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**PRIVATE KINDERGARTEN SCORECARD**

A Thesis in

Curriculum Instruction

by

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## ABSTRACT

The purpose of this study is to develop an effective self-evaluation system for use in Taiwan's kindergartens that will enable administrators and teachers to enhance school performance and ensure continuous improvement. It also examines kindergarten insiders' and outsiders' perceptions toward self-evaluation and performance management.

In order to achieve the research purpose and develop a self-evaluation system, this study applies the Balanced Scorecard concept as theoretical foundation, reviews relevant literature and consults with early childhood experts in Taiwan and the United States. A questionnaire, the Private Kindergarten Scorecard, is developed especially for this study. This study is quantitative in nature and applies survey as measurement. Subjects included 189 kindergarten outsiders and 122 kindergarten insiders. Descriptive statistics, panel review, exploratory factor analysis, analytic hierarchy process (AHP), MANOVA, and pair-t test are the methods used to analyze the data.

Exploratory factor analyses suggest that the Balanced Scorecard theory provides a solid basis and four dimensions exist for designing a self-evaluation instrument. The AHP analysis indicates that kindergarten insiders believe these four dimensions are vital for managing a kindergarten. However, kindergarten outsiders focus on the *stakeholders'* and *innovation* perspectives. The MANOVA analysis shows that the *operation* perspective is the only perceptual difference between kindergarten insiders and outsiders in the self-evaluation result. The additional finding of the MANOVA analysis is that kindergarten insiders and outsiders have great perceptual differences for the importance of measure of *operation*, *daily support to children*, and *evaluation* perspectives. The paired t-tests imply that kindergarten insiders and outsiders are dissatisfied with the actual performance of kindergartens. Recommendations and future research are also presented.

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## Chapter 1

### INTRODUCTION

The primary purpose of this study is to develop an effective self-evaluation system for use in Taiwan's kindergartens that will enable administrators and teachers to enhance school performance and ensure continuous improvement.

The 21<sup>st</sup> century is a very competitive time. Institutions and organizations from across the board—banks, power companies, government departments, information technology firms, health sector entities, and universities— all find themselves in a globally competitive environment. Schools face progressively greater competition with each other (Woods, 1993). Niven (2002) pointed out that performance measurement is every bit as important, if not more important than ever, in today's environment. Therefore, all organizations, including schools, need an effective performance measurement system to provide a strategy for maintaining leadership in a highly competitive environment. In the 1990s, the Balanced Scorecard (BSC) was developed as an innovative and powerful technique for organizations to use in measuring their performance, clarifying vision and strategy, and translating mission into action.

In looking at organizations and specifically the education system, studies (Barnett, 1995; Bredekamp, 1987; Sheridan & Schuster, 2001) have shown that early childhood education is the foundation of lifelong learning; playing has a key role in helping children develop physical, cognitive, and social skills. Recently, discussions in Taiwan have centered around providing and evaluating the quality of early childhood education and enhancing school performance. Taiwan's researchers have clearly demonstrated the weaknesses in the existing kindergarten evaluation system. Furthermore, researchers and government personnel are each promoting inclusion of a self-evaluation function in Taiwan's kindergarten system (Chen, 2003; Ling., 2002; Lu, 2002; Taiwan Ministry of

Education, 2004c; Wei, 2002). So far, Taiwan's kindergarten evaluation system is more output-oriented and does not provide data that may be used in planning further improvements. In addition, designing Taiwan's kindergarten evaluation system has been the province of government personnel, researchers, and administrators while lacking parents' voices. Parents are customers who choose and examine schools for their children (Thomas & Dennison, 1991). Thus, developing an effective performance measurement system for use by kindergartens, as a self-evaluation tool shaped by parents' input is the main purpose of this study.

### **Needs for the Study**

Five primary reasons justify this study. Each is described below.

The first reason arises from the deficiencies in Taiwan's current evaluation system and the need for a self-evaluation system. In 1999, the Ministry of Education (M.O.E.) published a long-term plan for developing and improving early childhood education. The document specified that the existing evaluation system for Taiwan's kindergartens is only superficial and does not have a consulting function or provide valuable feedback to those participating kindergartens. Kindergarten administrators feel pressured by the evaluation rather than positive about obtaining valuable feedback from evaluators. These evaluators are government personnel, university or college faculty members, and kindergarten administrators. Evaluation reports reveal the repeated occurrence of many problems, and flaws in kindergartens' evaluation designs and implementations (Chen, 2003).

Lu, the former chairman of the Early Childhood Education Department at the Taipei Municipal Teachers College, emphasized that the Ministry of Education expects every Taiwanese kindergarten to organize a self-evaluation committee that can construct and implement an annual self-evaluation function in the next five years (Lu, 2002). Such a system is the major premise of a successful external evaluation. Kindergartens that can implement an effective self-evaluation system may demonstrate to the government that the

lack of need to execute a national evaluation in the future. Thus, it is urgent to promote and encourage kindergartens to develop and establish a self-evaluation system that may be used in monitoring and measuring kindergartens' performance. Creating an effective performance management method as a self-evaluation system for kindergartens is the first need for this study.

The second reason arises from a lack of research on the management and administration of early childhood institutions (Chang, 2003; Sue, 2003). In fact, much of the early childhood education research has focused on curricula, teaching, professional development, psychological development, and theory rather than administration of early childhood institutions. Researchers indicated that higher-quality early childhood education contributes to proper education of children and affects children's performance in later learning (Andersson, 1992; Osborn & Millbank, 1987; Peisner-Feinberg et al., 1998; Sylva, 1994). Therefore, government personnel, administrators, and educators need to promote an effective performance management approach to maintain the high quality of early childhood education. Conducting research on the management and administration of early childhood institutions is the second need of this study.

The third reason stems from private kindergartens themselves. In Taiwan, pupils aged four to six years old receive one to two years of schooling in kindergarten. Public kindergartens usually affiliate with primary schools, and currently, most kindergartens operate as private institutions. According to 2003–2004 public materials from the Ministry of Education, 1.4 times more private kindergartens exist than public ones (private, 1,948; public, 1,358). Statistically, 2.2 times more preschool children attend private kindergartens than attend public kindergartens (private, 166,464; public, 74,462). In addition to the number of private schools and pupils registered in them, researchers (Lu, 2002; Tsay, 2005) found that most public kindergartens maintain high quality early childhood education. Public kindergartens generally have better reputations than private schools. In 2002, the

Ministry of Education conducted a national evaluation of early childhood institutions. The results showed that kindergartens in Taipei Cities performed much better than those in other cities or municipalities. Only 16.3% of private kindergartens were financially sound, which means that 49.5% of private kindergartens were barely continuing operate; 30.5% were operating with difficulties, and 3.7% needed to close (Lu, 2002). This evidence reveals the overwhelming need in private kindergartens for a more effective performance management system in order to enhance the quality of early childhood education.

The fourth reason is the lack of the parents' voices and input as a driving force for future kindergarten quality and performance. An examination of government documents and regulations (Ministry of Education, 2001; 2003; 2004f) showed that parents as customers of kindergartens do not have the opportunity to express their opinions, and the government forms the regulations for evaluating Taiwanese kindergartens. Only limited research considered (Britner, 1995; Endsley, Bradbard, & Readdick., 1984; Moss & Pence, 1994; Waite, Leibowitz, & Witsberger, 1991) parents' perspectives as they relate to childhood education quality. Many researchers have focused on examining the quality of preschool programs from outcomes and the consequences of past actions, but do not mention measures as drivers of future performance, strategy, or input (Bredekamp, 1990; Cyer et al., 1999; Howes & Marx, 1992; Phillipsen et al., 1997). Kaplan and Norton (2001) mentioned that the Balanced Scorecard, a tool for dealing with the 90% failure rates of continuous operation, has become the appropriate measure for future performance. Balanced Scorecard (BSC) can help organizations measure, not only outcomes, but also drivers of future performance. Therefore, testing the BSC theory including parents' points of view is another significant need for this study.

Fifth, little empirical research has applied the Balanced Scorecard (BSC) theory to educational settings. Application of the BSC concept has been extensive and successful for many businesses, with later use in nonprofit organizations, governments, and hospitals. In

1996, the concept was in its embryonic stages in nonprofit and government sectors. In the next four years, BSC became accepted in such organizations and provided additional insights for its effective use (Kaplan & Norton, 2001). Empirical research in for-profit organizations showed great success in using the BSC theory, and case studies revealed the adoption of BSC in nonprofit and government sectors, but little evidence was forthcoming to support its use in education. Most research applied the Balanced Scorecard theory was conducted in higher education, but not even one paper relates BSC to kindergartens or child care centers. Thus, testing the Balanced Scorecard theory in kindergarten settings is one of the needs of this study.

In sum, it is vitally important to develop an effective performance management approach as a self-evaluation system to improve the weakness of current evaluation system. Further, contributing researcher's efforts on administration of early childhood institutions, including parents' inputs or an evaluation system, and testing Balanced Scorecard Model are the other needs of the study.

### **Significance of the Study**

Taiwan's schools have faced different challenges such as education budget-cutting, rapid policy changes, and declining birth rates. Experts predict that some schools in Taiwan will face dilemmas that will include shortages of student, financial crises, and teacher quality issues (Ministry of Education, 2004c). Therefore, understanding the perceptions and needs of kindergarten stakeholders (e.g., administrators, staffs, teachers, students and parents) will help schools to establish efficient and effective performance management systems that may improve student learning, classroom or classroom climate, teachers' knowledge and skills, teachers' professional development, technology, discipline, academic environment, goals, pedagogy, and school leadership.

Through the process of analyzing stakeholders' preferences for the Balanced Scorecard dimensions, educators and administrators will learn more about what their

customers think and what they want. Further, kindergartens can satisfy customers' needs by developing valuable strategies that demonstrate accountability. Building an enduring self-evaluation system will improve efficiency, enhance the schools' performance, and benefit kindergartens in various ways. Kindergarten administrators could use the results as guidelines for allocating resources value-added activities, deciding priorities in the decision-making process, gaining consensus and clarifying the vision of the school, linking outcomes to performance measures, updating for efficient administrative systems, strengthening school performance, and further enabling institutions to achieve high quality.

Kaplan and Norton (2001, p. 2) mentioned that, "today's economic, where intangible assets have become the major sources of competitive advantage, calls for tools that describe knowledge-based assets and the value-creating strategies that these assets make possible." Schools have many intangible assets such as parent-teacher-student relationships, innovative curriculum and services, information technology and databases, teachers' quality and capabilities, and skills and motivations. How does one best manage these intangible assets and evaluate organizations' performance? The answer, again, is the Balanced Scorecard (BSC).

The Balanced Scorecard is a new kind of management system designed for knowledge-based competition in today's dynamic, rapidly changing environment. Applying the Balanced Scorecard theory to develop a self-evaluation system will make greater contributions to improve kindergartens that have problems. In addition, the Balanced Scorecard is valuable not only for financial measures (lag indicators; outcome oriented), but also as drivers of future financial performance (lead indicators; input-oriented). In Taiwan, an effective self-evaluation system based on the Balanced Scorecard theory will alleviate the disadvantage of existing external evaluation systems that only focus on output.

In sum, an effective performance management system of kindergartens improves quality of education and enhances school performance. Administrators can use the research



results as a guideline in making various decisions and developing effective strategies. With the application of Balanced Scorecard, kindergartens can manage intangible assets and resolve problems. In addition, the existing weaknesses of external evaluation systems could be overcome by conducting self-evaluation process.

### **Purposes of the Study**

Kindergarten evaluation may be on the threshold of assuming an increasingly prominent role in Taiwan's early childhood education systems now that the Ministry of Education is planning to make self-evaluation a required component in its long-range planning process. What seems to be much more uncertain, however, is how to create an effective self-evaluation tool for kindergartens to use in enhancing the effectiveness of Taiwan's early childhood education process. The major mission of this study is to develop an instrument that primarily applies the Balanced Scorecard Theory (input and output oriented) as well as several supplements, including the Malcolm Baldrige Education Pilot Criteria (output oriented), characteristics of high-quality early childhood programs, and parents' expectations. The instrument, named as Private Kindergarten Scorecard (PKS), may be used as a self-evaluation tool in determining and measuring the performance of kindergartens.

The PKS was designed to collect information from two major stakeholder groups—kindergarten “insiders”, including administrators, staff and teachers, and kindergarten outsiders, including parents and students—concerning their expectations of the characteristics and performance of the kindergarten in which they are employed or in which their children attend. After gathering data from these two groups, a comparison of responses of two groups establishes the differences in their perceptions of kindergarten performance.

In sum, the specific purposes of this study are as follows:

1. To develop an effective self-evaluation tool that may be used for improving and

enhancing kindergarten performance, and to identify the dimensions that formulate a private kindergarten scorecard.

2. To describe and understand the perception gap between kindergarten insiders and outsiders in : (a) weighting the dimensions of self-evaluation systems, and (b) observing the kindergarten's performance.

### **Research Questions**

According to the main purposes of this study, the following questions guide this research study.

1. What are the major component measures for a self-evaluation system for assisting kindergartens develop successful strategies?
2. Are the four PKS perspectives sufficient for measuring private kindergarten performance?
3. What are the differences in kindergarten insiders' and outsiders' weighting on dimensions for a self-evaluation system?
4. Do perceptual differences exist between these two groups in the self-evaluation results when comparing the participants' responses regarding what they perceive to be important and what they perceive currently exists?

### **Definition of Terms**

This section presents definitions for concepts that will be utilized in this study.

#### **Early Childhood Education**

Based on the Early Childhood Education Act modified by the Legislative Yuan of Republic of China, early childhood education is considered to be education that takes place in kindergartens that serve children ages four to six (Ministry of Education, 2003).

#### **Kindergarten**

Kindergarten is the place that provides early childhood education and serves children ages four to six in both the public and private sectors. The private kindergarten is operated

by a private agency (Ministry of Education, 2004d).

### **Self-Evaluation**

Self-evaluation is a process involving the pursuit of improvement (Stufflebeam, 1971). The term “school self-evaluation” signifies that a school evaluates itself as an organization, and this is one criterion in determining its effectiveness as a school. On the basis of self-evaluation, schools may set priorities, make decisions about improvement, change the school culture, pursue processes and initiatives for quality improvement, enhance the relationship between schools and external agencies, and ensure professional growth (MacBeath, 1999; Moelands & Ouborg, 1998; Nevo, 1995; Sanders, 1999).

### **Baldrige Education Criteria for Performance Excellence**

The Malcolm Baldrige National Quality Award (MBNQA), developed in 1987 by the National Institute of Standards and Technology (NIST) of the United State Department of Commerce, recognizes American companies that do exceptional jobs in improving their products and services, their customers’ satisfaction, and their overall performance (Lord, 1994). The Baldrige Education Criteria for Performance Excellence were established in 1999. The categories for the 2005 Baldrige Education Criteria for Performance Excellence are as follows: (1) Leadership, (2) Strategic planning, (3) Student, stakeholder, and Market Focus, (4) Measurement, Analysis, and Knowledge, (5) Faculty and Staff Focus, (6) Process Management, and (7) Organizational Performance Results (Baldrige National Quality Program, 2005).

### **Performance Management**

Performance management is a process that enables people to perform to the best of their abilities and lead the organization to meet or exceed its goals. Performance management, as a substitute for the traditional appraisal system, brings together the activities of strategy development, planning, and targeting with performance information and performance appraisals. If the goal is employee development and overall improvement,

a performance management system is required.

The definition of performance management in education is a process that establishes a shared understanding of what is already in place and what is to be achieved in schools. The approach will enhance the professionalism of the staff, and therefore, the success of pupils (Fountain, 2001)

### **Balanced Scorecard**

In the early 1990s, Harvard Business School professor, Robert Kaplan, and Boston consultant, David Norton, developed a new corporate-level performance management system called Balanced Scorecard (BSC) that measures business performance from a holistic and integrated view (Kaplan & Norton, 1992). The BSC concept is divided into four different perspectives: *financial, customer, internal business process, and learning and growth* (Clarke, 1997; Kaplan & Norton, 1992; 1993; 1996 a; b; 2001; Salterio & Webb; 2003).

The foundation of balanced scorecard has two basic concepts. First, what you measure is what you get (Clarke, 1997; Kaplan & Norton, 1992). Second, the Balanced Scorecard complements single financial measures of past performance, such as, return on investment or earning per share with measures of the drivers of future performance. By 1996, user-companies further developed the Balanced Scorecard to make it far more than a performance measurement system and more of a strategic approach that can align long-term strategy to short-term targets (Stewart & Carpenter-Hubin, 2001). Many companies around the world have adopted the Balanced Scorecard, and Harvard University evaluated it as the most influential management concept. The Balanced Scorecard is not a “control” system but an learning and communication model for helping organizations attain their goals (Kaplan & Norton, 1993). Each perspective of the Balanced Scorecard, *financial, customer, internal business processes and learning and growth* perspectives, objectives, measures of those objectives, target values of those measures, and initiatives are included.

These concepts are defined as follows:

**Objectives.** Major or key objectives to be achieved, for example, profitable growth or minimum drop-out.

**Measures.** The observable parameters that will be used to measure progress toward reaching the objectives. For example, the objective of profitable growth might be measured by growth in net margin; minimum drop-out might be measured by monthly drop-out rate.

### **Limitations of the Study**

The two general limitations of this study are the limitations of the instruments and the limitations of generalizability. Due to rare empirical evidence and cultural differences, this study applies the key performance index and school quality indicators developed in the United of Kingdom and the United States to Taiwan's educational system. A fuller performance index that accounts for the four dimensions of the Balanced Scorecard will likely lead to better prediction of improvements in Taiwan's school effectiveness.

Even though this study employs a relatively effective sampling method with sufficient sample size to meet requirements for analyses, as with any study in the social sciences, the sample and design may still limit the generalizability of the findings drawn from this study. Evidence shows that people with higher education degrees and socioeconomic status might be more willing to return the survey. This research study may not have reached low-income educated parents.

In addition, the research results may not be generalizable to public kindergartens or child-care centers because private and public kindergartens are different in many ways. These differences include the ratio of qualified teachers, required space to establish a kindergarten, administration process, retirement programs or benefits for employees, curriculum design, technology utilization, financial resources, and so on (Chen, 2003; Ling, 2002; Lu, 2002; Taiwan Ministry of Education, 2004e; Wei, 2002). Therefore, this study

focuses only on private kindergartens due to the limited financial resources available for researcher and the immediate needs of private kindergartens.

### **Delimitations of the Study**

Delimitations of this study are:

1. The population restriction for this study is within private kindergartens.
2. This study includes randomly selected private kindergartens. The sample for this study has two divisions: Group One consists of administrators, staff and teachers; Group Two mostly are parents.
3. The basis for measurement of kindergarten performance is stakeholders' perceptions as reported through the self-evaluation system.

### **Summary**

This chapter is organized to provide an introduction to the study, a list of its contents, an explanation of the need for the study, its significance, its purpose, a list of research questions, definitions of terms, a discussion of the study's limitations, and a description of the study's delimitations. In sum, the research study of developing self-evaluation system for Taiwan's private kindergartens is motivated by the successful stories of Balanced Scorecard and the different needs from various aspects, including desiring an effective performance management method for Taiwan's private kindergartens, lack of research into administration of early childhood institutions, difficulties in operating private kindergartens, addition of parents' inputs, and testing Balanced Scorecard theory in a kindergarten setting.

## Chapter 2

### REVIEW OF LITERATURE

#### Introduction

The purpose of this chapter is to review the literature that relates to the *Balanced Scorecard (BSC) Model*; *2005 Baldrige Education Criteria for Performance Excellence*, and *quality criteria in assessing early childhood programs*.

