanation was more distinctly shaped, followed a consistent pattern, and was produced in a more confident manner. In other cases, when the same catchment was produced repetitively for different students, it tended to become increasingly
attenuated in terms of amplitude, gesture box, and emphatic quality. These changes seemed to be motivated by such factors as specific instructional functions, the number of addressees, and whether it was an introduction or repetition of a gesture.

10.2 Contributions, Implications, and Future Directions

10.2.1 Contributions to research on gesture in language learning

Most of the research on the pedagogical functions of gesture has been carried out outside the area of language learning, while investigations of the role of teacher and student gesture in the language classroom have only recently begun to appear in the research literature. Within this area (as discussed in Chapter 2), the majority of studies focus either on the functions of teacher gesture without considering student uptake or on the role of student gesture without examining how instructors orient to this behavior. There is a clear lack of studies that investigate gesture from a dialogic perspective and that examine this important non-verbal form of communication as it unfolds during classroom interaction. The present study corroborates and expands on the previous research on gesture in the L2 classroom by examining teacher and student gesturing as a dialogical process in the flow of real-time classroom interaction. It helps to overcome the divide between the teacher and student uses of gesture by providing a holistic picture of how students employ the information conveyed in teacher gesture for their learning purposes and how the teacher “reads” student gesture in shaping mediation designed to promote learning. The analysis of students’ responsivity to the teacher’s gestural strategies allowed for identifying which of them were more conducive to learning than others.
Another related contribution to the prior research on the role of gesture in the language classroom is the study’s longitudinal perspective. Observing the teacher and students’ use of gesture continuously, over the period of several weeks allowed the process of learners’ appropriation of L2 meanings and concepts across classroom sessions to be tracked. It enabled the identification of microgenetic development, which moved from the student’s imitation of the teacher’s gesture as a sign of understanding to the production of verbal interpretations of the teacher’s gesture and to eventual use of the relevant language feature in new contexts.

The dialogical nature of the teacher and student use of gesture is reflected in the notion of catchments. While McNeill’s (2005) study of catchments in non-instructional discourse pointed to the significant role played by catchments in maintaining coherence and highlighting the main topics in largely monologic narrations, catchments have not received due attention in classroom-focused gesture research. The present study contributes to prior research in this area in a major way by considering in detail the role of catchments in the process of language learning occurring in the classroom. Findings show that catchments served important instructional and learning functions, where student catchments, emerging as imitations of teacher gesture, served as a sign of better understanding, while teacher catchments, created as imitations of student gesture, served as an acknowledgement or confirmation of student response. In this sense, catchments served as a sign and means of achieving shared understanding through aligning the teacher and students’ cognitive states, while the absence of catchments signaled divergent understandings and cognitive misalignment.

The teacher’s monologic catchments also played important instructional functions. They helped to maintain coherence of her explanations by connecting different verbal elements related to the main theme of a discussion, including the introduction of new meanings, definitions, and
contextualized examples. Visualized through a catchment, the topic turned into a publicly accessible image and was referred back through the catchment as a gestural anaphor. Constituting a dialectical unity of similarity and contrast, catchments were highly flexible in reshaping their secondary features to fit specific instructional purposes.

Prior research on self-regulatory role of student gesture in language learning has shown that learners externalize their thinking through hand movements, with correct understandings often coming out in gesture before the verbal expression of thinking emerges (McCafferty, 1998; van Compernolle & Williams, 2011; Lantolf, 2010). The previous studies, however, did not consider whether instructors attended to students’ private gesture and whether they employed the information conveyed in this type of gesture to shape their instructional strategies. The present study contributes to closing the research gap by considering the ways the teacher oriented to student gestures produced not only with a social function but with a private function as well. Findings show that the teacher attended to student gestures and treated them as an important source of information that she used to shape and reshape her pedagogical moves. In a sense, student gesture served the teacher as a “diagnostic” device (Goldin-Meadow, 2003), allowing her to detect the students’ current level of understanding and shape her mediation accordingly.