The review is presented in four sections. *The first section* is related to the Balanced Scorecard Model. This part introduces the basic Balanced Scorecard concept, discusses the benefits and limitations of the Balanced Scorecard, and examines those who use the Balanced Scorecard. This part is divided into three subsections. First, applications of the Balanced Scorecard in the profit sector will be discussed. Second, we will look at how the balanced scorecard has been successfully implemented in the public and nonprofit sectors. Third, the subsection will cover the literature on the implementation of the Balanced Scorecard (BSC) concept in educational setting.

*The second section* relates to the 2005 Baldrige education criteria for performance excellence. *The third section* reviews the quality criteria in assessing early childhood programs. *The last section* covers the hypothesized concept model of the present study.

#### Balanced Scorecard Model

##### Balanced Scorecard Concept

The balanced scorecard can be briefly defined as a new strategic management system that translates an organization's mission and overall strategy into specific, tangible objectives and measures. It emphasizes communicating the organizational strategy to the members; and provides feedback that can be used to help attain objectives. The Balanced Scorecard (BSC) is an integrated set of financial and non-financial measures that draw

from four perspectives: financial, customer, internal business processes, and learning & growth. Kaplan and Norton (1992) addressed four key perspectives from which a company's activity can be evaluated:

- (1) Financial perspectives (how do we look to our shareholders?)
- (2) Customer perspectives (how do customers see us?)
- (3) Internal process perspectives (what must we excel at?)
- (4) Learning and innovation perspectives (Can we continue to improve and create value?)

These four perspectives constitute the framework of the Balanced Scorecard (see Figure 2.1).

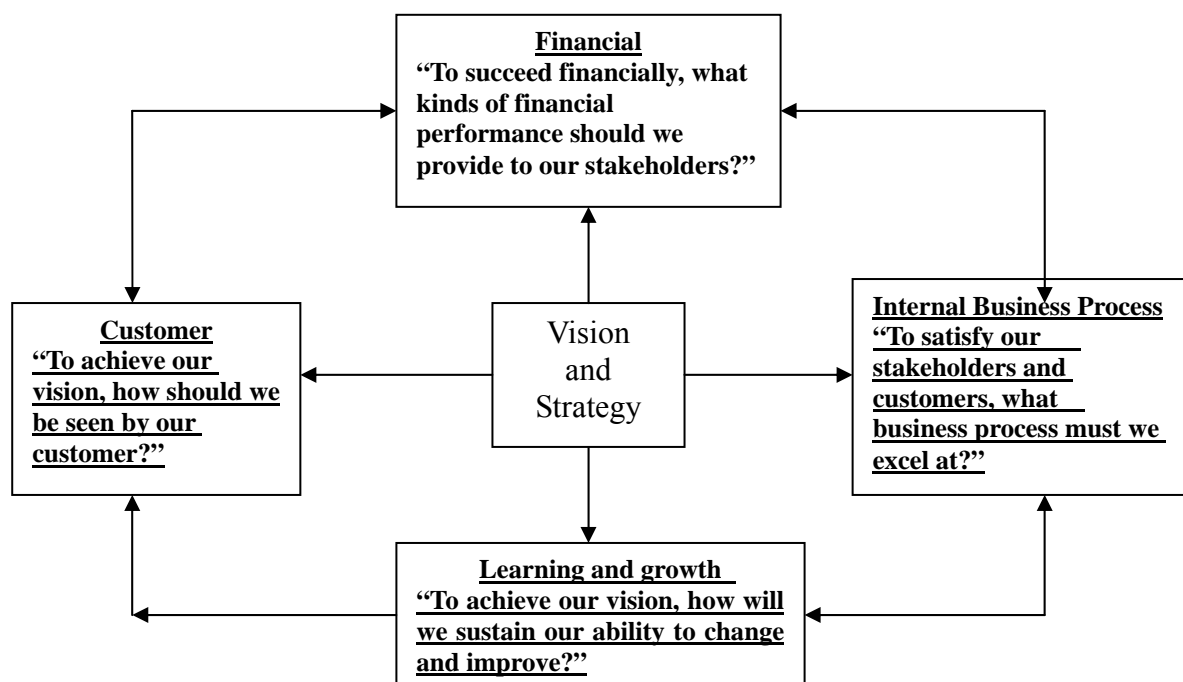


Figure 2.1.

#### Balanced Scorecard Framework

(Source: Adapted from R. S. Kaplan & D. P. Norton (1996a), Using the balanced scorecard as a strategic management system, *Harvard Business Review*, January/February, p. 76.)

Paul R. Niven (2002) regarded the Balanced Scorecard as a performance measurement system, a strategic management system, and a communication tool, derived from vision and strategy, and reflecting the most important aspects of the organization. The



Balanced Scorecard reflects the balance as follows:

- (1) Short- and long-term objectives
- (2) Financial and non-financial measures
- (3) Objective and subjective measures
- (4) Lagging and leading indicators (i.e., outcome measures vs. performance drivers)
- (5) External and internal performance perspectives

However, many people still have some common misconceptions about the BSC. The Balanced Scorecard is not just a measurement system or strategy development process. It is a performance management process and strategy implementation tool. The costs of measurement will not be used against us. The Balanced Scorecard will reduce the cost not providing value. The results of measurement will give feedback to the member of organization instead of using against them. A good Balanced Scorecard has not only quantitative objectives and measures but also qualitative objectives and measures (City of Rockwall, Texas, 2004).

### **The Benefits and Limitations of the Balanced Scorecard**

First, let's look at the benefits of the Balanced Scorecard. The Balanced Scorecard provides several benefits to organizations. It not only allows an organization to translate the overall mission statement and strategy into a series of functional actions and initiatives but also permits real deployment and implementation of the strategy on a continuous basis. At all levels of the organization, the Balanced Scorecard helps align key performance measures with strategy and facilitates communication and understanding of an organization's overall goal. People in an organization will readily understand their role and make every effort to achieve that goal. The Balanced Scorecard helps everyone in the organization understand the following: (1) the cause-and-effect relationships of the things they do; (2) the mission, vision, and strategy of the organization; (3) the long-term effects of actions; and (4) everyone's contributions.

The Balanced Scorecard could provide management with a “comprehensive and big picture” snapshot plus access to detail. The method helps the organization in identifying whether or not progress is being made and conducting period reviews. It offers strategic feedback and information needed to make adjustments to strategies and activities as necessary.

The Balanced Scorecard could be used as a control tool and provides a context for all other management instruments from Benchmarking, Activities Based Management (ABM) to Total Quality Management. (TQM). Kaplan and Norton (1996b) noted the organization’s BSC is interlinked with leadership and strategic planning and incorporated into other frameworks but still remains simple enough for people to understand.

In addition, the Balanced Scorecard has been nicely adapted to profit settings and has been applied in non-profit settings. Even if it’s too early to make a judgment about its success or failure in the public, its simplicity or complexity depends on how the organization and people use it. Its simplicity stems from the idea that only four basic areas need to be addressed.

What are the limitations of the BSC? The Balanced Scorecard provides a solid sound foundation and practical concepts to use in developing measures that track progress toward goals, translate organizational strategy to action, and forecast the health and wealth of an organization. But the BSC has several limitations, which are listed below.

First, *negligence of others*: The stakeholders, as well as the customer, are ignored in the Balanced Scorecard model (Graham, 2003). Atkinson, Waterhouse and Wells (1997) argued that the Balanced Scorecard fails to highlight the contributions that employees and suppliers make to help the organization achieve its objectives. Smith (1998) even noted that the role of “motivated employees”, a critical issue in the service sector, is not well explained in the Balanced Scorecard model.

Second, *limitation of Measurement*: Graham Kenny (2003) believed that crucial

measures in the Balanced Scorecard model are almost inevitably overlooked and the best way to develop performance measurement system is to categorize measures by key stakeholders (customer, employees, shareholders, suppliers) and link measurements to organization direction. Smith (1998) stated that there is no clear provision for very long-term measures. So, developing the right measures for the organization is still a critical issue in the Balanced Scorecard model. In general, the Balanced Scorecard measures should be fully integrated into the chain of cause-and effect relationship that describe the trajectory of the strategy.

Third, *limitation of Model*: Some researchers argued that the Balanced Scorecard designing process is too complex (Andersen, Lawrie, & Shulver, 2000). Even its general idea is simply derived from the four dimensions. Others noted that having only four dimensions is too arbitrary (Graham, 2003). Therefore, further empirical validation is needed later on. However, Kaplan and Norton said that “the four perspectives provide a template, not a strait jacket. Companies should include perspectives on the scorecard as needed by their unique circumstances. The scorecard should include measurements that are vital to the success of the unit’s strategy” (p.34).

### **Balanced Scorecard Adopters**

After its introduction in 1992, the Balanced Scorecard concept appeared to be extremely successful and was overwhelming implemented in the profit sector and later applied in the nonprofit, government, hospital, and education sectors. By the end of 2001, over 60% of United States firms were using the Balanced Scorecard and about 36% of global companies were working with the BSC (Root & Smith, 2003).

### ***Balanced Scorecard applied in the Profit Sector.***

The Balanced Scorecard was originally derived for business. Many for-profit companies regarded the Balanced Scorecard as an invaluable tool for focusing and sustaining their revitalization and continuous improvement efforts (Hoffecker &

Goldenberg, 1994; Kaplan, 1994; Kaplan & Norton, 1996a,b; Maisel, 1992). Driven by an urgent call from the majority of U.S. companies (80% of large American companies) for improvements in the performance measurement area and seeking better measurement systems (Birchard, 1995; Kurtzman, 1997), the Balanced Scorecard seems to be a solution that focuses on key aspects of operations, establishes goals for them and then selects measures to use in tracking progress toward the goals. These measures provide a holistic view of what is happening inside and outside of organizations, allowing each participant to see how individuals could contribute to the overall mission (Bailey et al., 1999). The total usage of Balanced Scorecard increased from 40% in 1996 to over 60% in 2002 and overall satisfaction is around 80% (Rigby, 2003).

Much research, articles, and published books have documented the advantages of the Balanced Scorecard and its application in the for-profit sector (Hoffecker & Goldenberg, 1994; Kaplan & Norton, 1992; 1993; 1996a,b,c; Kurtzman, 1997; Maisel, 1992; Migliorato, Natan & Norton, 1996; Newing, 1994, 1995). A list of successful users in the profit sector includes AT&T, Brown and Root, Intel, 3Com, Elf Atochem, the AM & R division of Mobil Oil, and Tenneco. Norton and Kaplan (2001) shared more than twenty in-depth cases studies, including Mobil, Cigna, and AT&T Canada, in their book, *The Strategy-Focused Organization*.

After adopting the Balanced Scorecard, Mobil leapt from last to first in profitability from 1993 to 1995, a rank it maintained for the next four years (Berkman, 2002). Brown and Root were another tremendous story, moving from a loss to number one in growth and profitability.

In the service sector, adopters of the Balanced Scorecard include the international accounting firms KPMG Peat Marwick and Ernst and Young (Irvine, 1993; Vitale, Mavrillac & Hauler, 1994), banks, and the insurance industry. The Bank of Montreal cut roughly \$350 million in costs and productivity was back in line with industry averages by

the end of 1993 after implementing BSC. Chemical Bank increased profits 20 times from 1993 to 1998 (Kerr, 2002). In the insurance industry, the stock price for Cigna went from \$59 per share in 1993 to \$205 per share in 1997 and Allstate Corp. developed a balanced set of measures and achieved higher levels of customer satisfaction, employee and process effectiveness, and innovation (Birchard, 1995). Holloway Consulting Services (HCS), a service firm, attempted to develop and implement a Balanced Scorecard that incorporates both financial and non-financial measures within the strategic context of a knowledge-based firm (Moore et al., 2001).

### ***Balanced Scorecard Applied in the Nonprofit Sector***

In 1996, the nonprofit and government sectors began to adopt the Balanced Scorecard model. Over the next four years the model became widely accepted and adopted. The business sector is different from the public and nonprofit sectors in nature. These differences are in task, responsibility, success criterion, client and financing. The primary task of business is to sell goods and services in order to obtain profit; in the other hand, the public administration is to manage societal tasks, produce and organize public services. In responsibility and accountability perspective, the business focus on shareholders and public sector emphasizes on stakeholders (politicians representing the citizens, partly directly to citizens, enterprises and communities). The success criterion of business is to make profitability (shareholder value) and the public is to track the results of organization (stakeholder value). The financial resource of business is from the customers paid and received by the company and the public is from the taxes paid by the citizens and received by the state and the municipalities (Kekkonen, 2002). Because of these differences, a Balanced Scorecard designed for nonprofits and government organizations needed to be modified from its original architecture.

An obvious distinction between the private- and public-sector Balanced Scorecard is that, for a nonprofit or government agency, mission is placed at the top of the framework

and the concern is with the organization's customers rather than its financial shareholders (Kaplan & Norton, 2001; Niven 2002). In a public-sector Balanced Scorecard, the mission at the top could be considered a long-term objective, such as the reduction in poverty or illiteracy, decrease in the incidence of HIV, improvement in the environment, or increase in public safety.

Successful cases in the government and nonprofit sectors that involved adopting and developing the Balanced Scorecard include the City of Charlotte, federal government agencies, the Texas State Auditor's office, City of Brisbane, Australia, the Convention of Scottish Local Authorities (COSLA) in United Kingdom; United Way of Southeastern New England, the May Institute, a Massachusetts nonprofit institution, New Profit, Inc., a Boston-based venture capital philanthropic fund, Duke Children's Hospital, Montefiore Hospital, and Brigham and Women's Hospital (COSLA, 2005; Gustafson & Schade, 2002; Kaplan & Norton, 2001; Niven 2002). In order to satisfy the donors and citizens who provide funding for services, effective delivery of services to customers from a financial perspective is the priority concern in the Balanced Scorecard Model. After these modifications, the managers in government and nonprofit organizations may improve performance and stimulate continuous improvement (Kaplan & Norton, 2001).

### ***Balanced Scorecard Applied in the Education Sector***

Siri and Miller (2001) pointed out that "schools and districts are learning from the experiences of American business" (p.2). In addition, highly regarded Washington Post columnist David Broder's recent editorial, "Using Business Methods to improve Schools" casts a national spotlight (Clark, 1999). It is obvious that borrowing a business model and applying it in the educational sector is not impossible any more.

Despite the many applications of the Balanced Scorecard in the for-profit sector, an extensive search of the literature revealed only a few applications by educational institutions that have been reported to date (Bailey et al., 1999; Haddad, 1999). In 1993,

there was an initiative by the University of California-San Diego (UCSD) to launch a Balanced Scorecard planning and performance system for 3 non-instructional functions: (a) UCSD's internal financial reports; (b) National Association of College and University Business Officers (NACUBO) benchmarks; and (c) faculty, staff, and student customer satisfaction surveys (National Association of College and University Business Officers, 1996). Due to the many positive benefits and favorable outcomes, the initiative was selected for the NACUBO's 1996 Higher Education Award. The other application occurred at the University of California-Irvine, which promoted long-lasting organizational change and process improvement. The Balanced Scorecard is believed to be the most powerful system driving force behind the university's efforts to become a top-ranking research institution by the year 2000 (NACUBO, 1996).

Chang and Chow (1999) discussed the applicability of the Balanced Scorecard used by accounting educators to stimulate, guide, and sustain continuous improvement efforts. The results showed positive support of the Balanced Scorecard's potential applicability and benefits to accounting programs after collecting survey and interview responses from 69 accounting department heads. Suggested scorecard components, goals, and measures are summarized in the Table 2.1. The *customer* perspective focuses on how well the organization is meeting customers' expectations. In the *customer* perspective, five goals were identified and regarded as useful: effective student placement, quality instruction, highly valued program, quality academic advising, and flexible course scheduling. In assessing quality instruction, "Alumni evaluation", "graduating student survey", "accreditation", "recruiter evaluation", and "professional exam-passing rate" are most frequent suggested measures. The *internal business* perspective tracks on the ability of the internal process to satisfy current and future customer expectations. In the *internal business* perspectives, five goals were most often selected: quality assurance, internship program, cost efficiency, optimal class size, and unique or specialized curriculum. For assessing the

optimal class size, “average class size for majors” and “average class size compared to other institutions” are employed. The *innovation and learning* perspective emphasizes improving an organization’s ability and capacity to both satisfy customer demands and improve process efficiency and effectiveness. In the *innovation and learning* perspective, five goals were affirmed: faculty professional growth, incorporating technology into teaching, innovation in teaching, curriculum innovation and partnering with accounting/business firms. In order to tack success in curriculum innovation, two measures were set up and considered be appropriate: the number of curriculum revisions in last five years and number of new course offered in last five years. The *financial* perspective keeps track of how well the organization is translating its operational achievements into financial results. In the *financial* perspective, three goals were considered: prosper, succeed and survive. “Enrollment trend” and “test scores or GPA of new major” were regarded as measures to use in assessing success in achieving goals. Below is Table 2.1.

Table 2.1  
Frequent of Goals and Measures Identified by Accounting Departments Heads as Being Most Useful

<b>Component one: <i>Customer Perspective: How do customers see us?</i></b>	
<i>Goals</i>	<i>Measures</i>
Effective Student placement	<ul style="list-style-type: none"> <li>➤ Percentage of students with job offer at graduation</li> <li>➤ Number of companies recruiting on campus</li> <li>➤ Graduates recruited by (the then) Big 6 firms</li> <li>➤ Average starting salaries of graduates</li> </ul>
Quality instruction	<ul style="list-style-type: none"> <li>➤ Alumni evaluation</li> <li>➤ Graduating student survey</li> <li>➤ Accreditation</li> <li>➤ Recruiter evaluation</li> <li>➤ Professional exam-passing rate</li> </ul>
Highly valued program	<ul style="list-style-type: none"> <li>➤ External ranking or ratings in the press</li> <li>➤ Percentage of enrollment out of applications</li> </ul>
Quality academic advising	<ul style="list-style-type: none"> <li>➤ Student evaluation of advising</li> </ul>

(Table continues)



Table 2.1 (Continued)  
Frequent of Goals and Measures Identified by Accounting Departments Heads as Being Most Useful

Flexible course scheduling	<ul style="list-style-type: none"> <li>➤ Student satisfaction survey</li> <li>➤ Offering frequency of required courses</li> </ul>
<b>Component two: <i>Internal Business Perspective: At What Must We Excel?</i></b>	
<i>Goals</i>	<i>Measures</i>
Quality assurance	<ul style="list-style-type: none"> <li>➤ Distribution of grades award</li> <li>➤ Exit exam or student competency evaluation</li> <li>➤ Prerequisite enforcement rate</li> </ul>
Internship program	<ul style="list-style-type: none"> <li>➤ Number of internships available</li> <li>➤ Number of companies involved</li> <li>➤ Student evaluation</li> </ul>
Cost efficiency	<ul style="list-style-type: none"> <li>➤ Faculty-to-student ratio</li> <li>➤ Educational expenses per student</li> </ul>
Optimal class size	<ul style="list-style-type: none"> <li>➤ Average class size for majors</li> <li>➤ Average class size compared to other institutions</li> </ul>
Unique or specialized curriculum	<ul style="list-style-type: none"> <li>➤ Number of faculty in the specialized area</li> <li>➤ Number of other schools offering the same program</li> </ul>
<b>Component three: <i>Innovation and learning Perspective: Can We Continue to Improve and Create Value?</i></b>	
<i>Goals</i>	<i>Measures</i>
Faculty professional growth	<ul style="list-style-type: none"> <li>➤ Number of faculty presentations at conferences</li> <li>➤ Number of faculty publications</li> <li>➤ Number of seminars attended by faculty</li> <li>➤ Travel budget for conference attendance</li> </ul>
Incorporating technology into teaching	<ul style="list-style-type: none"> <li>➤ Number of courses incorporating new technology</li> </ul>
Innovation in teaching	<ul style="list-style-type: none"> <li>➤ Number of teaching innovation projects</li> <li>➤ Number of teaching workshops attended by faculty</li> </ul>
Curriculum innovation	<ul style="list-style-type: none"> <li>➤ Number of curriculum revisions in last five years</li> <li>➤ Number of new courses offered in last five years</li> </ul>
Partnering with accounting/ business firms	<ul style="list-style-type: none"> <li>➤ Number of firms involved in joint activities</li> <li>➤ Number of joint activities</li> </ul>

(Table continues)

Table 2.1 (Continued)  
Frequent of Goals and Measures Identified by Accounting Departments Heads as Being Most Useful

<b>Component four: <i>Financial Perspective: How Do We Look to Providers of Financial Resources (Such as Governmental Agencies)? (Or: How Well are We Doing Financially?)</i></b>	
<i>Goals</i>	<i>Measures</i>
Prosper	<ul style="list-style-type: none"> <li>➤ Annual giving to the department</li> <li>➤ Amount of permanent endorsement</li> <li>➤ Amount of external grants</li> </ul>
Succeed	<ul style="list-style-type: none"> <li>➤ Enrollment trend</li> <li>➤ Test scores or GPA of new majors</li> </ul>
Survive	<ul style="list-style-type: none"> <li>➤ Level of student enrollment</li> <li>➤ Funding per student</li> </ul>
a Number of participants selecting this goal as a percentage of the entire sample of 69. b Number of participants selecting this measure as a percentage of the number who had selected the associated goal. (Source: Adopted from Chang & Chow (1999), pp. 404-405, <i>The Balanced scorecard: A potential tool for supporting change and continuous improvement in accounting education</i> )	

Similar research was conducted by Bailey et al. (1999). The researchers mailed 500 surveys to 500 business school deans and collected 38 effective responses. The survey explained the Balanced Scorecard approach to stimulating and sustaining continuous improvement and reported the 38 business school deans' positive opinions on the Balanced Scorecard approach, all of which showed it to be worthy of serious consideration. The researchers summarized the suggested goals and related measures for the four perspectives (see Appendix A). In the *customer* perspective, four subsections were included: the stakeholders; quality program; public image; and quality service and continuous improvement. A wide variety of goals and measures were suggested. These included quality of teaching and advising; pre/posttests; student portfolios; GPA over time; and integration of technology into curriculum. These measures are used to assess fulfillment of one goal: developing high-quality students. In the *internal business* perspective, five subheadings that reflected different goals and measures were presented: teaching/learning excellence; curriculum/program excellence and innovation; quality and currency of faculty; efficiency and effectiveness of service; and strategic issues. For producing and assessing "quality

faculty”, faculty credentials, development plans, appraisals, and endowed chairs were possible measures. In the *innovation and learning* process, the deans noted three subsections: teaching/learning excellence and innovation; quality of facilities; and mission-driven processes and reward system. To measure teaching/learning innovations, a few measures were collected and listed, including methods update, degree of newest technology, number of innovations incorporated into classroom, and so on. In the *financial* perspective, the researchers grouped the deans’ suggestions into five subsections: fund raising; revenue from operations; human capital investments; financial management; relationships and public image. To measure the success of financial management, balanced budget, and growth in fund raising, funds totally accountable was viewed as a suggested indicator.

Another application of the Balanced Scorecard in business education may be found in research by Haddad (1999). Haddad revealed that business education needed to seek new ways to create future value and explained how the Balanced Scorecard could help finance departments’ stimulation and energizing of continuous improvement. The potential components of a useful Balanced Scorecard suggested by a sample of finance department chairs are depicted in Table 2.2 In the *customer* perspective, students, parents, and employers are treated as key customer groups. The goal frequently mentioned by the finance chairs is effective student placement. The measures ranged from student evaluation of instruction and courses to assessing students after graduation to assure student preparation, which encompasses not only an emphasis on quality of instruction and the practicality of the courses offered but also focuses on developing the full range of skills needed to succeed. In the *internal business* perspective, many goals were mentioned by the finance department chairs, such as teaching/learning excellence; increased recruitment and retention; curriculum excellence and innovation; provision of necessary course offerings; flexibility; efficiency; communicating; quality research, and so on. The suggested measures

for tracking progress toward these goals ranged from student satisfaction and employer satisfaction, to the degree to which the curriculum is practical and up-to-date. In the *Innovation and learning* perspective, an example of suggested goals and measures is “working more closely with the business community” which was measured by the number of faculty involved with business, faculty internships, and advisory boards in use, among others (Table 2.2, Panel C) In *Financial* perspectives, the suggested goals included increases in grants, corporate sponsorship and private support. The measures underlying these goals are very revenue oriented, including number and total dollars of award, number of scholarships, and increase in private giving (Table 2.2, Panel D)

Table 2.2  
An Illustrative Balanced Scorecard Based on Finance Department Chairs’ Suggestions

<b>Panel A: Customer Perspective</b>	
<u>Goals</u>	<u>Measures</u>
High-quality instruction (3) <sup>a</sup>	<ul style="list-style-type: none"> <li>➤ Student evaluations (2)</li> <li>➤ Senior exit interviews</li> <li>➤ Alumni evaluation (2)</li> <li>➤ Assessment test results-valued added</li> <li>➤ Professional exam pass rate</li> <li>➤ GMAT/GRE/LSAT results</li> <li>➤ Graduates’ feedback</li> </ul>
High-quality courses	<ul style="list-style-type: none"> <li>➤ Course ratings</li> <li>➤ Peer review</li> <li>➤ Faculty mentoring faculty</li> <li>➤ Student satisfaction</li> </ul>
Practical courses (2)	<ul style="list-style-type: none"> <li>➤ Alumni comments</li> <li>➤ Advisory board feedback</li> <li>➤ Student performance (scholarly)</li> <li>➤ Student performance (are they moving up at a reasonable pace after graduation)</li> </ul>
Strong student skills (2)	<ul style="list-style-type: none"> <li>➤ Student performance</li> <li>➤ Employment opportunities</li> <li>➤ Exit exams</li> </ul>
Student satisfaction	<ul style="list-style-type: none"> <li>➤ Course ratings</li> <li>➤ Exit surveys</li> <li>➤ Dean’s forums</li> </ul>

(Table continues)

Table 2.2 (Continued)  
An Illustrative Balanced Scorecard Based on Finance Department Chairs' Suggestions

Employer satisfaction (2)/ Effective student placement(6)	<ul style="list-style-type: none"> <li>➤ Placement rate (4)</li> <li>➤ Employer surveys (2)</li> <li>➤ Number of employers recruiting on campus (2)</li> <li>➤ Geographical diversity of employers</li> <li>➤ Number of interviews in finance (2)</li> <li>➤ Internship programs</li> <li>➤ Number of employee requests</li> <li>➤ % receiving in-field employment</li> <li>➤ Company relation as shown through additional hires</li> <li>➤ Employer interaction with department</li> </ul>
Student success in finance careers	<ul style="list-style-type: none"> <li>➤ Alumni evaluation</li> </ul>
Parental satisfaction	<ul style="list-style-type: none"> <li>➤ Sibling attendance</li> <li>➤ Parental information (response to surveys)</li> <li>➤ Long-term giving</li> </ul>
Flexible scheduling	<ul style="list-style-type: none"> <li>➤ Student comments</li> <li>➤ Rotation of courses</li> <li>➤ Number and proportion of night courses</li> </ul>
Latest technology	<ul style="list-style-type: none"> <li>➤ Use of simulation</li> <li>➤ Number of computer exercises or applications</li> <li>➤ Employer suggestions</li> </ul>
Excellence in research	<ul style="list-style-type: none"> <li>➤ Demand for faculty expertise</li> </ul>
<b>Panel B: Internal Business Perspective</b>	
<u>Goals</u>	<u>Measures</u>
Teaching/Learning excellence(2)	<ul style="list-style-type: none"> <li>➤ Employer satisfaction</li> <li>➤ Student satisfaction</li> <li>➤ Student ratings</li> <li>➤ Placement rates</li> <li>➤ Pass rate on professional exams (CFA,CFP,etc.)</li> <li>➤ Quality of recruiters</li> <li>➤ Alumni satisfaction with program</li> </ul>
Increased recruitment and retention	<ul style="list-style-type: none"> <li>➤ Number of incoming freshmen</li> <li>➤ Graduation rate</li> <li>➤ Growth rate in MBA; retention rate</li> </ul>
Curriculum excellence and innovation	<ul style="list-style-type: none"> <li>➤ Number of new courses developed</li> <li>➤ Employer satisfaction</li> <li>➤ Degree curriculum is practical and up-to-date</li> <li>➤ Research output of faculty</li> </ul>

(Table continued)

Table 2.2 (Continued)  
An Illustrative Balanced Scorecard Based on Finance Department Chairs' Suggestions

Provision of necessary course offerings	<ul style="list-style-type: none"> <li>➤ Number of waivers/substitution due to failure to offer required courses</li> <li>➤ Complaint rate</li> <li>➤ Student satisfaction</li> </ul>
Career counseling for students	<ul style="list-style-type: none"> <li>➤ Placement rate</li> </ul>
Productive work environment-faculty	<ul style="list-style-type: none"> <li>➤ Success rate in promotion and tenure</li> </ul>
Atmosphere of professional collegiality	<ul style="list-style-type: none"> <li>➤ Number of faculty seminars meetings, etc</li> </ul>
AACSB reaccreditation	<ul style="list-style-type: none"> <li>➤ Continuous improvement measures</li> <li>➤ Ethics course offerings</li> <li>➤ International course offering</li> </ul>
Flexibility	<ul style="list-style-type: none"> <li>➤ Number and proportion of faculty teaching in multiple series including integrative courses</li> </ul>
Efficiency(2)	<ul style="list-style-type: none"> <li>➤ Student faculty ratio; cost/student</li> <li>➤ Degree cycle time</li> <li>➤ Student enrollment per course</li> <li>➤ Use of outside faculty</li> </ul>
Balanced fiscal management	<ul style="list-style-type: none"> <li>➤ Adherence to financial policies</li> <li>➤ Operate within budget</li> </ul>
Communicating	<ul style="list-style-type: none"> <li>➤ Performance evaluation</li> </ul>
Quality research	<ul style="list-style-type: none"> <li>➤ Number of publications in top journals</li> <li>➤ Seminar activity; consulting</li> </ul>
Outstanding department visibility	<ul style="list-style-type: none"> <li>➤ Ranking in major surveys (e.g., <i>Business Week</i>)</li> <li>➤ Favorable press coverage</li> <li>➤ Placement of Ph.D. students</li> <li>➤ Career placements after graduation</li> <li>➤ Application rates</li> <li>➤ Increased scholarships, endowments, gifts</li> <li>➤ Quality of firms recruiting on campus</li> <li>➤ Editorships</li> <li>➤ Ability to recruit top candidates</li> </ul>
Cross training faculty	<ul style="list-style-type: none"> <li>➤ Switching faculty teaching assignments</li> <li>➤ Repetition of course assignments</li> </ul>
Committee work	<ul style="list-style-type: none"> <li>➤ Average number of assignments</li> <li>➤ Appointment to important committees</li> </ul>
Teaching awards	<ul style="list-style-type: none"> <li>➤ Nomination for awards</li> <li>➤ Actual awards</li> </ul>

(Table continues)

Table 2.2 (Continued)  
An Illustrative Balanced Scorecard Based on Finance Department Chairs' Suggestions

<b>Panel C: Innovation and learning Perspective</b>	
<u>Goals</u>	<u>Measures</u>
Curriculum revision and innovation (3)	<ul style="list-style-type: none"> <li>➤ Number of new courses</li> <li>➤ new/reviewed courses</li> <li>➤ Department curriculum committee</li> <li>➤ use of electronic media; new text</li> <li>➤ Revision frequency</li> </ul>
Program innovations	<ul style="list-style-type: none"> <li>➤ Number of new executive programs</li> <li>➤ Special degree programs; number of new courses per year</li> <li>➤ Number of new initiatives</li> </ul>
High level of research (5)	<ul style="list-style-type: none"> <li>➤ Number of publications</li> <li>➤ Faculty self-reporting of publications; quality of publications (2)</li> <li>➤ Number of refereed publications</li> <li>➤ Number of publications in major journals (2)</li> <li>➤ Average number of articles per faculty</li> <li>➤ Number of presentations</li> <li>➤ Number of publications in a variety of venues (academic, professional, pedagogical)</li> </ul>
Teaching innovations (2)	<ul style="list-style-type: none"> <li>➤ Number of on-going instructional development programs</li> <li>➤ Faculty development seminars/workshops attended</li> <li>➤ Number of innovations incorporated into classroom</li> <li>➤ Degree newest technology is used in instruction</li> <li>➤ Use of technology and interactive learning; funds allocated for such efforts</li> <li>➤ Classroom innovation (successful) as measured by student outcomes</li> </ul>
Continuous improvement in instruction	<ul style="list-style-type: none"> <li>➤ Student evaluations</li> <li>➤ Employer responses to surveys</li> <li>➤ Administrator evaluations</li> <li>➤ Curriculum changes</li> </ul>
Business/industry interaction (2)	<ul style="list-style-type: none"> <li>➤ Number of faculty involved with business</li> <li>➤ Faculty internships</li> <li>➤ Advisory boards in use</li> </ul>

(Table continues)

Table 2.2 (Continued)  
An Illustrative Balanced Scorecard Based on Finance Department Chairs' Suggestion

Business/industry interaction (2)	<ul style="list-style-type: none"> <li>➤ Provision of consulting and other services to the community</li> <li>➤ Number of new partnerships per year</li> <li>➤ Student internships</li> <li>➤ Corporate giving</li> </ul>
Integrating computers/ technology in the classroom	<ul style="list-style-type: none"> <li>➤ Student test scores</li> <li>➤ Acquisition of data bases</li> <li>➤ Expenditures on hardware and software</li> <li>➤ Practices/application of technology in projects</li> </ul>
➤ <b>Panel D: Financial Perspective</b>	
<u>Goals</u>	<u>Measures</u>
Appropriate budget management(2)	<ul style="list-style-type: none"> <li>➤ Extent university financial policies and procedures are followed</li> <li>➤ Operate within budget</li> <li>➤ Annual review of expenditures</li> <li>➤ Funds totally accountable</li> </ul>
Increased private support/ endowment	<ul style="list-style-type: none"> <li>➤ External dollars raised</li> <li>➤ Number of contacts per period</li> <li>➤ Increase in private giving</li> <li>➤ Size and growth of endowment</li> <li>➤ Number of donors</li> </ul>
Increased Grants(3)	<ul style="list-style-type: none"> <li>➤ Number of awards</li> <li>➤ Total dollar of awards</li> <li>➤ Profit-sharing revenues from programs</li> </ul>
Corporate scholarships	<ul style="list-style-type: none"> <li>➤ Number of scholarships</li> <li>➤ Dollars of scholarships</li> <li>➤ Number of new awards per year</li> </ul>
Increased enrollment trends	<ul style="list-style-type: none"> <li>➤ Number of students in major; number of first time freshmen this year compared to last year</li> </ul>
Maintain enrollment to insure adequate class size and availability	<ul style="list-style-type: none"> <li>➤ Average spread of call size</li> </ul>
Retention of students	<ul style="list-style-type: none"> <li>➤ % of returning students</li> </ul>
Increase the number of graduate offerings	<ul style="list-style-type: none"> <li>➤ Number of new graduate programs</li> </ul>
Increase in the number of graduates	<ul style="list-style-type: none"> <li>➤ Number of graduating seniors</li> </ul>
Establish faculty workload	<ul style="list-style-type: none"> <li>➤ Assign workloads to the faculty strengths- faculty as a portfolio</li> </ul>
Stated goal's attainment	<ul style="list-style-type: none"> <li>➤ Actual versus stated</li> </ul>
Ties to financial community	<ul style="list-style-type: none"> <li>➤ Number of initiatives</li> <li>➤ Research centers promotion activities</li> </ul>
*Numbers in parentheses are the number of department chairs mentioning a particular goal or measure. (Source: Adopted from Haddad (1999), pp. 95-96, Using the Balanced Scorecard for improving finance education)	



Performance management was designed to ensure that organizations, units, departments, and individuals work effectively and efficiently. Storey (2002) studied the Balanced Scorecard, identified the potential and limitation of the Balanced Scorecard in a UK schools context, and later outlined a research agenda. In *financial* perspective, the measures are cash flow; maintain surplus; cover costs; investments levels in building and equipment; and financial processes in operation in school. First choice; attendance levels; value-added; examination outcomes; attitude survey/satisfaction rating; and extra curricula activities are the measures in *client/student* perspective. In *internal* perspective, the measures are staff satisfaction rating; first choice school of staff; retention rates; attendance levels; and health and safety dimensions/ accident rates. Pedagogic improvement; leadership development; administrative tasks; and technical support are the measures underlining the *learning/innovation* perspective (Storey, 2002)

In observing colleges' and universities' lack of rational measures of institutional accountability, O'Neil et al. (1999) described how a faculty committee at Rossier School of Education adopted the Balanced Scorecard model to measure school performance and allow decision makers to view organizational effectiveness from four perspectives simultaneously. In order to better fit the Balanced Scorecard into the parameters of the academic organization, the researcher made some minor modifications in the wording and questions that define these four perspectives. For example, "financial perspective" was changed to "academic management perspective" and "customer perspective" was replaced with "stakeholder perspective". The stakeholders identified as most significant were students and employers. They asked, "how do we look to our university leadership?" instead of asking, "how do we look to stakeholders?" In addition to these modifications, the Balanced Scorecard model was renamed the "academic scorecard"

The researchers began the process of developing goals and measures for each of the four perspectives and followed the guidelines in selecting measures (indicators). The

criteria for choosing measures (indicators) were: (a) reflecting organizational value; (b) simple; (c) meaningful; (c) easy to represent visually; (d) facilitating organizational learning; (e) supporting comparisons with other similar institutions; and (f) permitting analysis over at least four years. However, these goals and measures are not constant over time due to environmental changes. Some goals and measures might be dropped and new ones added, while the environment and strategy changed. The academic scorecard (for detail, see Table 2.3) encompasses four perspectives such as academic management; stakeholder; internal business perspective; and innovation and learning perspective. The following table shows the goals and measures in different perspective.