While there have been a number of studies that examined the ways gesture provides a view into student thinking, there is a lack of studies that investigate the ways teachers’ gesture reflects their thinking. Discerning the teacher’s reasoning behind her instructional strategies as expressed in gesture may provide new insights into how such strategies are formed. This, in turn, may help us consider how such strategies can be improved. It is in this area that the current study contributes to prior research. Its findings show that in using gesture to depict L2 concepts, the teacher prioritized particular aspects of meaning and backgrounded other aspects. In her choices,
she appeared to be guided by local instructional purposes and student needs. These observations gave rise to the notion of “thinking-for-teaching” (TFT), on analogy with Slobin’s concept of “thinking for speaking” (TFS). In his framework, TFS is “a special form of thought that is mobilized for communication” and is guided by the grammatical categories existing in a certain language (Slobin, 1996, p. 76). Similarly, TFT can be conceptualized as a “special form of thought that is mobilized” for teaching, guided by the instructional purposes at hand and the students’ level of understanding. These factors direct teachers to attend to the dimensions of worldly experiences that are most relevant to instruction and learner needs. They also guide teachers in constructing their utterances so that they provide instructionally relevant “selective schematizations” of concepts to enhance the likelihood that they will be apprehended by the students. In this sense, TFT is also shaped by its recipient design, being constantly guided by the assessment of student needs, background knowledge, and levels of understanding. The way the teacher externalized her TFT, raises questions about how to reflect the key meaning of the concepts explained through gesture so that it can serve as an effective instructional tool (as will be discussed in Section 10.2.2).

Another way to glean insight into how TFT is shaped is by examining the teacher’s private gesture employed in the service of molding instructional strategies— an aspect which has not been considered in prior studies of instructional gesture. As observed in this study, such self-regulatory gesture can have important social/instructional consequences, where students treat it as if it were socially oriented and are therefore able to respond to it in instruction-relevant ways.

The study also contributes to the body of research on the teacher’s non-verbal moves by considering the teacher’s gaze, which currently constitutes a rare focus of analysis. Meanwhile, a close examination of shifts in the teacher’s gaze direction can provide more insights into the
teacher’s unfolding TFT. Particularly revealing are the moments when the teacher shifts her gaze away from a student interlocutor. This can indicate moments of cognitive effort as the teacher struggles to generate appropriate mediation. Considering such moments can help to identify the challenging aspects of instruction and to find ways of effectively dealing with them. Similar to the teacher’s private gesture, her private gaze is often socially oriented to by the students, serving as a deictic that helps to direct their attention to the teacher’s instructional gesture. The study also examined the intriguing moments when the teacher directed her gaze onto her gesturing hands. These gaze shifts are instructionally relevant. Produced in moments of struggle, they may help to attain more “visual awareness” of the gesture (Streeck, 2013, p. 87) and make the teacher more conscious of the instructional intent of her hand movements. In other cases, the teacher’s gaze was directed at her hands with the intent of signaling to students the importance of attending to her gesture. Finally, the teacher’s gazing at her own gesture was often part of her embodied performance produced from character perspective and displayed her close involvement with the instructional performance.

Research on gesture in the language classroom has predominantly focused on teacher-student interactions, without considering the way students employ gesture in communicating with each other as they accomplish instructional tasks. This study expands the focus of prior research by considering the use of gesture in student peer interactions, occurring during group work. Findings indicate that students extensively employed gesture as a mediational tool both for self- and other-regulation in their discussions of L2 meanings. Gesture allowed them to visualize word meanings and their semantic relationships as well as to highlight the contrast and similarity between them. The students maintained coherence of their discourse and thinking through catchments, some of which were used across classes. By externalizing their understandings of
word meanings, the students made them publicly accessible, which allowed the students to compare their perspectives and either come to an agreement or identify points of confusion that required assistance from the teacher to clarify. In this way, gesture helped the students to move their joint completion of the task forward. In some cases, gesture allowed them to provide other-mediation to their peers, which helped the peers to achieve new understandings of L2 meanings. Under the conditions where the students did not share a native language, they treated gesture as a crucial semiotic resource, the contribution of which was significantly greater than that of speech.

Prior research of the role of gesture in second language learning has pointed to its beneficial role in listening comprehension and vocabulary learning, with such areas as pronunciation and grammar being predominantly under researched. This study contributes to closing this gap by documenting how teacher and student gesture mediated learning of suprasegmental aspects of L2 pronunciation and such grammatical features as use of comparative and superlative forms of adjectives, demonstrative pronouns, progressive aspect, and word order.