Table 2.3  
Academic Scorecard

<b>Academic management (How do we look to our university leadership?)</b>	
<i>Goals</i>	<i>Measures</i>
Improve budget	<ul style="list-style-type: none"> <li>➤ Net surplus of income</li> <li>➤ Endowments</li> <li>➤ Recovery of indirect costs</li> </ul>
Improve school operations	<ul style="list-style-type: none"> <li>➤ Productivity</li> <li>➤ Information</li> </ul>
Improve management	<ul style="list-style-type: none"> <li>➤ University goals are facilitated</li> <li>➤ Asset utilization</li> </ul>
<b>Stakeholder (How do stakeholders see us?)</b>	
<i>Goals</i>	<i>Measures</i>
Quality academic programs	<ul style="list-style-type: none"> <li>➤ Ranking in U.S. News &amp; World Report</li> <li>➤ Teaching effectiveness</li> </ul>
Student-centeredness	<ul style="list-style-type: none"> <li>➤ Quality of students services and advising</li> </ul>
Quality of faculty	<ul style="list-style-type: none"> <li>➤ Publications</li> <li>➤ Research funding</li> </ul>
Value for money	<ul style="list-style-type: none"> <li>➤ Retention</li> <li>➤ Reduced time to degree</li> <li>➤ Return on student investment</li> </ul>
Alumni/employer satisfaction	<ul style="list-style-type: none"> <li>➤ To be developed</li> </ul>
<b>Internal business (What must exceed at?)</b>	
Improve faculty productivity	<ul style="list-style-type: none"> <li>➤ Faculty productivity report</li> <li>➤ Teaching effectiveness</li> </ul>
Improved staff productivity; improve recruitment/advisement; maintain responsibility to community	<ul style="list-style-type: none"> <li>➤ To be developed</li> </ul>

(Table continues)

Table 2.3 (Continued)  
Academic Scorecard

<b>Innovation and learning (Can we continue to improve academic management, stakeholder and internal business perspective?)</b>	
Improve quality of degree programs	<ul style="list-style-type: none"> <li>➤ Academic program review</li> <li>➤ Accreditation/peer review</li> <li>➤ Financial assistance to students</li> </ul>
Increase student learning	<ul style="list-style-type: none"> <li>➤ Learning outcome measures</li> <li>➤ Graduate school/job placement success</li> </ul>
Improve quality of students	<ul style="list-style-type: none"> <li>➤ SAT/GRE scores</li> <li>➤ Student compensation</li> </ul>
Attract/keep talented faculty/staff	<ul style="list-style-type: none"> <li>➤ Salaries</li> <li>➤ Faculty/staff satisfaction</li> </ul>
Increase educational innovation	<ul style="list-style-type: none"> <li>➤ Increase educational technology usage</li> <li>➤ Teaching innovations</li> <li>➤ New degrees</li> <li>➤ Interdisciplinary collaboration</li> </ul>
Faculty/staff	<ul style="list-style-type: none"> <li>➤ To be developed</li> </ul>
(Source: Modify from O'Neil et al. (1999), pp. 35, Designing and implementing an academic scorecard)	

Based on the Balanced Scorecard, Grayson (2004) presented the way he developed a strategy for a private school called the Oak Knoll Academy. The design process included an identification of the organization's mission and vision for the future, a focus on desired results and a balancing of efforts among stakeholders' concerns, financial management, internal processes, and organization capacity.

In designing a strategic management system for schools, the first step is to define a clear mission and vision for the institution. The mission and vision, if properly stated, rarely changes and will remain the same over time. The mission and vision serve as a fixed purpose in guiding decisions and actions. The mission must describe why an organization exists; on the other hand, the vision should indicate how the future will be better because the organization exists. For the Oak Knoll Academy, its mission is "to educate students to possess rigorous academic skills and virtuous characters so that they may lead full and productive lives". In order to fulfill the mission and vision, goals, theme, and activities need to be decided upon that will be used in assessing organizational progress and effectively managing the operation. The Oak Knoll Academy developed a strategy to

use in viewing the organization from four perspectives: stakeholders' perspective, financial perspective, instructional and administrative processes perspectives, and organizational capacity perspective.

In the *stakeholders'* perspective, students, parents, and donors are the primary stakeholders. With regard to the students, it is important that they be engaged in academic learning and the inculcation of personal moral values. The degree to which the school climate is appropriate for student learning could be measured by the amount of time given to inculcating values and assessing parent views. Parents are a key group in choosing their children's education. The parents are more likely to be involved in school activities and enthusiastic about participating in children's learning. This goal could be measured by the number of parents who volunteer, the number of volunteer hours, new ideas to improve the school, and additional enrollment. The donors play an important role in keeping the tuition at affordable levels and coping with the high start-up costs. Donors' satisfaction and commitment could be measured by the number of donors, changes in the number of donors, the size of donations, and the direct discussions with donors.

In the *financial* perspective, setting a sound financial management goal could be measured by variances between planned budgets and actual expenditures, fund balances, the percentage of the budget allocated to overhead, and the degree of reliance on outside donations for operation costs. The *instructional and administrative process* perspective emphasizes delivering value to students as well as marketing the institution to a wider audience of parents and potential donors. The goals include sound curriculum, effective instruction, safety and well-maintained facilities and well-developed marketing plan. All of the suggested measures are varied from test score to the frequency of identifying potential future enrollees.

The *organization capacity* perspective focuses on the capacity of the organization to execute the strategy that is created to develop and operate effective instructional and

administrative processes, to make an successful financial management, and to devote stakeholders' efforts and meet their expectations. This perspective could be divided into people, technology and information, and intangible concerns. The Board must be able to provide effective strategic leadership; the teachers must be dedicated to teaching their children with knowledge, skills, and patience; the administrators and staff members must be competent and have a good relationship with parents, teachers, and other school-related parties. These elements will constitute the strategy map. A strategy map will provide an integrated view of an organization. It is vital to develop a clear strategy for establishing, organizing, and managing any organization, including schools. The strategy map for Oak Knoll Academy is illustrated in Figure 2.2

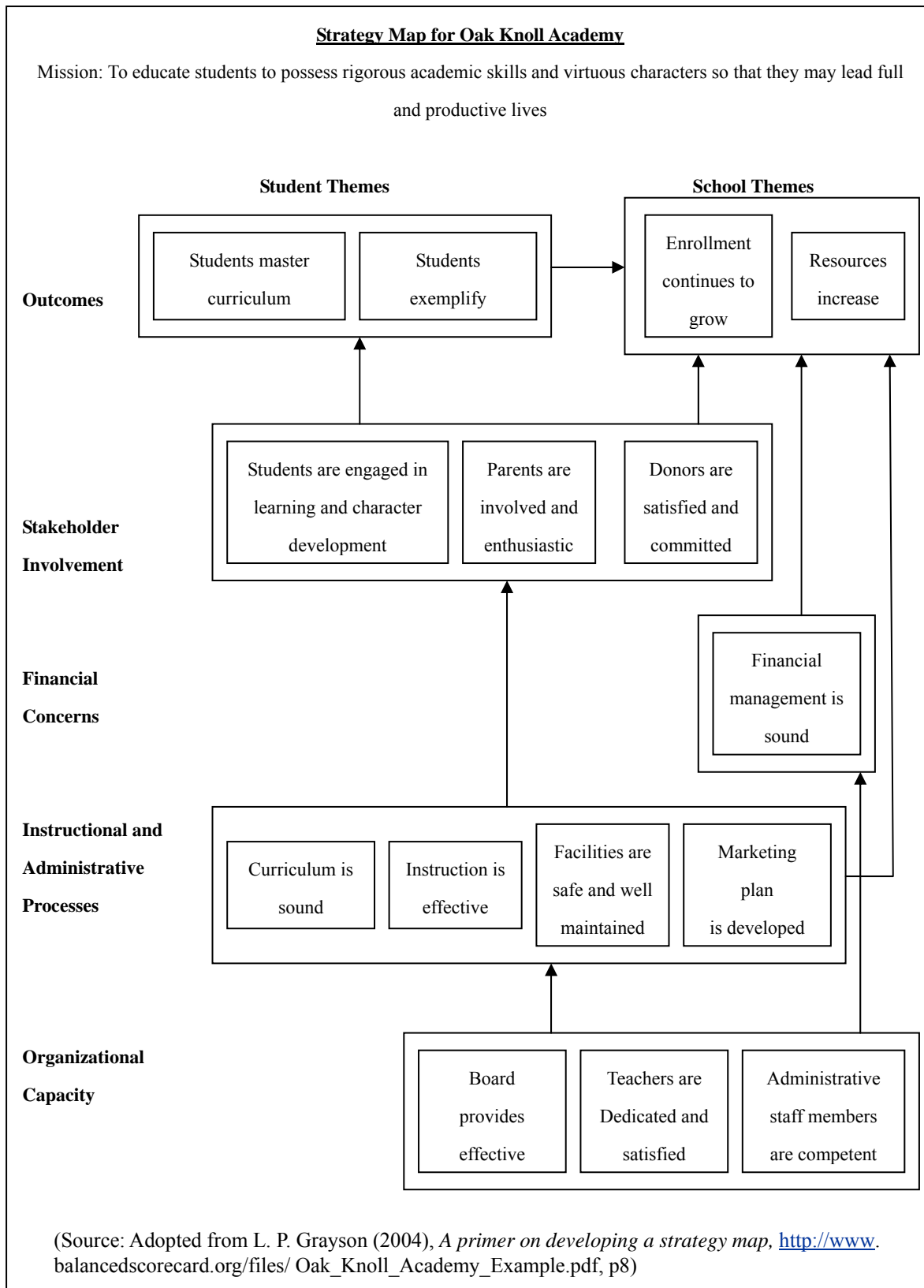


Figure 2.2.  
Strategy Map for Oak Knoll Academy

### Summary of Balanced Scorecard Model

Kaplan and Norton (2001) defined the “balanced scorecard” as a “set of measures that gives top managers a fast but comprehensive view of the organization” and that includes “financial measures that tell the results of actions already taken, as well as operational measures of customer, internal processes, and the organization’s innovation and improvement activities” (O’Neil et al., 1999, p.35). The balanced scorecard has been successfully and widely used in business, government, hospital and non-profit sectors within the United States and other countries. The literature revealed that researchers discuss the adaptability of the balanced scorecard in educational settings. The researcher might modify the name of the scorecard and four perspectives according to his/her research purposes. Table 2.4 (p.43) provides a summary of the four perspectives held by different researchers as reflected in their articles.

After examining the wording of the four perspectives, minor modifications have been applied in this study. The balanced scorecard changed to the private kindergarten scorecard and the four perspectives will be called the *financial*, *stakeholder*, *internal organization process*, and *innovation* perspectives. The *financial* perspective examines organizational resource and expenditure. The *stakeholder* perspective focuses on the parents’, staff’s and teachers’ perceptions of private kindergarten. The *internal organization process* stresses the internal process and organization capacity, and focuses on how well the organization is doing now. The *innovation* perspective emphasizes what the organization is doing to make continue improvements.

Table 2.4  
Name of Four Perspectives by Different Researchers

<b>Name of BSC Four Perspectives</b>	<b>Author</b>
1. <i>Financial</i> 2. <i>Customer</i> 3. <i>Internal business</i> 4. <i>Learning and innovation</i>	Bailey, Chow, & Haddad (1999)
1. <i>Financial</i> 2. <i>Customer</i> 3. <i>Internal business</i> 4. <i>Learning and innovation</i>	Chang & Chow (1999)
1. <i>Financial concerns</i> 2. <i>Stakeholder involvement</i> 3. <i>Instructional and administrative</i> 4. <i>Organizational capacity</i>	Grayson (2004)
1. <i>Financial</i> 2. <i>Customer</i> 3. <i>Internal business</i> 4. <i>Learning and innovation</i>	Haddad (1999)
1. <i>Financial</i> 2. <i>Customer</i> 3. <i>Internal business process</i> 4. <i>Learning and growth</i>	Kaplan & Norton (1996, 2001)
1. <i>Academic management</i> 2. <i>Stakeholder</i> 3. <i>Internal business</i> 4. <i>Learning and innovation</i>	O'Neil, Bensimon, Dimond, & Moore (1999)
1. <i>Financial</i> 2. <i>Client/student</i> 3. <i>Internal</i> 4. <i>Learning and innovation</i>	Storey (2002)

(Source: Collected and recognized by the researcher.)



### **2005 Baldrige Education Criteria for Performance Excellence**

Many organizations adapting the Baldrige criteria have experienced dramatic results. For example, the Missouri School for the Blind found that the Baldrige criteria facilitated the improvement of student performance (Howze, 2000). The Pinellas County School District in Tampa, Florida, has implemented Baldrige criteria with much success and is now ranked very high in student performance (Shipley & Collins, 1996). The Brazosport Independent School District in Texas, which has many students from disadvantaged and minority families, was successful enough with its Baldrige application to be selected for a site visit from examiners and won the Texas State Quality Award (Siegel, 2000). The Indian Hill School District in Ohio, a high-achieving suburban district (Quattrone, 1999), found completing the Baldrige application useful for self-assessment. Many other school districts with generally high performance gained benefits from implementing the Baldrige criteria (Conyers, 2000). The New Jersey Department of Education permits school systems to improve education through implementing the Baldrige criteria as an alternative to its state assessment criteria (Johnson, 1996; NIST, 2005). Two 2001 winners, the Pearl River School District in New York and the Chugach School District in Anchorage, Alaska, reported major student achievement gains as a result of adopting Baldrige (Walpole et al., 2002).

The core values and concepts of the 2005 Education Criteria are summarized below (Karathanos, 1999; NIST, 2005a; Wunder, 1997):

- (1) *Visionary Leadership*. Senior administrators and leaders in organizations should set directions and create a student-focused, learning-oriented climate. The leaders must ensure the creation of strategies, systems, and methods for achieving performance excellence, as well as inspire and motivate the entire workforce and reinforce all faculty and staff development. In addition, senior leaders need to build community support and business partnerships.

- (2) *Learning-centered Education*. The focus is placed on learning and the real needs of students for success in the marketplace and as citizens. Educational organizations must offer effective teaching and learning and prepare students to become active learners and develop problem-solving skills. Key characteristics of learning-centered education include the following:
- Setting high expectations and standards for all students;
  - Understanding that students may learn in different ways and at different rates;
  - Providing a primary emphasis on active learning;
  - Using formative assessment early in the learning process;
  - Periodically using summative assessment to measure progress;
  - Assisting students and families with self-assessment; and
  - Focusing on key transitions such as school-to-school and school-to-work.
- (3) *Organizational and Personal Learning*. Organizations require a well-executed approach for achieving the highest levels of organizational performance. Organizational learning includes continuous improvement and significant change leading to new goals and approach; systematic planning; effective design of educational program; and so on. Personal learning offers faculty and staff opportunities for continuing growth and development; and increasing their satisfaction and motivation to excel.
- (4) *Valuing Faculty, Staff, and Partners*. Diverse backgrounds, knowledge, skills and creativity, and motivations of all faculty, staff, and partners contribute to an organization's success. Valuing faculty and staff means fulfilling their satisfaction, development, and welfare. Both internal and external partnerships need to build and seek to develop longer-term objectives, thereby creating a basis for mutual investment.
- (5) *Agility*. Agility becomes an increasingly vital measure of organizational effectiveness as well as the importance of all aspects of time performance. Faster and more flexible responses to the needs of students and stakeholders are required to today's changing and demanding environment. Time improvement often results in improvements in organization, quality, and cost.
- (6) *Focus on the Future*. Long-term commitments to students and stakeholders are the key to education excellence. Planning needs to anticipate many factors, such

as changes in education requirements and instructional approaches; resource availability; students' and stakeholders' expectations; faculty and staff development; demographics; and so on. Investing in developing and sustaining an assessment system focused on learning is a central long-term commitment.

- (7) *Managing for Innovation*. "Innovation means making meaningful change to improve an organization's programs, services, processes and operation and to create new value for the organizations' stakeholders" (NIST, 2005, p. 4). Accumulated knowledge of an educational organization and its faculty and staff is the driver of organizational innovation.
- (8) *Management by Fact*. An effective measurement system derived from an organization's needs and strategy is important for organizations to manage and analyze performance. Therefore, strong focus on the selection and use of performance measures or indicators should be placed on the design of organizations' performance improvement and change management.
- (9) *Social Responsibility*. An organization's leaders should serve as role models in focusing on ethics and the protection of public health, safety, and the environment. Effective planning, appropriate measures, and leadership responsibility in those measures are all required to maintain public awareness, safety, and confidence.
- (10) *Focus on Results and Creating Value*. An organization's performance measurements should focus on results, especially on those related to student performance and to the effectiveness and efficiency of the use of resources. These results should be used to create and balance value for students and stakeholders.
- (11) *System Perspective*. The Baldrige criteria provide a systems perspective for managing the whole organization and key processes, as well as components, in the move to achieve success-performance excellence.

Seven categories may be used by school districts in self-assessment. These evolved from eleven core values and concepts (NIST, 2005a; Walpole et al., 2002).

- (1) *Leadership*. This category examines the organization's governance; how the organization's senior leaders guide the organization; and how the organization addresses its responsibilities to the public and practices good citizenship.
- (2) *Strategic Planning*. This category examines how the organization develops

strategic objectives and action plans; how the strategic objectives and action plans are deployed; and how progress is measured.

- (3) *Student, Stakeholder, and Market Focus*. This category examines how the organization determines requirements, expectations, and preferences of students, stakeholders, and markets; how the organization builds relationships with students and stakeholders and determines the key factors that lead to student and stakeholder satisfaction and loyalty, persistence, and organizational sustainability, and to excellence in educational service and programs.
- (4) *Measurement, Analysis, and Knowledge Management*. This category examines how the organization selects, gathers, analyzes, manages, and improves its knowledge assets, including data and information; and how the organization evaluates its overall performance.
- (5) *Faculty and Staff Focus*. This category examines how the organization enables its workforce and faculty and staff to develop its full potential in aligning with the organization's overall objectives and action plans; how the organization makes an effort to set up and maintain a work environment; and how faculty and staff support a climate conducive to performance excellence and to personal and organizational growth.
- (6) *Process Management*. This category examines major aspects of the organization's process management, including learning-focused process and the key support process. This category encompasses all key processes and all work units.
- (7) *Organizational Performance Results*. This category examines the organization's performance and improvement, which includes student learning results; student- and stakeholder- focused results; budgetary, financial, and market performance; faculty and staff results; operation performance; and leadership and social responsibilities.

### **Comparison of Balanced Scorecard with 2005 Education Criteria for Performance Excellence**

Baldrige is compatible and has some core elements in common with the Balanced Scorecard Model. The most common core elements across the models are:

- (1) Help in assessing both short- and long-term strategic improvement (Izadi, 2002; Kaplan and Norton, 1996a,b,c; 2001)

- (2) The benefit to an organization is the self-assessment and learning that occur throughout the application and feedback process (Engelkemeyer, 2004; Kaplan and Norton 2001)
- (3) Providing a rigorous and comprehensive model (Karathanos, 1999; Kaplan and Norton, 1992;1993; 1996a,b,c; 2001)
- (4) The model is expected to improve the overall school performance management system, encouraging the sharing of best practices and development of partnerships among schools, businesses, and human service agencies (Given, 2000)
- (5) Emphasis on continuous improvement and organizational learning (Given, 2000)
- (6) Both first developed for use in business sector and later adopted nationwide in the U.S. and internationally (Doerfel & Ruben, 2002; Rigby 2003)
- (7) Flexible to any type of organization (Grayson, 2004; NIST, 2005)
- (8) “The use of a balanced composite of leading and lagging performance measures offers an effective means to communicate short- and longer-term priorities, monitor actual performance, and provide a clear basis for improving results” (Kaplan & Norton, 2001; NIST, 2005, p. 5).

Some documents revealed that the primary focus in Baldrige is on instructional activities and outcomes (Doerfel & Ruben, 2002; NIST, 2005). However, it seems like that the Baldrige education criteria have started to become process-oriented. An examination of the Baldrige education criteria and the Balanced Scorecard shows lots of similarities and that the Baldrige education criteria could fit into the Balanced Scorecard model (see Table 2.5).

The “leadership” criteria could either fit into the financial perspective as modified for academic management (O’Neil et al., 1999) or the innovation & learning perspective (Grayson, 2004; Storey, 2002). The “strategic planning” criteria are usually applied in

planning and development at the mission, goal and strategy stage while conducting the balanced scorecard model (Grayson, 2004; Norton & Kaplan, 1996, 2001). The “student, stakeholder, and market focus” criteria are similar to the customer perspective on the balanced scorecard (Grayson, 2004; Norton & Kaplan, 1996, 2001). The “information and analysis” criteria are linked to internal business and innovation and learning perspectives of the balanced scorecard (Bailey et al., 1999; Chang & Chow, 1999; Grayson, 2004; Storey, 2002). The “faculty and staff” criteria could be classified as follows: customer, internal business and learning and growth perspectives in balanced scorecard (Bailey et al, 1999; Chang & Chow, 1999; Grayson, 2004; Haddad, 1999; Norton & Kaplan 1996, 2001; O’Neil et al., 1999; Storey, 2002). The “process management” criteria could be classified into internal business perspectives on the balanced scorecard since this dimension focuses on the internal operation process as defined by Norton and Kaplan (1996 a,b,c; 2001). In addition, the “organization performance results” criteria could blend into financial, customer, internal business, learning and innovation perspectives because these criteria might emphasize the performance of financial, student learning, staff and faculty, and school. Table 2.5 below addressed the difference of 2005 Baldrige criteria and Balanced Scorecard.