10.2.2 Implications for L2 pedagogy and teacher education

L2 Pedagogy

Despite the benefits of teacher and student gesturing for language learning demonstrated in research literature, gesture and body movement have not been acknowledged as potent instructional tools in language teaching. Most such approaches to language pedagogy have, not too surprisingly, focused on teacher and student verbal interaction. A few exceptions include Acton’s (2013) haptic-based approach to pronunciation instruction, studies by Allen (1995) and Tellier (2008) on vocabulary instruction as well as Nakatsukasa’s (2013) study on grammar instruction. Raising language teachers’ awareness of the pedagogical benefits of gesture in the
process of teaching as well as the value of attending to their students’ gesturing should comprise an important component of future teacher preparation programs. The essence of the benefits of gesture is captured in Vygotskian view of the role of symbolic mediational means (including gesture), which enable learners to visualize and objectify intangible concepts and in this way, bring them into their consciousness. This in turn allows learners to act upon these concepts in the process of gaining voluntary control over them and in making them their own (Lantolf & Thorne, 2006).

One might still ask whether it is possible for teachers to turn gestures into an intentionally designed and consciously employed teaching tool since in everyday conversation they are produced spontaneously and most of the time, unconsciously. In addressing this important question, we should keep in mind that classroom context is different from the context of everyday conversation. It is an “artificial” environment in the sense that it intentionally sets out to create conditions and provide rich resources for the process of learning to occur; many of these are borrowed from everyday interactions and others are created with specific pedagogical functions in mind. An exemplary case of creating a pedagogical resource is the teacher’s gesture (e. g., “chin” gesture) employed for teaching pronunciation, a behavior that would be unlikely to occur in everyday interaction. This gesture was specifically designed by the teacher as an instructional tool employed consciously and purposefully, constituting what is labeled in this study, an “intentional instructional gesture” (IIG).

One might further argue that IIGs are only possible in teaching pronunciation, while gesture related to vocabulary and grammar instruction is more spontaneous, individual, and difficult to shape into predesigned patterns. Prior research (Allen, 1995; Tellier, 2008; Nakatsukasa, 2013), however, shows that teachers have intentionally designed gestures that have enhanced the
learning of vocabulary and locative prepositions. While studies on the use of IIGs and their effect on learning L2 grammar is still a matter for future research to address, the evidence reported in this study with respect to the effectiveness of gesture in grammar instruction is encouraging. An especially revealing aspect of the data considered here is the teacher’s ability to modify her grammar-oriented gestures “on the fly” in reaction to student responsiveness to initial explanations. This is where the notion of thinking-for-teaching (TFT) gains special importance, raising questions about specific ways of shaping instructional gestures so that they effectively serve the necessary instructional functions. Findings suggest that in order to be beneficial for student learning, gestures need to reflect the core meaning of the concept in question.

A related question is which particular aspect of a concept should be highlighted in teacher gesture? Or, to use, McNeill’s terms, which element of the concept’s meaning should receive the gestural stroke and become part of the growth point? This study points to some promising answers. One possible response is to identify the effectiveness of teacher gesture by assessing the students’ reaction to it. This suggestion correlates with the recipient design of teacher gesture. While a teacher clearly needs to have a certain level of understanding of a language concept in order to depict it in gesture in the first place, the image should also resonate with the students’ background knowledge related to the concept. In this recipient design, a proper match between the teacher’s expert knowledge of the L2 concept and the students’ expected background knowledge needs to be achieved, which forms the basis for developing their new understandings of the meaning in question.

The recipient design of teachers’ instructional utterances reflects the dialogical nature of classroom obuchenie, where teachers need to shape their mediational strategies by continuously assessing the current and potential levels of student understanding and development (Lantolf &
Traditionally, the students’ verbal production has been considered the predominant, if not the only, source of information about their current language knowledge with teachers mostly overlooking the importance of the students’ gesture as a form of expressing their understandings (Crowder & Newman, 1993; Goldin-Meadow, 2003). This study, however, provides evidence in favor of treating student gesture as a valuable diagnostic tool, allowing the teacher to gain access to the students’ ongoing thinking in order to better assess their current understanding of a concept. The information gleaned from the students’ gesture was employed by the teacher and converted into her gesture-based mediation. This is particularly important in the context of the ESL classroom, where students may not be able to use their native language for producing elaborate or sufficient explanations of meanings. It is important for language teachers to be sensitized to the ways their students employ gesture so that teachers begin to treat this mode of expression as an important source of information about the learners’ current levels of language development.