Table 2.5  
Comparison of Seven Baldrige Categories for Education and the Balanced Scorecard

Baldrige Criteria	Balanced Scorecard
Leadership	Financial /Innovation & learning perspective
Strategic planning	Planning stage
Student, Stakeholder, and Market Focus	Customer perspective
Information and Analysis	Internal business/Innovation and learning perspective
Faculty and Staff Focus	Customer/Internal business / learning and growth perspective
Process Management	Internal business perspective
Organizational Performance Results	Financial /Customer / Internal business/ Innovation and learning perspective/

(Source: collected and recognized by the researcher)

### **Summary of 2005 Baldrige Education Criteria for Performance Excellence**

The seven categories deriving from the core values and concepts of 2005 Baldrige education criteria for performance excellence are leadership; strategic planning; student, stakeholder, and market focus; measurement, analysis, and knowledge management; faculty and staff focus; process management; and, organizational performance results. Many similarities between Balanced Scorecard and 2005 Baldrige criteria have been found on the literature. Therefore, it is not necessary to extend other dimension in Private Kindergarten Scorecard.

### **Quality Criteria in Assessing Early Childhood Programs**

Winn and Cameron (1998) stated that, “Quality is a term used to refer both to an ultimate outcome and to a predictor of an ultimate outcome in organizations. It was an attribute of what organizations were interested in accomplishing” (p. 491). Prior to the mid-1980s and much since then, almost all scholarly literature treated quality as an indicator of organizational effectiveness (Conrad & Blackburn, 1985).

“Quality” in early childhood education is a relative subjective concept but not an objective reality (Farquhar, 1991a; Moss & Pence, 1994). The definition of quality in early childhood services may vary with time due to specific circumstances and different stakeholders such as parents, staff and administrators, teacher educators, providers, policy makers, government agencies and researchers (Ceglowski, 2004; Liang 2001; Moss & Pence, 1994). Definitions of quality reflect the values and beliefs, needs and agendas, interest and empowerment of various stakeholders.

Quality in childcare has been studied extensively since the 1970s. In the early 1970s, research focused on the effects of child care on children, and especially on infant-material attachment (Cornelius & Denney, 1975). In the late 1970s, many researchers were interested in studying how variations in childcare affected children’s development, what

constituted quality in childcare, how quality influenced children's development (e.g., cognitive and social development), and how definitions of quality rely on child development. The majority of discussions of childcare quality focused on: classroom composition, curriculum and program philosophy, physical environment, staff characteristics, adult-child interaction, and parent-staff communication (Ceglowski, 2004; Farquhar, 1990; Katz, 1994; Mckim, 1993; Singer, 1993).

Ceglowski (2004) presented definitions of childcare quality and designed research to assess the quality of Minnesota's regulated childcare system by conducting interviews and focus groups. This study explored Katz's (1993a) four perspectives of childcare quality. The *top-down (adult)* perspective focuses on program attributes and consists of group size, staff qualifications and levels of experience, child/teacher ratio, classroom practices and environment, and adult responsiveness to and behavior with children. The *bottom-up (child)* perspective examines quality from the child's subjective experience, including children's comfort, level of acceptance, engagement in activities, and positive experiences. The *outside-inside (parents')* perspective investigates parent-teacher relationships. The *inside (Staff's)* perspective considers the quality of an early childhood program from three dimensions: colleague relationships, staff-parent relationships, and sponsor relationships (Katz, 1992a,b, 1993a,b, 1994).

In Ceglowski's (2004) study, participants identified the following *characteristics of quality childcare providers*: "(1) providers love and enjoy children; (2) providers are caring, stable, and respond to individual needs; (3) providers communicate well with families; and (4) providers act in professional manner and look for training opportunities" (p. 106). *Characteristics of quality child care programs are*: "(1) structured programs and activities offering learning activities to children in positive environment and provide culturally responsive care; (2) group size that are at or below licensing requirements, consistent staff, and low teacher to student ratio; (3) facilities and equipment that is safe and clean and



nutrition wholesome meals; (4) great communication with parents and friendly help them access community resources and support; and (5) programs seeking accreditation, exceeding licensing standards, and providing staff with better wages and benefits (Ceglowski, 2004, p. 107). Finally, *characteristics of child outcomes related to quality programs* are happy children and school readiness” (Ceglowski, 2004, p. 108).

The Love, Scholchet, & Meckstroth (1996) review, which revealed some similarities and differences in various stakeholders’ definitions of childcare quality, involved the top-down (research/professional) approach. The *provider* characteristics included positive caregiver behaviors; security of caregiver-child relationship; quality of caregiver-child interactions; appropriate caregiving; lower staff turnover and changes in teaching staff; higher level of formal education experience; more experiences and specialized training in early childhood education. The *program* characteristics were safety; classroom organization and space; group size; child/staff ratio; caregiver guidance; schedule; use of age-appropriate materials; developmentally appropriate activities; appropriate caregiving; and salary. The *Child outcome* characteristics revealed that children who attend higher-quality programs perform better on math and reading tests.

The U.S. Department of Education provided indicators for public school educators and policymakers to use as they plan or provide educational programs for children ages 3–5 years. The indicators are for use in assessing the quality of preschool programs and as hallmarks of high-quality early childhood programs in promoting cognitive and language development. These indicators are based in research and guidelines developed by states and early childhood professional associations (Dwyer, 2000). Quality indicators are divided into the following categories and could be used as a self-assessment tool :

- (1) Quality indicators for parent involvement
  - Development of home-school relationships
  - Home literacy environment and parent-child interactions
  - Competence in working with diverse parent populations

- (2) Quality indicators for the learning environment
  - Class size and teacher-student ratios
  - Staff, secure classrooms, schools, and other learning environments
  - Rich literacy environment
  - Accommodation of children with special needs.
- (3) Indicators of quality in pedagogy
  - Variety of domains and structure
  - Individualization
  - Learning how to think
- (4) Quality indicators for curricula
  - Planning
  - Language foundations
  - Emergent literacy foundations for reading
  - Mathematics and science foundations for problem-solving
- (5) Indicators of quality of early childhood staff
  - Background of staff
  - Professional working conditions
  - Professional development
- (6) Indicator of quality of assessment and continuous improvement
  - Guidance for instruction
  - Identification of needs for special services and interventions
  - Program assessment

Based on current early childhood research, lessons from K-12 education reform efforts, and applicable lessons from the nation's experience in building a voluntary system of higher education, the Business Roundtable (BRT) and Corporate Voices for Working Families (CVWF) believe that the establishment of guiding principles is critical for early childhood education systems to identify as they seek to assess existing early education programs, consider philanthropic priorities, evaluate policy proposals, and formulate policy positions. The principles that define the components of a high-quality early childhood program are depicted as follows (BRT, 2003):

- (1) *Learning*: Viewing children's learning as the central mission.
- (2) *Standards*: Aligning the objectives of the early childhood education system with state K–12 academic standards; and articulating standards for children's learning

and program quality

- (3) *Teachers*: A high-quality program ensures that teaching staff possess the degree, skills, knowledge, and attitudes to ensure children's readiness for school.
- (4) *Parents*: A high-quality program supports parents as their children's first teachers and provides choices and access for parents to choose programs and enroll their children.
- (5) *Accountability*: Embracing accountability for measurable results.
- (6) *Partnerships*: Building tight partnerships to govern, finance, sustain, and improve the system.

Bartlett and Zimanyi (2001) revealed a set of sixteen indicators to be used in monitoring Early Childhood Care and Development (ECCD) programs at the international and national levels. The Early Childhood Care and Development (ECCD) programs refer to an organized system of attention that includes "education serving to children who are below the age of entry into formal primary school" (Bartlett & Zimanyi, 2001, p. 46). The sixteen indicators are follows: (1) gross enrollment; (2) parent education; (3) number of children per teacher/caregiver (one adult for every four or five one-year-olds, to one adult for every twenty-five five-year-olds); (4) teacher qualifications; (5) physical environment; (6) curriculum or interaction; (7) policy, for example, presence of a national ECCD policy and/or plan; (8) budget allocation; (9) costs (or average expenditure) by government per child on ECCD; (10) costs (or average expenditure) by government per child on ECCD programs as a percentage of Gross National Product per inhabitant; (11) average expenditure per child by family on ECCD for children under six years of age as a percentage of minimum salary (or of family income); (12) child development; (13) school readiness; (14) nutritional status; (15) health status; and (16) parental knowledge and expectations.

Phillips, Mekos, Scarr, McCartney, & Abbott-Schim (2000) identified structural

indicators of quality. These included high wage, classroom group size and child-teacher ratio, parent fees, teacher education and training, and compliance with ratio regulations.

Powell and Cosgrove (1992) treated the following components as quality measures: children per teaching staff member, number of children in different year groups, average education of staff in years, average experience of staff in years, and turnover rate of teaching staff.

In Mooney and Munton's research (1998), a serious discussion was provided of the meaning of quality in early childhood services by different groups or stakeholders, including local authority officers, private day nursery proprietors, day nursery staff, childminders, and parents. The research presented the nine most frequently mentioned themes as identified from the content analysis of all written reports of the quality of early childhood services. These themes are: (1) affordability and accessibility of day care provision; (2) continuity of care; (3) adaptability, for example, placing children into day care settings; (4) training and qualifications of day care workers; (5) working conditions for day care professionals; (6) the social status of child care in our culture; (7) education and the curriculum; (8) parents and providers working in partnership; and (9) assessing and enhancing quality.

The following is a summary of a consensus between academic researchers and professional practitioners on several criteria of high-quality child care (Hayes et al., 1990; Textor, 1998):

- (1) *Teacher qualifications*: Teacher education, professional training, positive attitudes and experiences.
- (2) *Teacher's behavior*: Continuity and stability in the teacher-child relationship, yearly or weekly plans, culturally based patterns of learning and interactions.
- (3) *Cooperation with parents*: Frequent communication and contacts between parent and teachers, solid partnership between the family and childcare program

personnel.

- (4) *Structure and activities*: Opportunities for learning through free play and teacher-guided activities.
- (5) *The classroom*: Safe environment with adequate play materials; organized and orderly space with different areas for various activities and age groups of children.
- (6) *Number of Children in Class*: the National Association for the Education of Young Children, the Child Welfare League of America, and the Federal Interagency Day Care Requirements (Hayes, Palmer, & Zaslow, 1990) recommend the maximum group size and adult-child ratio, as shown in Table 2.6.

Table 2.6  
Adult-Child Ratio and Group Size

	Adult-child ratio	Group size
Infant	1:4	6–8
Toddler	1:6	6–12
Preschoolers	1:10	16–20

(Source: collected and recognized by the researcher.)

Based on a thorough review of the research, the National Association for the Education of Young Children (NAEYC) also developed standard measures of quality for group care programs (Bredekamp, 1990). The standard has been used to accredit center-based programs and includes a number of criteria for improving the quality of early childhood education for children and their families. NAEYC's criteria for high-quality early childhood programs includes staff-child interaction; curriculum; communication with parents; staff hiring and qualifications; staffing structure; program administration; physical environment; health and safety; nutrition and food service.

Several research studies (NICHD Early Child Care Research Network, 1996; Peisner-Feinberg et al., 1998; Phillipsen et al., 1997; Sheridan & Schuster, 2001) used the

Early Childhood Environment Rating Scale (ECERS) or Early Childhood Environment Rating Scale- Revised (ECERS-R), Assessment profile for Early Childhood Programs, and Early Language and Literacy Classroom Observation (ELLCO) to conduct quality measurement analyses. A comparison of these three quality instruments may be found in Table 2.7.

Table 2.7  
Comparison of Three Quality Instruments

	<i>Early Childhood Environment Rating Scale (ECERS)</i>	<i>Assessment Profile for Early Childhood Programs</i>	<i>Early Language and Literacy Classroom Observation (ELLCO)</i>
Developer	Harms, Clifford, & Cryer (1998)	Abbott-Shim & Sibley, 1998	Smith, Dickinson, Sangeorge, & Anastasopoulos (2002)
Number of item	43 items	147 items	14 variables
Method of Valuation	7-point scale	Yes/no checklist	30–40 minute observation
Dimensions to assess quality of early childhood program	<ol style="list-style-type: none"> <li>1. Personal care Routines</li> <li>2. Space and furnishing</li> <li>3. Language-reasoning</li> <li>4. Activities</li> <li>5. Program structure</li> <li>6. Interaction</li> <li>7. Parents and staff</li> </ol>	<ol style="list-style-type: none"> <li>1. The learning environment</li> <li>2. The curriculum</li> <li>3. Interactions</li> <li>4. Individualizing</li> <li>5. Health and safety</li> </ol>	<ol style="list-style-type: none"> <li>1. Classroom functional environment</li> <li>2. The interactive environment</li> <li>3. Language and literacy facilitation</li> <li>4. Broad support for literacy</li> </ol>

( Source: Collected and recognized by the researcher.)

### **Summary of Quality Criteria in Assessing Early Childhood Programs**

A brief review of the quality literature from different perspectives in the early childhood education context revealed several criteria that are frequently found in this area of research. These include group size; adult-child ratio; classroom practices or composition; environment; curriculum, program instruction, and activities; nutrition meals and child health; staff and teacher; communication with parents and parent involvement; happy child;

school readiness and child development; evaluation/assessment; cost and continuity of care.

Similar items were grouped into the same categories while counting the frequency of the quality criteria in assessing early childhood programs. For example, teacher background, teacher qualification, teacher behavior, continuity and stability of teacher and staff, all group into the “staff and teacher “category. In addition, several researchers mentioned staff salaries and benefits as one of the factors that influence the quality of early childhood programs (Ceglowski, 2004; Love et al. 1996; Phillips, 2000). The “classroom“ category represents classroom composition and organization, including organized and orderly space with different areas for children, adequate materials, sufficient space, and so on. The “environment” category focuses on the physical environment and examines whether the school is safe and clean, with appropriate equipment and facilities. The “curriculum, instruction, program and activities” category includes curriculum variety, planning of curriculum, play and teacher-guide activities, program attributes, schedule, and guidance in instruction. The “happy child” has to do with whether the children are comfortable physically and emotionally—their positive experiences and engagement in the early childhood setting. “School readiness and children development” stresses children’s learning and charter development. The purpose of this criterion is to examine whether children develop appropriately in motor, cognitive, emotional, and social perspectives. The “evaluation/assessment” category demonstrates whether the early childhood program pursues continuous improvement and articulates assessment for children’s learning and quality. The “cost and continuity of care” revealed average expenditures per child, reasonable fees and running of early childhood programs. Table 2.8 (p.59-60) summarizes the findings from the early childhood literature about quality criteria or themes.

Table 2.8  
Findings on Most Frequently used Criteria or Themes in Assessing Early Childhood Programs

<b>Categories of Quality Criteria or Themes</b>	<b>Finding</b>
1. Group size (6)	Anderson et al. (1981); Bredekamp (1990); Ceglowski (2004); Dwyer (2000); Hayes et al. (1990); Katz (1993); Love et al. (1996); Phillips et al. (2000); Powell & Cosgrove (1992); Textor (1998)
2. Adult-child ratio (9)	Bartlett & Zimanyi (2001); Ceglowski (2004); Dwyer (2000); Hayes et al. (1990); Katz (1993); Love et al. (1996); Phillips et al. (2000); Powell & Cosgrove (1992); Textor (1998)
3. Classroom (8)	Abbott-Shim & Sibley (1998); Anderson et al. (1981); Dwyer (2000); Harms et al. (1998); Hayes et al. (1990); Katz (1993); Love et al. (1996); Smith et al. (2002); Textor (1998)
4. Environment, including facilities and equipment (6)	Anderson et al. (1981); Bartlett & Zimanyi (2001); Bredekamp (1990); Ceglowski (2004); Dwyer (2000); Katz (1993)
5. Curriculum, program, instruction, and activities (13)	Abbott-Shim & Sibley (1998); Bartlett & Zimanyi (2001); Bredekamp (1990); Ceglowski (2004); Dwyer (2000); Harms et al. (1998); Hayes et al. (1990); Love et al. (1996); Katz (1993); Mooney & Munton (1998); Textor (1998)
6. Nutrition meals and health (3)	Abbott-Shim & Sibley (1998); Bartlett & Zimanyi (2001); Bredekamp (1990); Ceglowski (2004)

(Table continues)



Table 2.8 (Continued)  
Findings on Most Frequently used Criteria or Themes in Assessing Early Childhood Programs

<b>Categories of Quality Criteria or Themes</b>	<b>Finding</b>
7. Staff and teachers (15)	Abbott-Shim & Sibley (1998); Anderson et al. (1981); Bartlett & Zimanyi (2001); Bredekamp (1990); BRT (2003); Ceglowski (2004); Dwyer (2000); Harms et al. (1998); Hayes et al. (1990); Katz (1993); Mooney & Munton (1998); Phillips et al. (2000); Powell & Cosgrove (1992); Textor (1998)
8. Communication with parents and parent involvement (10)	Anderson et al. (1981); Bartlett & Zimanyi (2001); Bredekamp (1990); BRT (2003); Ceglowski (2004); Dwyer (2000); Hayes et al. (1990); Katz (1993); Mooney & Munton (1998); Textor (1998)
9. Happy child (2)	Ceglowski (2004); Katz (1993)
10. School readiness and child development (6)	Bartlett & Zimanyi (2001); BRT (2003); Ceglowski (2004); Dwyer (2000); Love et al. (1996); Smith et al. (2002)
11. Evaluation/Assessment (5)	Bredekamp (1990); BRT (2003); Ceglowski (2004); Dwyer (2000); Mooney & Munton (1998)
12. Cost and continuity of care (6)	Bartlett & Zimanyi (2001); Mooney & Munton (1998); Phillips et al. (2000)

(Source: Collected and recognized by the researcher.)

The mission of 12 Taiwanese private kindergartens will be examined after searching through their websites. The words occurring most frequently, according to an early search, are holistic education (7); learning both academically and for character (10); growth and development physically and psychocologically (7); and happy childhood (7). Therefore, as referenced in the mission statements for 12 Taiwanese private kindergartens and in the U.S. early childhood literature, a mission statement was developed as a guideline while designing the major component measures of the private kindergarten scorecard. The

mission is a clear statement and specifies why the kindergarten exists. The mission for the private kindergarten is to provide a sufficiently happy environment for children to experience a holistic education and growth in every way. For fulfilling the mission, the goals underlying the four perspectives are as follows:

1. Financial perspective: Profitable and operating with long-term sustainability.
2. Stakeholder: Developing parent-school partnership; provision of every-improving educational value to children, contributing to their overall development and well-being.
3. Internal organization process: Improvement of overall school effectiveness, use of resources, and capabilities.
4. Innovation: Continuous improvement in technology and organization.

### **Hypothesized Conceptual Model**

The hypothesized conceptual model has been formulated based on the purposes of this study, research questions, and literature review. The hypothesized conceptual model for the self-evaluation system is presented in Figure 2.3.