The ways of evaluating student contributions and providing feedback to them in the context of the language classroom is another important issue to consider. Findings from this study show that in providing feedback to student responses, the teacher employed gesture in concert with other multimodal resources (IMSs) as a major channel for delivering her evaluation of learner understanding and performance. Such embodied recasts appear to differ from what has been discussed in the SLA recast literature (e.g., Mackey & Philp, 1998; Ellis, 2001) in that they were produced by the teacher in the non-verbal channel. This allowed the teacher to provide continuous feedback to a student’s ongoing response without interrupting her line of thought and speech. Considering such concurrent feedback as part of the traditional Initiation-Response-Feedback (IRF) sequence, an interesting question arises as to whether use of gesture changes the
order and nature of the IRF. Prior studies consider the IRF as unfolding sequentially in time, where feedback follows the response (e.g., Cazden, 1988). In the cases discussed in this study, where non-verbal feedback was provided simultaneously with the response, the order of the instructional sequence seems to change from the horizontal to vertical orientation—from the IRF to IR(R). This configuration seems to open up an opportunity for the student to maintain the conversational floor and continue with, or expand on, her/his previous response depending on the teacher’s feedback. It appears that by providing feedback in gesture, the teacher may give up some of her institutional rights of monopolizing the floor while still maintaining her epistemic authority and the status of an expert. In this sense, an embodied recast may have positive benefits for the process of obuchenie in terms of opening more room for learner agency in achieving correct understanding and enhancing self-regulation. This seems to correlate with the SCT principle of graduated assistance, in accordance with which “no more help provided than is necessary, for the assumption is that over-assistance decreases the student’s agentive capacity” (Lantolf & Thorne, 2006, p. 277). Too much guidance might hinder the development of students’ self-correction, which is an “important learning activity” (Van Lier, 1988 p. 211). In this light, it appears important for language teachers to consider gesture and body movement as an alternative channel of providing evaluative feedback, which, depending on the context of classroom interaction, may have more/different benefits than verbal feedback.

Language teachers should also pay attention to gesture as a means of conveying emotive meanings and contributing to a positive atmosphere in the classroom. This study shows that engaging such non-verbal resources as gaze, facial expression, and body movement, the IMSs served as a powerful means of infusing the teacher’s embodied performance with vitality, humor,
and emotion. This enabled the teacher to convey emotive meanings of the formulaic phrases obscured in verbal expression alone. It also allowed for building affective alignment with the students and maintaining a positive atmosphere in the process of obuchenie. This has important implications for learning, as suggested by Del Rio & Alvarez (2002). In their view, cognition and emotion “may unite and enhance each other to yield an outcome greater than either of them alone” (p. 65).

Finally, it is important for language teachers to consider the link between L2 verbalization as the purpose of language instruction and gesture as a means of instruction. One of the important findings in this study (as discussed in Section 10.1.1) is that the teacher’s gesture played a beneficial role in developing student verbalizations in their L2. The students attended to the teacher’s gesture and were able to incorporate the information communicated in the teacher’s gesture into their L2 verbalizations. This finding indicates that language teachers should consider gesture as an important means of developing student verbal expression in their L2. When considering the nature of second language instruction, one might suspect that since its purpose is to develop the learner’s ability to speak in the L2, then, verbal language should also be the dominant medium of instruction. However, findings reported in this study suggest that gesture and other non-verbal resources can be equally important in developing students’ verbalizations. Even more so, in many cases, gesture served as a more advantageous instructional tool than the teacher’s speech by conveying information (actional, spatial, and emotional) that was not easily accessible via the verbal channel alone. Holistic and spontaneous, not restricted by convention the way the speech is, gesture showed the advantage of being reshaped on the fly in flexible and diverse ways not allowed by standardized and prescriptive verbal expression. These findings serve as a call for language teachers to begin treating gesture seriously as a meaningful, flexible,
and engaging mediational tool in developing students’ language knowledge and related performance.