The major goal of the hypothesized conceptual model is to create a self-evaluation system that mainly uses the Balanced Scorecard theory as a framework and combines the 2005 Baldrige Education Criteria for Performance Excellence and the characteristics of early childhood programs. In addition, the hypothesized conceptual model examines whether: (a) kindergarten insiders weight performance management systems the same as do kindergarten outsiders; and, (b) the self-evaluation results from kindergarten insiders and outsiders are the same as the external evaluation (government) results.

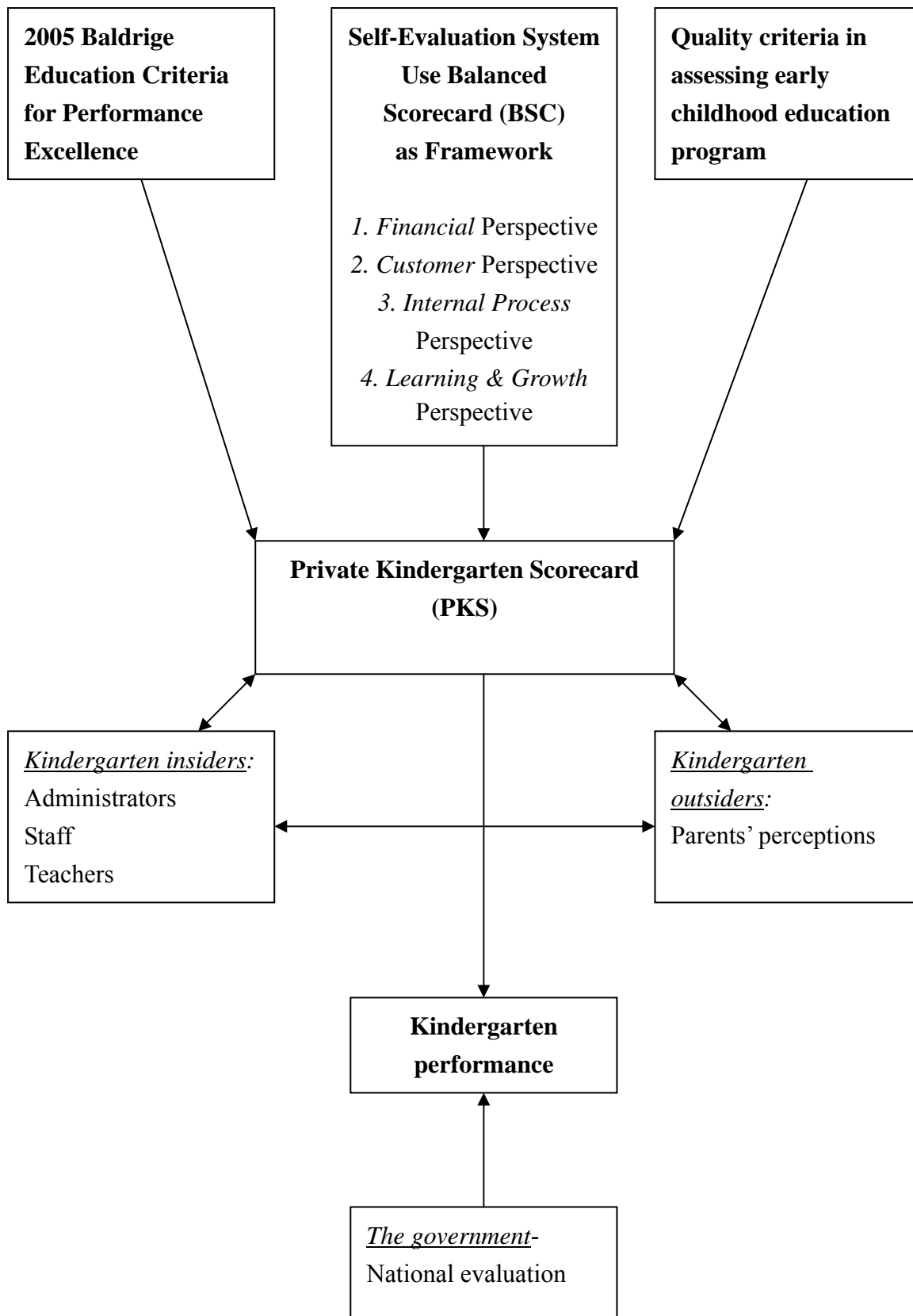


Figure 2.3.  
Hypothesized Conceptual Model

## **Chapter 3**

### **METHODOLOGY**

This purpose of this study is to develop a self-evaluation approach that might be used to provide a better understanding of the gap between the insiders' and outsiders' perceptions on indicators in assessing the performance of kindergarten programs. This assessment is for Taiwan's private kindergarten school. Chapter three contains an explanation of the methods and procedures involved in this study, including: (1) research design, (2) population and sample, (3) instrument development, (4) sampling method, (5) data collection procedures, and (6) data analysis.

#### **Research Design**

This study is quantitative research and applies survey for data collection in order to contribute insight for early childhood education improvement. In applied social research, survey research is one of the most important, commonly used, approaches (Borg and Gall, 1989; Trochim, 2005). Based on the literature review, a questionnaire, the Private Kindergarten Scorecard (see Appendix B) was carefully designed.

#### **Population and Sample**

Due to limited time and resources and in considering feasibility factors, the population of kindergarten insiders/outsideers were defined as administrators, staff, teachers, and parents who are actively engaged in private kindergartens in Tainan City, Taiwan. Students were excluded because children of that age are very young, and parents always make the kindergarten choice for students in Taiwan. Unfortunately, direct access to a list of kindergarten insiders and outsiders in Tainan City is not possible. Therefore, the list of licensed private kindergartens in Tainan City is used as the target population frame. Of a possible total of sixty one licensed kindergartens, ten kindergartens were randomly selected for this study. Choosing these ten kindergartens used using random sampling to fulfill the

requirement for a precise representation of the population. The sample ultimately comprises kindergarten insiders and outsiders associated with these ten kindergartens.

The exact number of people for the study is influenced, to some extent, by statistical considerations. The number 400 has been selected to minimize conservative bias or Type II error in statistical tests. Bryant and Yarnold (1995) recommended, for factor analysis, of an instrument ten times the number of items on the instrument provides a sufficient number of people. In addition, an important practical aspect to determine sample size is the resources available to complete the study. The random selection included 140 school personnel from the ten schools. Additionally 260 parents were randomly selected to be representative of that segment of kindergarten customers from the ten schools.

### **Instrument Development and Description**

This quantitative study involves the use of questionnaires. “Survey research is one of the most important areas of measurement in applied research” (Trochim, 2005). The Private Kindergarten Scorecard (PKS, Appendix B), developed specifically for this study, was disseminated to collect data. The PKS is mainly designed to identify major components when evaluating private kindergarten performance and provides information to assess the perceptual differences between kindergarten insiders and outsiders. The survey consists of three parts: (a) perceptions of the PKS measures, (b) comparisons four perspectives of the PKS, and (c) participants’ backgrounds.

The first section of the questionnaire contains a 4-point, Likert response scale (from 1=strongly disagree to 4=strong agree), for 21 items intended to measure private kindergarten school performance related to enrollment, teachers’ qualifications, experience and training, classroom organization and composition, and physical environment regarding to safety and so forth.

The second section of the survey involves a pairwise, two-item comparison of each perspective in the set of items with all other items, and the assignment of a relative

importance rating on a 1–9 response scale based on the respondent's subjective assessment of the strength of a preference item, from more strongly preferred to less preferred in the pair. A total of six items  $[4(4-1)/2=6]$  pairwise comparisons are required to assess weighting differences between kindergarten insiders and outsiders. The last section of the questionnaire collects demographic data of the study participants.

### **Pilot Study**

Prior to the actual data collecting study, a pilot study was conducted and involved two components: (a) a panel review and (b) a survey of twelve subjects. First, five experts from different cultural and professional backgrounds (one American professor, three Taiwanese professors in early childhood education, and one private kindergarten administrator) were invited to review the survey. Second, one specific kindergarten not included in the study sample was chosen for executing the pilot test. Twelve copies of the survey were issued to kindergarten insiders and outsiders to obtain participants' understanding of questions in order to provide content validity assessment. The twelve participants were randomly selected and asked to participate voluntarily in the pilot study. The purpose of the study questionnaire was explained to each participant before completing the pilot study. Modifications were made according to the panel of experts and the pilot study subjects' suggestions.

### **Validity**

A content review of the pilot study information summarized and provided a basis for modifying the questionnaire. A number of steps were followed in assessing content validity. First, in order to develop an effective self-evaluation system, the survey was based on the relevant literature. Second, five experts were invited as a panel of reviewers to assess the content validity of the survey and provide suggestions and feedback (Carmines & Zeller, 1979). After the panel member review, the modified survey was issued to pilot study

participants. Table 3.1 shows the revisions based on the panel review and pilot study results.

Table 3.1  
Revisions Based on the Panel Review and Pilot Study Results

Original Question	Final Question
<b>Part I:</b> Q2: Teach is qualified to teach, including education background, training, and experience.	<b>Part I:</b> Q2: Teacher is qualified to teach.
Q3: Continuous evaluation and assessment of kindergarten program.	Q3: Kindergarten continuously evaluates the program.
Q4: Children feel comfortable and happy in kindergarten.	Q4: Children feel happy in kindergarten.
Q6: Environment is safe, clean and sufficient.	Q6: Environment is clean. Q17: Environment is safe.
Q8: Children are well developed in physical, cognitive, social and emotional respects.	Q8: Children develop social skills. Q10: Children are developed in physical growth.
Q9: Staff wage and salaries are satisfactory.	Q9: Staff salaries are satisfactory.
Q12: Kindergarten operates efficiently with full utilization of available resources and waste is minimized.	Q12: Kindergarten operates efficiently with minimum waste.
Q13: Curriculum, extra program, instruction and activities are good for children.	Q13: Curriculum and activities are good for children.
Q15: Classroom is well-maintained and arranged.	Q15: Classroom is appropriately arranged.
Q16: Involving computer/technology in kindergarten.	Q16: Kindergarten has involved up-to-date technology.
Q19: Expenditure is adequate to provide sufficient learning materials, equipment, facilities and other resources.	Q19: Kindergarten has sufficient resources.

Q20: Children are ready for the next grade.	Q20: Children are cognitively ready for the next grade.
<b>Part II: <i>Explanation of perspective</i></b>	<b>Part II: <i>Explanation of perspective</i></b>
<i>Financial:</i> Organizational resources and expenditures.	<i>Financial:</i> Sufficient money to operate kindergarten.
<i>Stakeholder:</i> Parents', staffs' and teachers' perception of private kindergarten.	<i>Stakeholder:</i> Parents', staffs' and teachers' satisfaction of private kindergarten.
<i>Internal organization process:</i> The internal process and organizational capacity to see how well the organization is doing now.	<i>Internal organization process:</i> The internal process and organizational capacity to see how well the organization is doing now.
<i>Innovation:</i> What the organization is doing to make continuous improvement.	<i>Innovation:</i> Organization makes continuous improvement.
<b>Part III:</b>	<b>Part III:</b>
Q11: Do you know whether the kindergarten has implemented self-evaluation? <input type="checkbox"/> 1. No, go to question 12. <input type="checkbox"/> 2. Yes, go to question 11a & 11b.	Q11: Do you know whether the kindergarten has implemented self-evaluation? <input type="checkbox"/> 1. No, go to question 12. <input type="checkbox"/> 2 Yes, go to question 11a & 11b. <input type="checkbox"/> 3. I do not know.
Q12: Has the kindergarten won the best performance award before? <input type="checkbox"/> 1. No <input type="checkbox"/> 2. Yes, go to question 12a.	Q12: Has the kindergarten won the best performance award before? <input type="checkbox"/> 1. No <input type="checkbox"/> 2. Yes, go to question 12a. <input type="checkbox"/> 3. I do not know.

### Reliability

Cronbach's Alpha was calculated to examine the stability of the subscale scores in order to assess internal consistency. The relevant research in early childhood settings has been difficult to find since this study is exploratory. Therefore, reliability coefficients are considered acceptable if their value is greater than or equal to 0.70 (Nunnally, 1978). The



reliability coefficients were calculated for both pilot and actual tests. The reliability analysis results appear in Table 3.2.

Table 3.2.  
Reliability Results in Pilot and Actual Tests

	# of Items	Importance of Measures (Crombach's Alpha)	The Degree of Agreement of Agreement in Current Situation (Crombach's Alpha)
<b>Pilot Test</b>			
<i>Financial</i>	4	0.82	0.70
<i>Stakeholder</i>	6	0.73	0.72
<i>Internal Organization Process</i>	9	0.70	0.80
<i>Innovation</i>	2	0.88	0.87
<b>Actual Test</b>			
<i>Operation</i>	6	0.76	0.68
<i>Daily Support to Children</i>	8	0.74	0.80
<i>Resources</i>	4	0.66	0.64
<i>Evaluation</i>	3	0.47	0.50
<b>Actual Test</b>			
<i>Financial</i>	4	0.70	0.56
<i>Stakeholder</i>	6	0.70	0.75
<i>Internal Organization Process</i>	9	0.65	0.80
<i>Innovation</i>	2	0.35	0.36

(Source: developed by the researcher.)

## **Data Collection Procedures**

The data collection procedures were completed in the following stages:

### **Stage One: Contacting the Private Kindergarten**

A total of sixty-one private kindergartens populate in Tainan City. In order to complete the random sampling, ten kindergartens were randomly selected to participate in the study. The recruiting process was done by either (a) making phone calls to kindergartens to make appointments and to meet with administrators to explain the research, or (b) visits to private kindergartens to make personal inquiries.

### **Stage Two: Sampling Participants**

When a sufficient number ten of kindergartens had agreed to join this study, participants were randomly selected from each kindergarten. Upon request, the administrator provided lists of personnel and parents for the population frame to be used in randomly selecting the participants. For each kindergarten, the researcher randomly chose 12 to 15 personnel and 18 to 22 parents. Subjects of 140 kindergarten insiders and 260 outsiders participated in this study (total participants: 400).

### **Stage Three: Submitting and Collecting Surveys**

After receiving permission from the selected kindergarten personnel and parents, the survey and informed consent and agreement forms (Appendix C) were distributed to the personnel (kindergarten insiders) and parents. The kindergarten insiders were reached directly at the kindergartens, but the parents (kindergarten outsiders) were reached either by asking the children to take the survey home or by distributing the surveys to parents during kindergarten activities or parent conferences.

After completing the survey, each participant was asked to put the survey into an envelope, seal it, and return it. Sealing the envelope prior to returning the survey provides respondents with a sense of confidentiality. Further, respondents are not identified. The anonymous data collection took the form of a self-administered questionnaire. This method

is acceptable in research because the respondents may fill out the survey at their own convenience; it replaces face-to-face interviews to protect subjects, and it also reduces potential sensitivity to questions by granting the respondents anonymity (Fox & Tracy, 1986).

The data were collected from August 2005 to December 2005. After coding for data entry and cleaning the data, a total of 311 out of 400 questionnaires were considered useable. Kindergarten insiders provided 122 valid questionnaires and kindergarten outsiders provided 189 useable surveys. Questionnaires in which subjects' answers reflected obvious response patterns or skipped one or two parts of survey were not used. The useable response rate was 77.75%. Table 3.3 shows the procedures followed.

Table 3.3  
Procedures for the Research by Year and Month

Item	2004 5	2005 6	2005 7	2005 8	2005 9	2005 10-12	2006 1-12	2007 1-5
Panel Review	*	*						
Pilot Test	*	*						
Modify Instrument			*					
Data Collection				*	*	*		
Data Analysis							*	
Writing Results							*	
Oral Defense of Dissertation								*
Modify and Finish Dissertation								*

(Source: developed by the researcher.)

### **Data Analysis**

In this survey study, data were analyzed using the Expert Choice software and the Statistical Package for the Social Sciences (SPSS). The first step was to code the data, enter it into the computer, and then clean it. Items left blank by participants were considered to be missing data. This study uses listwise deletion and any case with missing values is excluded from the analysis. This method for treating missing data in this study is less biased than using estimated missing values such as those substituted by mean or other methods (Roderick & Donald, 2002).

Descriptive statistics, panel review, exploratory factor analysis, analytic hierarchy process (AHP), and MANOVA are utilized to analyze the data. Table 3.4 provides a brief summary of the research questions and related analysis techniques.

Table 3.4  
Summary of the Research Questions and Analysis Techniques

<b>Research Questions</b>	<b>Analysis Technique</b>
1. What are the major component measures in the self-evaluation system for helping kindergartens develop successful strategies?  2. Are the four PKS perspectives sufficient and effective for measuring private kindergarten performance?	1. Reviewing literature and grouping early childhood measures into PKS four perspectives  2. Panel Review  3. Exploratory Factor Analysis using Principal Component Analysis
3. What are the differences in kindergarten insiders' and outsiders' weighting on dimensions of a self-evaluation system?	1. Analytic Hierarchy Process (AHP)
4. Are there perceptual differences between these two groups in the self-evaluation results?	1. Mutiple Analysis of Variance (MANOVA)

(Source: developed by the researcher.)

## **Chapter 4**

### **RESULTS**

The purpose of this study is to develop an effective self-evaluation system for Taiwan's private kindergartens. This chapter's five sections summarize the results of data analysis and answer to research questions. The first section presents the demographic description and descriptive statistics information. The second section states the answers to Research Question One and Two, and mainly focuses on Factor Analysis outputs. The third section reports the results of the Analytic Hierarchy Process (AHP). The fourth section describes the results of Multiple Analysis of Variance (MANOVA). Finally, the last section provides additional findings.

#### **Demographic Description and Descriptive Statistics Information**

A random sample of private and certified kindergartens, listed in the Department of Education, Tainan City provided the data for this research. A total of sixty-one private and certified kindergartens are the frame of this study. From the frame, ten kindergartens, randomly chosen, voluntarily participated in this research. The total number of 140 kindergarten insiders and 260 outsiders are the recruited participants. From the total of 400 subjects, the valid survey data results from 122 kindergarten insiders and 189 kindergarten outsiders. The valid response rate was 77.75%.

#### **Demographic Description:**

A profile of kindergarten insiders (n=311) answers in Table 4.1. The majority of kindergarten insiders were female (85.2%) and 12.5% were male. Of the 311 respondents, 42 participants graduated from senior high school; this group accounted for 13.5% of the sample. Participants with a College/University education numbered 226; this group accounted for 72.7% of the sample. Participants with a graduate or higher degree were 41;

this group accounted for 13.2% of the sample. With regard to occupation, 18 are manager and administrator; 18 are technical, sales and administrative support; 34 are in service industries; 4 are operators, laborers and fabricators; 161 are from professional, production, craft and repair; one is from farming, forestry and fishing industries, and 68 are other.

Among the 122 kindergarten insiders, 15 participants are kindergarten administrators; 8 participants are staff members; and 99 participants are teachers. Each group accounted for 12.3%, 6.6% and 81.1% of the sample, respectively.

The age groups, 21-30, 31-40 and 41-50, accounted for 19.3%, 64% and 9.3% of the sample, respectively. The age groups of 51-60 and over 60 years old accounted for 0.6% and 0.6%, respectively. Of the participants, 30.9% were still single or had no children registered in the kindergarten. Participants with one child registered in kindergarten were 53.4% while 13.2% of participants had two children registered in kindergarten. Participants with three children registered in kindergarten were 0.6%. Of participants, 56.2% would like to have children attended the same kindergarten while 18.3% of participants answered, "No".

Answers of 78.3% of participants indicate that registration fee for kindergarten was over NTD10,000; on the other hand, 12.5% of participants answered that the fee was below NTD10,000. For 28.9% of the sample, the monthly fee was below NTD5,000, and 53.4% of the participants answered that the fee was between NTD5,001 and NTD10,000. The remainder (10%) of the participants answered that the fee was over NTD10,000.