*Teacher Education*

Since ancient Greece through the middle ages and into the present time, interest in gesture has generated a regular flow of gestural manuals for people of different professions such as public speakers, actors, clergy (Kendon, 2004), and business executives. Thus, the recognition that spontaneous nature of gesture does not prevent it from being taught and consciously mastered seemed to originate and circulate quite early in human history. The teaching profession, however, has not enjoyed much guidance in terms of intentional uses of gesture for instructional purposes. The few manuals, currently available for use, of non-verbal behavior by teachers primarily focus on kinesics, attire, eye contact, etc. as a means of enhancing teacher charisma and building a positive classroom atmosphere (e.g., White & Gardner, 2011). The role of gesture as an instructional tool related to conceptual meanings remains largely overlooked. Observing each other’s classes and their own teaching as captured on video, teachers intuitively perceive that their gesturing is not just waiving their hands around. However, they seem to lack reliable background knowledge about the importance and functions of gesture to be able to assess its relevance for the classroom. What teachers currently lack is the theoretically grounded and empirically substantiated knowledge of specific instructional functions that their gestural behavior in the classroom is able to fulfill. The current study hopes to contribute to overcoming the lack of attention to gesture in the classroom and in teacher education programs. I would

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15 Anecdotally, as shared by one of the instructors teaching a TESOL methods course, the first thing her students notice when they view their first video recording of their own teaching is gesture. This is expressed in their comments that sound similar to, “Why am I moving my hands so much?” (D. Worden, personal communication, October 20, 2013).
therefore like to propose theoretically and empirically grounded recommendations for the incorporation of gesture in teacher preparation programs.

In developing recommendations for language teachers on specific ways of employing gesture in their pre-designed teaching strategies, one should proceed with caution. One caveat to consider is that there is a danger of making such recommendations too prescriptive. What has to be avoided in this respect is a list of fixed gestural moves matched with specific language aspects in a one-to-one relationship. This may lead to the idea of learning a limited number of decontextualised gestural practices that would be expected to work irrespective of specific instructional context and emergent student needs. Rather, such recommendations should be collaboratively developed by a teacher and a researcher in a joint process of viewing video recorded instances of beneficial uses of gesture in teaching different L2 features and through reflection and discussion of the gestural practices. As shown by the analysis presented in this study, the phenomenon of gesture, including gesture-speech synchronization is fleeting and subtle, which makes it difficult to analyze on the fly. For that reason, viewing recordings of classroom uses of gesture must be a crucial tool in educating teachers on instructional functions of gesture. Some teacher education programs already employ video recordings extensively in methods courses to allow teachers to reflect upon their teaching practicum and to enable the instructor to evaluate their incipient teaching practices. Incorporating the focus on the novice teachers’ ways of employing gesture for instructional purposes into the analysis of their practicum teaching should be an important component of the program.
10.2.3 Contributions to gesture research

**Catchments**

The study contributes to the methodology of gesture research by elaborating the notion of catchments put forward by McNeill (2005). While McNeill’s framework mostly focuses on monologic catchments produced by a single speaker in narrative performance, this study has uncovered rich evidence on the construction and use of dialogic catchments. These were found to be created in two ways: students imitated gestures introduced by the teacher and the teacher imitated the students’ gesture. Considering the form and meaning of dialogical catchments in this study allowed for the development of more detailed criteria for identifying catchments. Findings confirm the empirical applicability of the criteria suggested by Arnold (2012) (although, catchments were referred to as “dialogic embodied action,” p. 269). Thus, gestures can be considered as a catchment if they share the element of form that reflects the core meaning of the concept depicted in gesture. At the same time, such gestures can differ in non-essential elements that do not affect the core meaning of the concept. In this study, catchments demonstrated remarkable flexibility in varying their non-essential features to fit the local instructional context. In this sense, catchments reflected the quality identified by Pozzer-Ardenghi & Roth (2008) as “iterability of signs,” which involves a “dialectic of identity of non-identical things” (p. 406).

The variation is produced by specific growth-points in diverse contexts, while the invariant features maintain the catchment’s “self-identity” (p. 407). This dialectic of change and stability is what allows catchments to serve as reiterative cohesive devices in teacher-and-student discourse and thinking. Although, we would not consider catchments to be signs, in the way that the manual mode functions in sign language, catchments do represent a dialectic of the stable and variable in the sense that to qualify as a catchment, a gesture requires that the stable core feature
maintain visual coherence of the discourse and it also requires room for variation to fit the changes in the local contexts in which it is employed. These features make catchments an important and versatile instructional resource.