With regard to children and teacher data, 73% of the sample had 16-30 children in one classroom, and 16.4% of the sample had fewer than 15 children per classroom. Only 1.6% of the sample had over 30 children per classroom. Most participants (59.8% of the sample) indicated two teachers in one classroom; next, 30.2% of sample marked one teacher per classroom, and 3.5% of the sample attested to three teachers per classroom. The category of children to teacher ratio (11:1 to 15:1) comprised 53.1% of the sample. The

second highest proportion of the ratio sample (18.6%) was equal to or below 10:1. Third category that had a ratio ranging from 16:1 to 20:1 of children to teacher accounted for 10.9% of the sample.

The disposable income level under NTD30,000 accounted for 17% of the sample (0.3%+3.2%+13.5%=17%); disposable income level between NTD30,001 and NTD70,000 was 35.7% of the sample (94.8%+8.7%+7.7%+14.5%=35.7%); and the disposable income level over NTD 70,001 accounted for 40.4% of the sample (6.1%+9.6%+9.3%+15.4%=40.4%).

Table 4.1.  
Demographic Characteristics of Kindergarten Insiders and Outsiders (n= 311)

	n	(%)		n	(%)
<u>Gender</u>			<u>Education</u>		
Male	39	12.5	Senior High School	42	13.5
Female	265	85.2	College/University	226	72.7
Missing Data	7	2.3	Graduate School or Higher	41	13.2
			Missing Data	2	0.6
<u>Occupation</u>			<u>Age</u>		
Managerial and professional	18	5.8	21-30 Years	60	19.3
Technical, sales, and administrative support	18	5.8	31-40 Years	199	64.0
Service	34	10.9	41-50 Years	29	9.3
Operators, laborers, and fabricators	4	1.3	51-60 Years	2	0.6
Professional, production, craft , and repair	161	51.8	>60 Years	2	0.6
Farming, forestry and fishing	1	0.3	Missing Data	19	6.1
Other	68	21.9			
Missing Data	7	2.3			
<u>Children Registered in the Kindergarten</u>			<u>Children Attend the Same Kindergarten</u>		
0	96	30.9	Yes	175	56.2
1	166	53.4	No	57	18.3
2	41	13.2	Missing Data	79	25.4
3	2	0.6			
Missing Data	6	1.9			



<u>Fee for the Kindergarten per Semester</u>					
<i>Register Fee</i>			<i>Monthly Fee</i>		
<10,000	39	12.5	<5,000	90	28.9
≥10,000	245	78.3	5,001-10,000	166	53.4
Missing Data	27	8.7	≥10,000	31	10.0
			Missing Data	24	7.7
<u>Children/Teacher Data</u>					
<i>Number of Children Per Classroom</i>			<i>Number of Teacher Per Classroom</i>		
<15	51	16.4	1	94	30.2
16-30	227	73.0	2	186	59.8
>30	5	1.6	3	11	3.5
Missing Data	28	9.0	Missing Data	20	6.4
<i>Children/Teacher Ratio</i>					
1-10	58	18.6	21-25	22	7.1
11-15	165	53.1	26-30	4	1.3
16-20	34	10.9	Missing Data	28	9.0
<u>Disposable Income per Month</u>					
Less than NTD 10,000	1	0.3	NTD 60,001-70,000	45	14.5
NTD 10,000-20,000	10	3.2	NTD 70,001-80,000	19	6.1
NTD 20,001-30,000	42	13.5	NTD 80,001-90,000	30	9.6
NTD 30,001-40,000	15	4.8	NTD 90,001-100,000	29	9.3
NTD 40,001-50,000	27	8.7	More than NTD 100,000	48	15.4
NTD 50,001-60,000	24	7.7	Missing Data	21	6.8

(Source: developed by the researcher.)

### **Knowledge of Self-Evaluation and Kindergarten Background**

Fist part is about kindergarten insiders. Of kindergarten insiders 71.3% thought their kindergarten executed self-evaluation and the rest of the sample (22.1%+2.5%=24.6%) answered, “No” and had no idea whether kindergarten implemented self-evaluation or not. Of 87 participants who answered that kindergarten applied self-evaluation, 43 participants believed that kindergartens implemented self-evaluation simultaneously with government’s external evaluation. Seventeen participants believed that kindergartens held self-evaluation once per semester, and 13 participants answered, “Once per year”. Among 87 participants whose answer was, “Yes” toward implementing self-evaluation, 31 participants thought teachers were involved in the self-evaluation; 6 participants believed that professors and experts were involved and 5 participants indicated administrators were involved in the self-evaluation.

In the 122 valid kindergarten insider participants, 84 participants answered that their kindergartens had won a Best Performance Award; this group accounted for 68.9% of the sample. Of the 122 kindergarten insiders, 26.2% (18%+8.2%) answered that they don't know and kindergarten had never won a Best Performance Award. Among 84 respondents who answered that their kindergarten won Best Performance Awards, 41 of the respondents thought their kindergarten won multiple awards; 19 of the respondents answered that their kindergartens won "Teaching and Nursing" award, and 26 of the respondents had no idea what kind of award, if any, had been won.

Second part relates to kindergarten outsiders. From the total of 189 valid subjects, only 80 participants (42.3% of kindergarten outsiders) thought their kindergartens executed self-evaluation, and 55% of the sample (33.3%+21.7%=55%) answered, "No" and "No idea whether their kindergartens implemented self-evaluation or not. Of 80 participants who answered that kindergartens applied self-evaluation, 40 participants believed that the kindergarten held self-evaluation at the same time as the government held external evaluation. Fourteen participants believed that kindergartens implemented self-evaluation once per semester; six participants answered, "Once per year", and 13 participants thought implementing self-evaluation in kindergarten. Among 80 participants whose answer was yes toward implementing self-evaluation, 49 participants had no idea who is involved in kindergarten self-evaluation; 16 participants believed multiple parties are involved in kindergarten self-evaluation; 10 participants thought teachers are involved in the self-evaluation; two participants believe that professors and experts are involved and only one participant thinks that administrators are involved in self-evaluation.

Eighty-four participants, accounting for 44.4% of the sample, answered that their kindergarten had won a Best Performance Award. Ninety-one participants (19+72=91) of the 189 kindergarten outsiders answered that they don't know and their kindergartens had never won the Best Performance Award; these two groups accounted for 48.2% of the

sample ( $10.1+38.1\%=48.2\%$ ). Among 84 respondents who answered that their kindergartens had won Best Performance Awards, 18 participants thought their kindergartens won “Teaching and Nursing” awards; 11 of the respondents believed the kindergarten that their children attend won multiple awards; five participants thought their kindergartens won “Early Childhood Administration” awards; two of the respondents answered that their kindergartens won “Teaching Facilities and Public Safety” awards and only one participant answered the kindergarten won an other award. The remaining 47 respondents ( $84-18-11-5-2-1=47$ ) whose answer is “yes”, regarding winning best performance awards answered either, “ I don’t know” or left the answer blank. The detailed numbers of the results of knowledge of self-evaluation and kindergarten background appear in Table 4.2.

Table 4.2.  
Knowledge of Self-Evaluation and Kindergarten Background (n=311)

	<b>Insiders (Cases:122)</b>		<b>Outsiders (Cases:189)</b>	
	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>
<u>Knowledge of Self-Evaluation</u>				
Kindergarten implemented self-evaluation				
No	27	22.1	63	33.3
Yes	87	71.3	80	42.3
I don't know	3	2.5	41	21.7
Missing Data	5	4.1	5	2.6
Times of implementing self-evaluation				
(No Need to Answer)	30	24.6	104	55.0
Once per semester	17	13.9	14	7.4
Once per year	13	10.7	6	3.2
Depends on the government Evaluation	43	35.2	40	21.2
Other	9	7.4	13	6.9
Mixed Answer	5	4.1	0	0
Missing Data	5	4.1	12	6.3
People involved in the kindergarten self-evaluation				
(No Need to Answer)	30	24.6	104	55.0
Professor and experts	6	4.9	2	1.1
Administrators	5	4.1	1	0.5
Teachers	31	25.4	10	5.3
Other kindergarten	0	0	0	0
Parents	0	0	0	0
I don't know	8	6.6	49	25.9
Mixed Answer	36	29.5	16	8.5
Missing Data	6	4.9	7	3.7
<u>Kindergarten Background</u>				
Winning Best Performance Award				
No	22	18.0	19	10.1
Yes	84	68.9	84	44.4
I don't know	10	8.2	72	38.1
Missing Data	6	4.9	14	7.4
Award has been won				
(No Need to Answer)	22	18.0	19	10.0
Early Childhood Administration	6	4.9	5	2.6
Teaching and Nursing	19	15.6	18	9.5
Teaching Facilities and Public Safety	0	0	2	1.1
Others	1	0.8	1	0.5
I don't know	26	21.3	83	43.9
Mixed Answer	41	33.6	11	5.8
Missing Data	7	5.7	50	26.5

(Source: developed by the researcher.)

### **Descriptive Statistics Information of 21 Measures**

A 4-point, Likert-type response scale (from 4=very important to 1=not important; from 4=strongly agree to 1=strongly disagree) recorded subjects' perception of different measures developed and based on the Balanced Scorecard Theory. Table 4.3 shows 21 specific measures, the mean values and standard deviation of the kindergarten insiders' and outsiders' perceptions toward each measure. The means for all 21 measures of importance range from 3.09 to 3.94. The standard deviation is between 0.23 and 0.71. Otherwise, the means for 21 measures of the degree of agreement in current situation varies from 2.74 to 3.56. The standard deviation ranks between 0.50 and 0.69. The average mean value of the degree of agreement in the current situation is lower than that of measures of importance according to the perceptions of kindergarten insiders and outsiders.

Table 4.3  
Mean and Standard Deviation of Twenty-One Measures Resulting from Measures of Importance and the Degree of Agreement in Current situation (n=311)

Measures	Measures of Importance		The Degree of Agreement in Current Situation	
	Mean	SD	Mean	SD
1. Administration provides effective leadership.	3.75	.49	3.19	.53
2. Teacher is qualified to teach.	3.67	.54	3.46	.54
3. Kindergarten continuously evaluates its program.	3.37	.67	3.11	.63
4. Children feel happy in kindergarten.	3.91	.31	3.56	.53
5. Great communication occurs with parents.	3.87	.34	3.51	.52
6. Environment is clean.	3.88	.32	3.34	.59
7. Fee and tuition are reasonable.	3.50	.58	3.23	.58
8. Children develop social skills.	3.71	.48	3.34	.53
9. Staff salaries are satisfactory.	3.51	.64	2.74	.69
10. Children are developed in physical growth.	3.75	.49	3.35	.50
11. Nutritious meals are provided for children.	3.84	.38	3.37	.55
12. Kindergarten operates efficiently with minimum waste.	3.49	.59	3.22	.55
13. Curriculum and activities are good for children.	3.85	.36	3.51	.54
14. Enrollment is sufficient to maintain long-term operations.	3.52	.59	3.31	.52
15. Classroom is appropriately arranged.	3.66	.51	3.43	.55
16. Kindergarten has involved up-to-date technology.	3.09	.71	2.84	.64
17. Environment is safe.	3.94	.23	3.27	.62
18. Parents are involved in kindergarten.	3.25	.69	3.12	.66
19. Kindergarten has sufficient resources.	3.68	.50	3.18	.63
20. Children are cognitively ready for the next grade.	3.50	.66	3.25	.52
21. Group size and teacher/child ratio are reasonable.	3.78	.43	3.15	.67

(Source: developed by the researcher.)

### **Answering Research Question One and Two**

After reviewing the literature and conducting panel review, the major component measures of Private Kindergarten Scorecard are in Table 4.4. The measures among these four dimensions: *financial*, *stakeholder*, *internal organization process* and *innovation*, are randomly rearranged in order to test whether they are sufficient and efficient for evaluating private kindergartens' performances. The name of each dimension does not appear in the final version of the survey: Private Kindergarten Scorecard (Appendix B).

MacBeath and McGlynn (2002) put great value on evaluating the effectiveness of school. Therefore, a school's key stakeholders: its administrator, its staff, its pupils and parents must monitor and self-evaluate all aspects of the school's work and render judgment on the school's performance and accountability. Everyone desires better evaluation, but, the issue is what should be evaluated? Are four perspectives for the Private Kindergarten Scorecard enough to develop appropriate performance measures? Factor analysis may be a tool to answer the questions.

Table 4.4  
Original Version of Self-Evaluation System

<p><b>Financial Perspective</b></p> <p>14. Enrollment is sufficient to maintain long-term operations</p> <p>7. Fee and tuition are reasonable.</p> <p>19. Kindergarten has sufficient resources.</p> <p>12. Kindergarten operates efficiently with minimum waste.</p>
<p><b>Stakeholder Perspective</b></p> <p>18. Parents are involved in kindergarten.</p> <p>5. Great communication occurs with parents.</p> <p>10. Children are developed in physical growth.</p> <p>4. Children feel happy in kindergarten.</p> <p>20. Children are cognitively ready for the next grade.</p> <p>8. Children develop social skills.</p>
<p><b>Internal Organization Process Perspective</b></p> <p>21. Group size and teacher/children ratio are reasonable.</p> <p>2. Teacher is qualified to teach.</p> <p>9. Staff salaried are satisfactory,</p> <p>15. Classroom is appropriately arranged.</p> <p>17. Environment is safe.</p> <p>6. Environment is clean.</p> <p>13. Curriculum and activities are good for children.</p> <p>11. Nutritious meals are provided for children.</p> <p>1. Administration provides effective leadership.</p>
<p><b>Innovation Perspective</b></p> <p>16. Kindergarten has involved up-to-date technology.</p> <p>3. Kindergarten continuously evaluates its programs.</p>

(Source: developed by the researcher.)

### **Factor Analysis for Importance of Measures**

Factor analysis evaluated the first part of the questionnaires to examine the sufficiency, efficiency and effectiveness of these four perspectives for measuring kindergartens' performance. The factor analysis was conducted in exploratory form. An exploratory factor analysis is useful in the early stages of scale development and continues



to be the most frequent application of factor analysis (Kelloway, 1995; Pohlmann, 2004). The principal component factor analysis with orthogonal varimax rotation generated a pool of items for a scale to measure kindergarten insiders' and outsiders' perceptions of the importance of measures for the Private Kindergarten Scorecard, as well as to assess the factor structure of the scale items. Determining the number of factors to retain used not only a combination of methods (e.g. The Kaister-Guttman eigenvalue-greater-than-one rule, screen plot), but also conceptual clarity, interpretability and theoretical salience of the rotated factors, and simple structure (Pohlmann, 2004). Factor analysis for importance of measures divide into three sections: 1) combined data, 2) kindergarten outsider segment, and 3) kindergarten insider segment.

### ***Combined Data***

Examining six-factor, five-factor and four-factor solutions, four extracted factors identified underlying dimensionality relating to the 21 performance measures. The four factors account for 46.93% of the variance. The factor domains, name of items, eigenvalues, explained variance, Cronbach's Alpha, and factor loading appear in Table 4.5.

Table 4.5  
Factor Analysis of Importance of Measures-Combined Data (Factor Loadings of 0.40 or Higher, n=311)

<b>Variables</b>	<b>Factor 1</b> <i>Operation</i>	<b>Factor 2</b> <i>Daily Support to Children</i>	<b>Factor 3</b> <i>Resources</i>	<b>Factor 4</b> <i>Evaluation</i>
12 Kindergarten operates efficiently with minimum waste.	.704			
14 Enrollment is sufficient to maintain long-term operation.	.703			
9 Staff salaries are satisfactory.	.684			
7 Fee and tuition are reasonable.	.627			
1 Administration provides effective leadership.	.490			
8 Children develop social skills.	.418			
11 Nutritious meals are provided for children.		.694		
10 Children are developed in physical growth.		.609		
6 Environment is clean.		.593		
5 Great communication occurs with parents.		.518		
17 Environment is safe.		.514		
13 Curriculum and activities are good for children.		.496		
4 Children feel happy in kindergarten.		.483		
21 Group size and teacher/children ratio are reasonable.		.473		
19 Kindergarten has sufficient resources.			.779	
16 Kindergarten has involved up-to-date technology.			.618	
18 Parents are involved in kindergarten.			.566	
15 Classroom is appropriately arranged.			.512	
2 Teacher is qualified to teach.				.744
3 Kindergarten continuously evaluates program.				.727
20 Children are cognitively ready for the next grade.				.422
Eigenvalues	3.04	2.84	2.39	1.58
Percent of Variance	14.5%	13.5%	11.4%	7.5%
Cronbach's Alpha	.77	.74	.66	.50
<b>Total Percent of Variance</b>	<b>47%</b>			

(Source: developed by the researcher.)

Each item cannot load to more than one factor or dimensionality. Retained items for a factor, preferably, have a factor loading value of 0.4 or higher for the relevant factor, and less than 0.4 on all other factors (Stevens, 1996). Tinsley and Tinsley (1987) suggested that the higher the boundary of the factor loading, the more the proportion of the projected common variance in an item that is explained by the factor. While the items have similar factor loadings, the Cronbach's Alpha calculates, respectively, in each factor and eliminates the item that lowers the value of Alpha. The conceptual fitness and factor interpretation for keeping items to enhance explainability were also examined. For each factor, computed internal consistency estimates using Cronbach's Alpha examine reliability. The Cronbach's Alpha can be computed for any multiple-item scale and is easy to conduct because it requires only a single test administration (Carmines and Zeller, 1979).

The first factor consists of six items, accounting for 14.5% of the variance, and is labeled *operation*. The first factor contains items that measure the procedures for operating kindergarten. Items include "Kindergarten operates efficiently with minimum waste," and "Enrollment is sufficient to maintain long-term operation." (Only two or three examples are listed in the text; all items appear in Table 4.5.) The Cronbach's Alpha is 0.77.

The second factor consists of eight items, accounting for 13.5% of the variance, and is labeled *daily support to children*. The second factor represents kindergartens' engagement through invisible (e.g. emotional) to visible (e.g. classroom materials or environment) support. Items include "Nutritious meals are provided for children," "Children are developed in physical growth," and "Environment is clean." The Cronbach's Alpha is 0.74.

The third factor consists of four items, accounting for 11.5% of the variance, and is labeled *resources*. The third factor contains items that measure the degree to which the kindergarten provides human resources, equipment, and classrooms. Items include "Kindergarten has sufficient resources," and "Kindergarten has involved up-to-date technology." The Cronbach's Alpha is 0.66.

The fourth factor consists of three items, accounting for 6.21% of the variance, and is labeled *evaluation*. The fourth factor represents kindergartens' engagement through the evaluation process, which accounted for 7.5 % of the variance. Items included "Teacher is qualified to teach," and "Kindergarten continuously evaluates program." The Cronbach's Alpha is about 0.50.

Table 4.6 shows the intercorrelations and descriptive statistics for the four factors of importance of the measures. It presents that all factors correlate with each other. Courville & Thompson (2001) and Thompson (2004) asserted that structure coefficients (correlations of the measured variables with the extracted factors) are also important aids to interpretation, especially for correlated factors.

Table 4.6.