**Growth Point**

The study suggests that the focus of gesture analysis can be expanded from a monological growth point—produced by a single speaker—to a dialogical one—co-constructed by more than one speaker. The data discussed in this study suggests that a growth point can acquire a dialogical nature when it is collaboratively constructed by two interlocutors (in this case, the teacher and a student). In this type of growth point, the expert speaker of a language provides the necessary verbal element in L2 while the novice speaker contributes the gestural component of the utterance. The two modalities engaged by the two interactants converged in the joint effort of expression or rather in the joint pursuit of *obuchenie*. The study also presents an example of a collaborative growth point produced by three participants, where they all produce a simultaneous stroke joining together a student gestural response, the other student’s verbalization, and the teacher’s confirmation of both.

The study also suggests expanding the concept of growth point by going beyond the modalities of gesture and speech and incorporating gaze, facial expression, and other body movement into GP. For one thing, this would allow the GP to encompass more than conceptual meaning—it would allow for the inclusion of emotion, an element that Vygotsky (1997) insists forms the motive for thought. The way the teacher employed “instructional multimodal schemes” (IMSs) demonstrated that in her utterances diverse multimodal resources—gaze, facial expression, gesture, and other body movement—converged in making a “stroke” on a particular verbal element. In this way, the stroke marked not only the highest peak of gesture but also the
highest degree of emotion. This emotive element of meaning constituted a crucial part of the teacher’s psychological predicate. This expanded view of the growth point correlates with Goodwin’s (2003) idea of relationship between “multiple semiotic fields” that act in concert and mutually elaborate each other (p. 238).

**Beats**

The present study sheds more light on beats as one of the under researched dimensions of gesture. The data considered in the preceding chapters extends the functions of beats beyond prosodic parsing of speech. In full agreement with McNeill (1992; 2005), beats, predominantly employed as superimposed beats (layered over iconic, metaphorical, and deictic gestures), appeared to highlight important elements of the teacher-student discourse such as: 1) the key element of meaning and 2) the problematic part of the student’s utterance that became the focus of the teacher’s recast or explanation. This study expands the functions of beats identified by McNeill (1992; 2005) in narratives and ordinary conversation to include the functions of beats in the pedagogical context.

**Holds**

Compared with the stroke as the central phase of gesture, the hold phase has not received the attention of researchers it deserves. The findings of this study indicate the important role of gestural holds in classroom interaction. In full agreement with Sikveland and Ogden’s (2012) findings, holds were employed by the participants to seek shared understanding of L2 meanings. On the teacher’s part, a gestural hold was used as a visualization of the central topic of the ongoing discussion, made publicly accessible and suspended in the student’s visual field. In this capacity, it served as an imaginistic reminder and an anaphoric reference to the main topic of the interaction. The teacher’s gestural hold was often used within a pattern consisting of a three-part
combination: pause-hold-gaze. This practice was consistently employed by the teacher as an embodied comprehension check and “attention-getter” at the end of each segment of an explanation. The pause-hold-gaze actions formed a component of the teacher’s elicitation technique intended to invite student responses. On the students’ part, gesture holds were used as requests for clarification and further explanation.

10.2.4 Future Directions

Although the study initially set out to provide a comprehensive view of the instructional uses of gesture in the L2 classroom, the richness of gesture-related phenomena observed in the classroom under consideration compelled the researcher to narrow down the focus to examining mostly gesture related to conceptual explanations. The study does provide evidence for the importance of affective and interactional functions of gesture in the language classroom, which appear to be promising directions for future research.

Another fruitful direction for future research is related to expanding the scope of the present study by including a greater number of learners and teachers. It would also be beneficial to introduce a comparative element in order to observe potential differences in the ways of employing gestures depending on an instructor’s prior teaching experiences and the students’ educational and cultural backgrounds. For comparison related to learners, their population can be expanded to include other age groups, levels of proficiency, types of classrooms (including for example, an oral communication or grammar class), and instruction in languages other than English. With regard to teachers, the comparison can involve teachers representing different levels of professional development as well as teachers of different cultural and language backgrounds.
As for the key directions for future research, I would like to propose two major projects: 1) implementing gesture-based pedagogy in the language classroom and 2) incorporating embodied aspects of language teaching into teacher training/education programs.

The first project proposes an experimental study which involves designing and implementing a gesture-based pedagogy in an ESL classroom and assessing its effect on student learning. I see this as a logical step in transitioning from non-intrusive observations of naturally occurring classroom interactions to an endeavor of transforming teaching practices through innovative pedagogy. In this way, the beneficial instructional qualities of teacher gesture (produced spontaneously) as identified in the present study can serve as the basis for creating a purposefully designed gesture-based intervention. I envision such pedagogy as targeting L2 vocabulary—the domain where the use of gesture has proven to be most salient and influential (Allen, 1995; Tellier, 2008; Smotrova & Lantolf, 2013). One of the challenges is related to the pedagogy design. Unlike existing experimental studies, where gesture-based vocabulary instruction involved teaching decontextualised items, the proposed pedagogy aims at teaching words in context and insuring students’ deep conceptual understanding of L2 meanings. Therefore, such gesture-based pedagogy will likely be combined with a concept-based approach to instruction. Integrating gesture into concept-based instruction can be a fruitful direction in its own right.

The second project that I plan to undertake in the most immediate future involves incorporating embodied aspects of L2 teaching in teacher training/education. This project is focused on raising the teachers’ (experienced, novice, and future teachers) awareness of the embodied aspects of language instruction and their role in student learning. It involves familiarizing teachers with specific instructional functions of teacher gesture/body movement employed for teaching such L2 features as vocabulary, pronunciation, grammar, and discourse.
structure. The project will be conducted with the use of videos of naturally occurring ESL classroom interactions collected as part of the present study. The teachers will be asked to reflect upon and discuss the video recordings with their fellow teachers and with the researcher. The discussion will focus on the instructional functions of the gestures observed and on the possibilities of employing body movement for similar purposes in the teachers’ own classrooms. The teachers next will be observed and video recorded in their own classrooms to determine whether or not the raised awareness and knowledge gained with regard to the instructional functions of gesture has an impact on their teaching. This future study appears as a logical step toward employing the findings reported in the present study for the purpose of creating teacher training instruction that can help teachers to design and implement gesture-based teaching strategies in their L2 classroom obuchenie.

10.3 Limitations of the Study

Although this research has a number of implications for research on gesture in language learning, L2 pedagogy, teacher education, and gesture research, it also has a number of limitations. One potential limitation of the study is related to the difficulty in validating the claims that an instance of student learning occurred specifically due to the teacher’s gesture. This limitation is rooted in the nature of human communication in the sense that diverse semiotic resources act in concert to convey certain meanings so that at every given instance of communication, it is difficult to identify whether the message was conveyed specifically through gesture or rather through speech-gesture-gaze-facial expression and other semiotic modes. This entwined nature of resources makes it difficult to disentangle and separate out a single facet of it. However, the nature of research is such that we have to analytically separate to some extent the
different aspects of communication for the purposes of analysis. In any given utterance, (Kendon, 2004) humans recombine different resources depending on the content and context of the message. Within these recombinations, we can still identify the different roles played by particular semiotic means. This study focused on gesture and within the orchestrated uses of multiple semiotic fields, it tried to discern the functions of gesture without disregarding the role of other resources. In terms of evidence for learning, the study focused on the cases where the role of gesture was particularly prominent in teacher explanations, which would allow then to track its influence on student learning.

There are also limitations of the scope of the research design and methodology. This study included observations of only one particular ESL class, representing only one level of proficiency (Beginner), and only one type of a class (Reading class). This also means that the study involved observing only twelve students and one instructor. Although the focus on one specific classroom and the limited number of participants as well as careful selection of segments of interaction illustrative of the instructional use of gesture allowed for a detailed and relatively in-depth look at the role of gesture in classroom language learning, future studies should expand the number of participants by comparing different groups of students (as was discussed in 10.2.4).

There are also some apparent limitations of the scope of data collection in terms of time. In order to obtain more comprehensive answers to the research question related to the possible changes in the teacher and student uses of gesture over time, data collection should involve a period of not less than a semester. The imposed limit of data collection—six weeks was due to the nature of microanalysis, which requires detailed examination of continuous sequences of interaction. That method of investigation imposes a limit on the amount of data that can be carefully processed by a single investigator so as not to compromise the quality of the analysis.
This brings us to another limitation of the study in terms of the types of data it relied on. The study predominantly employed video recordings of classroom interaction without enough consideration of other classroom materials as well as student record in terms of quizzes and test results. This is due to the fact that it is difficult to make direct connections between the students’ use of gesture, which is highly contextual, to test results, which also limit the picture of development to specifically tested items. However, future research should seek to employ multiple types of data to substantiate the analysis.

One of the limitations of the study in terms of analysis is the lack of information from prior research about culture-specific characteristics of gestures conventional to the cultures represented in the classroom. The missing information did not allow for conclusions on possible instructionally-relevant cultural influences on the teacher and student gesturing even when differences possibly related to culture were noticeable. Another limitation was related to the analysis of catchments. It originated from the methodological issues in that prior research, as well as McNeill’s (2005) framework, fail to provide detailed and reliable criteria for identifying catchments. These had to be developed in the process of analyzing catchments, which may have caused confusion in some of the analyzed excerpts. The lack of clearly defined criteria may have resulted in a lack of consistency as to which gestures were identified as catchments. Certain limitations of the scope of data analysis also exist. The study predominantly focused on the role of teacher and student gesture in relation to conceptual aspects of classroom language learning. It did identify some affective and interactive functions of gesture in relation to the conceptual ones but did not include them as the major focus of analysis. The interactive and affective functions of gesture in and of themselves, however, can constitute an important focus of analysis for future studies of gesture in the language classroom.
10.4 Concluding Remarks

This study is an observation of the use of gesture and speech in the naturally occurring classroom interaction. The study identified a range of instructional and learning functions of teacher and student gesture combined with speech and diverse multimodal resources in the process of classroom language learning. It reveals the beneficial role of gesture in appropriating L2 vocabulary, pronunciation, and grammar. Although the study has a number of important implications for research on gesture in language learning, L2 pedagogy, teacher education, and gesture research, it also has some limitations and raises questions for further investigation. As an attempt to provide a detailed picture of the different uses of gesture and their mediational functions in the language classroom, the study aspires to serve as a platform for developing gesture-based instructional interventions and for designing instructional materials in teacher education. The study also hopes to draw much needed attention of gesture researchers to the language classroom and instructional gesture in general with the prospect of further development of methodology for thorough and rigorous investigations of gestures in the process of obuchenie.
Appendix A

Promotion and Completion Criteria

Reading Level 1

The assessment of promotion criteria is based on your performance in this class throughout the semester. You must receive a score of 83% or above in this class in order to be promoted to Level 2 Reading. The course grade and promotion reflect your performance based on the following criteria:

- identifying the main idea
- identifying supporting details
- locating evidence to support answers
- sequencing events
- identifying pronoun referents
- demonstrating an understanding of selected vocabulary
Appendix B

Instructor Questionnaire

1. Where were you born?
   Honolulu, Hawaii, USA

2. What is/are your native language(s)?
   English

3. Please indicate any other language(s) spoken and how you learned each language.
   Spanish (junior high, high school, college)

4. Have you lived in any other country for more than a year?
   No

5. Please list your teaching experience (include school, years teaching, grade, and subject).

   1988-1989 Junior High, Spanish
   1989-1990 Middle School, Reading, Math, and Science
   1990-1996 High School, Spanish
   1996-2001 K-12 ESL
   2001-2004 High School, Spanish
   2004-2005 Adult Education/ESL
   2005-2013 University, Intensive English Communication Program
Appendix C

Student Questionnaire

1. What country do you come from?
2. What is your native language(s)?
3. Where and how long have you been learning English?
4. What is your purpose in taking IECP courses?
5. Is it your first visit to the U.S.?
6. How long have you been in the U.S.?
7. What aspects of learning English do you find most difficult?
Appendix D

Instructor follow-up interview questions

1. What are your impressions of seeing yourself on video?

2. Do you have any comments on your use of body language and gesture in particular?

3. Are you aware that you use gestures as part of your teaching?

4. What role does gesture play in your teaching?

5. Do you ever use some gestures on purpose?

6. Do you ever try to teach gesture to your students?
Appendix E

Transcription Conventions

[ ] – overlapping talk
{ } – synchronized vocal and nonvocal action
= – latching
( ) – pause
(word) – uncertain hearing
(xxx) – unable to transcribe
. – falling intonation
, – listing intonation
? – rising intonation
↑ – shift into higher pitch
↓ – shift into lower pitch
: – elongation
°speech° – quiet speech
> < – speeded up speech
< > – slowed down speech
underline – emphasis
LOUD – loud speech
italics – nonvocal action, details of scene

(\text{actions occurring simultaneously are separated by a comma;}
\text{actions occurring sequentially are separated by a semi column})

@chest – at chest
RH – right hand
LH – left hand
BH – both hands
C - catchment
References


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