Correlations and Descriptive Statistics of Four Factors Resulting from Importance of Measures-Combined Data (n=311)

Factor	M	SD	<i>Operation</i>	<i>Daily Support to Children</i>	<i>Resource</i>	<i>Evaluation</i>
<i>Operation</i>	3.58	.38	1.00			
<i>Daily Support to Children</i>	3.85	.22	.543**	1.00		
<i>Resource</i>	3.42	.43	.520**	.441**	1.00	
<i>Evaluation</i>	3.51	.44	.258**	.288**	.344**	1.00

\*\*Correlation is significant at the 0.01 level (2-tailed)

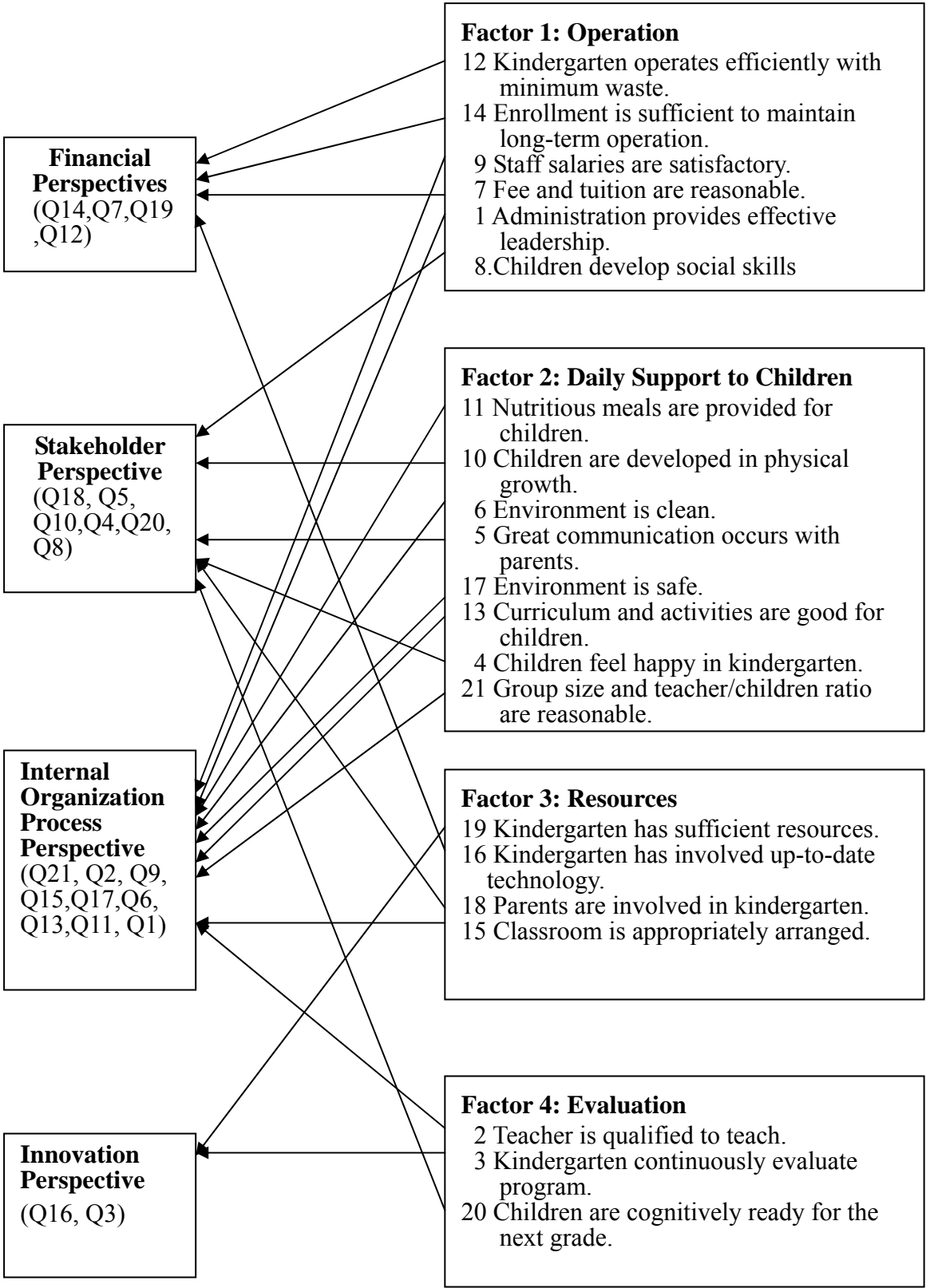
(Source: Developed by the researcher)

Table 4.7 shows similarities between the four dimensions of the Private Kindergarten Scorecard (financial, stakeholder, internal organization process, and innovation) and the four factors extracted from the importance of measures. Basically, for the first factor, *operation*, two items (#12 and #14) are from the *financial* perspective, two items (#9 and #7) are from the *internal organization process* perspective, and one item (#8) is from the *stakeholder* perspective.

In the second factor, *daily support to children*, five items (#11,#6,#17,#13,and #21) are from the *internal organization process* perspective and three items (#10,#5,and #4) are from the *stakeholder* perspective. For the third factor, *resource*, each item is from a different perspective (#19-*financial*, #18-*stakeholder*, #15-*internal organization process*, and #16- *innovation perspective*). There are three items in the last factor, *evaluation*.. Item # 2 is from the *internal organization process* perspective, item #3 is from the *innovation* perspective, and item #20 is from the *stakeholder* perspective.

Table 4.7:

Similarities between the Balanced Scorecard Perspectives and Four Factors of Importance of Measures-Combined Data (n=311)



(Source: developed by the researcher.)

In order to have a deeper understanding of the analysis results of importance of measures, dividing the sample into two groups created: kindergarten insiders and outsiders for factor analysis. Procedures and judgmental criteria: Kaiser-Meppman eigenvalue-greater-than-one rule, screen test, conceptual clarity, interpretability and theoretical salience of the rotated factors, and simple structure were applied in considering number of factors (Cattell, 1958; Pohlmann, 2004; Tabachnick & Fidell, 2001). Factor loading with a value of 0.4 or higher is the cutting point. Each item could load on one factor or dimensionality (Hair, Anderson, Tatham, and Black, 1998). Cronbach's Alpha test examined the internal consistency and did the decision for fitness of the factor while the items have similar factor loading. After examining the factor results of combined data (kindergarten insiders and outsiders), conducting further factor analysis creates two divisions: kindergarten outsider segment, and kindergarten insider segment.

### ***Kindergarten Outsider Segment***

After reviewing six-factor, five-factor, and four-factor alternatives, four factors made greater sense for interpreting the analysis results. Table 4.8 presents the factor analysis results of kindergarten outsiders. The first factor consisted of seven items, accounted for 15.9% of the variance, and is labeled *administration*. The first factor contained items that relate to the process or procedure of managing the kindergarten. Items include "Kindergarten operates efficiently with minimum waste," and "Fee and tuition are reasonable." (Only two or three examples are listed in the text; all items appear in Table 4.8. The Cronbach's Alpha is 0.79.

The second factor consists of six items, accounting for 13.2% of the variance, and is *resource*. The factor name is exactly the same as the third factor of the former factor analysis result (combined data-kindergarten insider and outsider) because the items in the second factor are similar to the third factor of the combined data analysis. The second factor contained items that consider the resources provided to children in the kindergarten

setting. Items included “Kindergarten has sufficient resources,” and “Parents are involved in kindergarten”. The Cronbach’s Alpha is 0.81.

The third factor consists of five items, accounting for 11.6% of the variance, and is *providing to children*. Items in this factor are very similar to the second factor of the analysis result of combined data. The third factor represents kindergarten’s commitment through invisible (e.g. Children feel happy in kindergarten.) to visible support (e.g. Environment is clean; nutritious meals are provided for children.). The Cronbach’s Alpha is 0.60.

The fourth factor, *assessment*, represents the evaluation process in the kindergarten, which accounts for 7.4 % of the variance. Items include “Teacher is qualified to teach,” and “Kindergarten continuously evaluate program.” The Cronbach’s Alpha is about 0.78.



Table 4.8

Factor Analysis of Importance of Measures-Kindergarten Outsider Segment  
(Factor Loadings of 0.40 or Higher, n=189)

<b>Variables</b>	<b>Factor 1</b> <i>Admini- stration</i>	<b>Factor 2</b> <i>Resources</i>	<b>Factor 3</b> <i>Providing to Children</i>	<b>Factor 4</b> <i>Assessment</i>
12 Kindergarten operates efficiently with minimum wastes.	.722			
7. Fee and tuition are reasonable.	.717			
9 Staff salaries are satisfactory.	.707			
14 Enrollment is sufficient to maintain long-term operation.	.705			
15 Classroom is appropriately arranged.	.684			
8 Children develop social skills.	.520			
1 Administration provides effective leadership.	.431			
19 Kindergarten has sufficient resources.		.728		
18 Parents are involved in kindergartens.		.662		
16 Kindergarten has involved up-to-date technology.		.607		
20 Children are cognitively ready for the next grade		.587		
13 Curriculum and activities are good for children.		.501		
17 Environment is safe.		.371		
6 Environment is clean.			.688	
11. Nutritious meals are provided for children.			.633	
4 Children feel happy in kindergarten.			.562	
10. Children are developed in physical growth.			.555	
5 Great communication occurs with parents.			.524	
2 Teacher is qualified to teach.				.732
3 Kindergarten continuously evaluates program.				.550
21 Group size and teacher/children ratio are reasonable.				.463
Eigenvalues	3.34	2.76	2.44	1.54
Percent of Variance	15.90%	13.12%	11.61%	7.34%
Cronbach's Alpha	.82	.69	.70	.41
Total Percent of Variance	48 %			

(Source: developed by the researcher.)

Table 4.9 shows the intercorrelations and descriptive statistics for four factors resulting from importance of measures. It shows that all four factors correlate with each other except the *assessment* factor which correlates with the *resource* factor.

Table 4.9.

Correlations and Descriptive Statistics of Four Factors Resulting from Importance of Measures-Kindergarten Outsider Segment (n=189)

Factor	M	SD	<i>Operation</i>	<i>Daily Support to Children</i>	<i>Resource</i>	<i>Evaluation</i>
<i>Administration</i>	3.56	.39	1.00			
<i>Resources</i>	3.55	.35	.447**	1.00		
<i>Providing to children</i>	3.86	.24	.446**	.441**	1.00	
<i>Assessment</i>	3.68	.35	.278*	.320**	.132	1.00

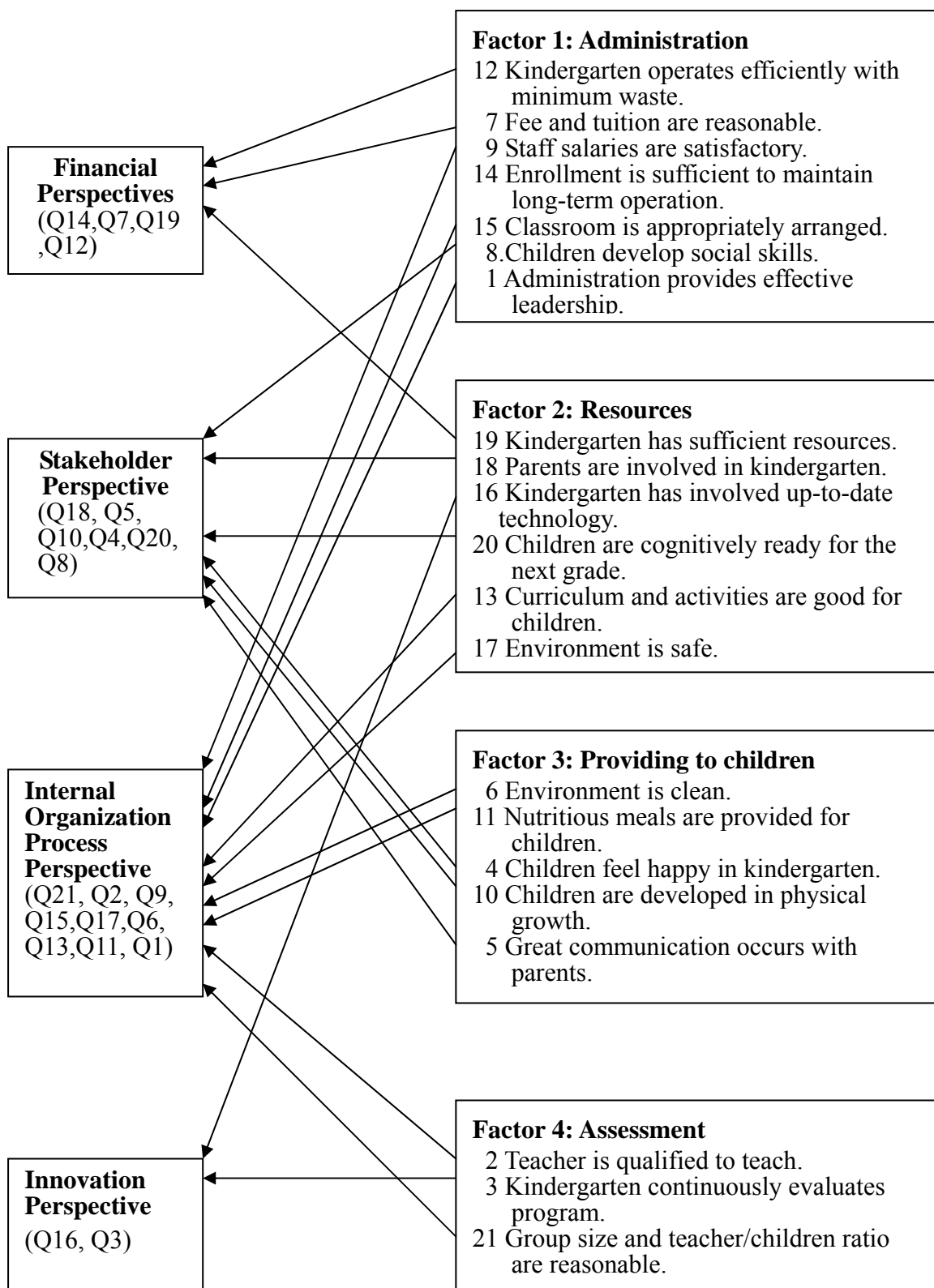
\*\*Correlation is significant at the 0.01 level (2-tailed)

Source: developed by the researcher

Table 4.10 shows similarities between the four dimensions of the Private Kindergarten Scorecard (financial, stakeholder, internal organization process, and innovation) and the four factors extracted from the importance of measures-kindergarten outsider. Basically, for the first factor, *administration*, two items (#12 and #7) are from *financial* perspective, three items (#9, #15 and #1) are from an *internal organization process* perspective, and one item (#8) is from a *stakeholder* perspective. For the second factor, *resource*, one item (#19) is from a *financial* perspective, two items (#18 and #20) are from a *stakeholder* perspective, two items (#13 and #17) are from an *internal organization process* perspective, and one item (#16) is from an *innovation* perspective. For the third factor, *providing to children*, three items (#4, #10, and #5) are from a *stakeholder* perspective and two items (#6 and #11) are from an *internal organization process* perspective. Three items exist in the last factor, *assessment*. Two items (#2 and #21) are from an *internal organization process* perspective and one item (#3) is from an *innovation* perspective.

Table 4.10

Similarities between the Balanced Scorecard Perspectives and Four Factors of Importance of Measures-Kindergarten Outsider Segment (n=189)



(Source: developed by the researcher)

### ***Kindergarten insider Segment***

After examining a six-factor, five-factor, and four-factor alternatives, choosing four factors makes better sense for interpreting the analysis results Table 4.11 summarizes the factor analysis results of importance of measure -kindergarten insiders segment. The first factor consists of nine items, accounting for 19% of the variance, and is *management and child development*. The first factor contains items that measure the management processes and procedures that help child development. Items include “Enrollment is sufficient to maintain long-term operation,” and “Children are developed in physical growth”. (Only two or three examples are listed in the text; all items appear in Table 4.11.). The Cronbach’s Alpha is 0.85.

The second factor consists of six items, accounting for 16% of the variance, and is *resource and arrangement*. The second factor represents resources provided and the arrangement in the kindergarten. Items include “Kindergarten has sufficient resources,” and “Classroom is appropriate arranged”. The Cronbach’s Alpha is 0.76.

The third factor consists of four items, accounting for 8.5% of the variance, and is *evaluation*. The third factor contains items that measure the kindergarten’s program. Items include “Teacher is qualified to teach,” and “Kindergarten continuously evaluates program.” The Cronbach’s Alpha is 0.50.

The fourth factor consists of two items, accounting for 8% of the variance, and is *update and readiness*. The fourth factor represents the update of technology and children’s readiness for schooling. Items include “Kindergarten has involved up-to-date technology,” and “Children are cognitively ready for the next grade”. One item (#6, Environment is clean.) was deleted because its absolute factor loading is below 0.4 (the real number is -0.359). The Cronbach’s Alpha is about 0.58.

Table 4.11

Factor Analysis of Importance of Measure-Kindergarten Insider Segment  
(Factor Loadings of 0.40 or Higher, n=122)

<b>Variables</b>	<b>Factor 1</b> <i>Management &amp; Child Development</i>	<b>Factor 2</b> <i>Resource and Arrangement</i>	<b>Factor 3</b> <i>Evaluation</i>	<b>Factor 4</b> <i>Update &amp; Readiness</i>
5 Great communication occurs with parents.	.732			
10.Children are developed in physical growth.	.714			
14 Enrollment is sufficient to maintain long-term operation.	.640			
4 Children feel happy in kindergarten.	.614			
12 Kindergarten operates efficiently with minimum wastes.	.611			
7. Fee and tuition are reasonable.	.596			
11 Nutritious meals are provided for children.	.590			
9 Staff salaries are satisfactory.	.584			
8 Children develop social skills.	.512			
19 Kindergarten has sufficient resources.		.765		
15 Classroom is appropriately arranged.		.743		
13 Curriculum and activities are good for children.		.673		
21 Group size and teacher/children ratio are reasonable.		.553		
17 Environment is safe		.542		
18 Parents are involved in kindergartens.		.461		
2 Teacher is qualified to teach.			.782	
3 Kindergarten continuously evaluates program.			.673	
1 Administration provides effective leadership.			.561	
16 Kindergarten has involved up-to-date technology.				.635
20 Children are cognitively ready for the next grade.				.587
(6 Environment is clean)				(-.359)
Eigenvalues	3.98	3.39	1.79	1.68
Percent of Variance	19.0%	16.0%	8.5%	8.0%
Cronbach's Alpha	.85	.76	.50	.58
<b>Total Percent of Variance</b>	<b>52 %</b>			

(Source: develop by the researcher) (Item 6-environment is clan- was deleted from factor 4)

Table 4.12 shows the intercorrelations and descriptive statistics. It shows that these four factors correlate with each other.

Table 4.12.

Correlations and Descriptive Statistics of Four Factors Resulting from Importance of Measures-Kindergarten Insider Segment (n=122).

Factor	M	SD	<i>Management &amp; Child Development</i>	<i>Resource and Arrangement</i>	<i>Evaluation</i>	<i>Update &amp; Readiness</i>
<i>Management &amp; Child Development</i>	3.70	.32	1.00			
<i>Resource and Arrangement</i>	3.69	.31	.544**	1.00		
<i>Evaluation</i>	3.52	.42	.206**	.233**	1.00	
<i>Update &amp; Readiness</i>	3.49	.39	.439**	.410**	.282**	1.00

\*\*Correlation is significant at the 0.01 level (2-tailed)

(Source: developed by the researcher.)

Table 4.13 shows the similarities between the four dimensions of the Private Kindergarten Scorecard (*financial, stakeholder, internal organization process, and innovation*) and the four factors extracted from the importance of measures-kindergarten insiders segment. Basically, in the first factor, *management and child development*, items #14, #12 and #7 are from a *financial* perspective; items #5, #10, #4 and #8 are from a *stakeholder* perspective; items #11 and #9 are from an *internal organization process* perspective.

In the second factor, *resource and management*, four items (#15, #13, #21, and #17) are from an *internal organization process* perspective, one item (#19) is from a *financial* perspective, and the other item (#18) is from a *stakeholder* perspective.

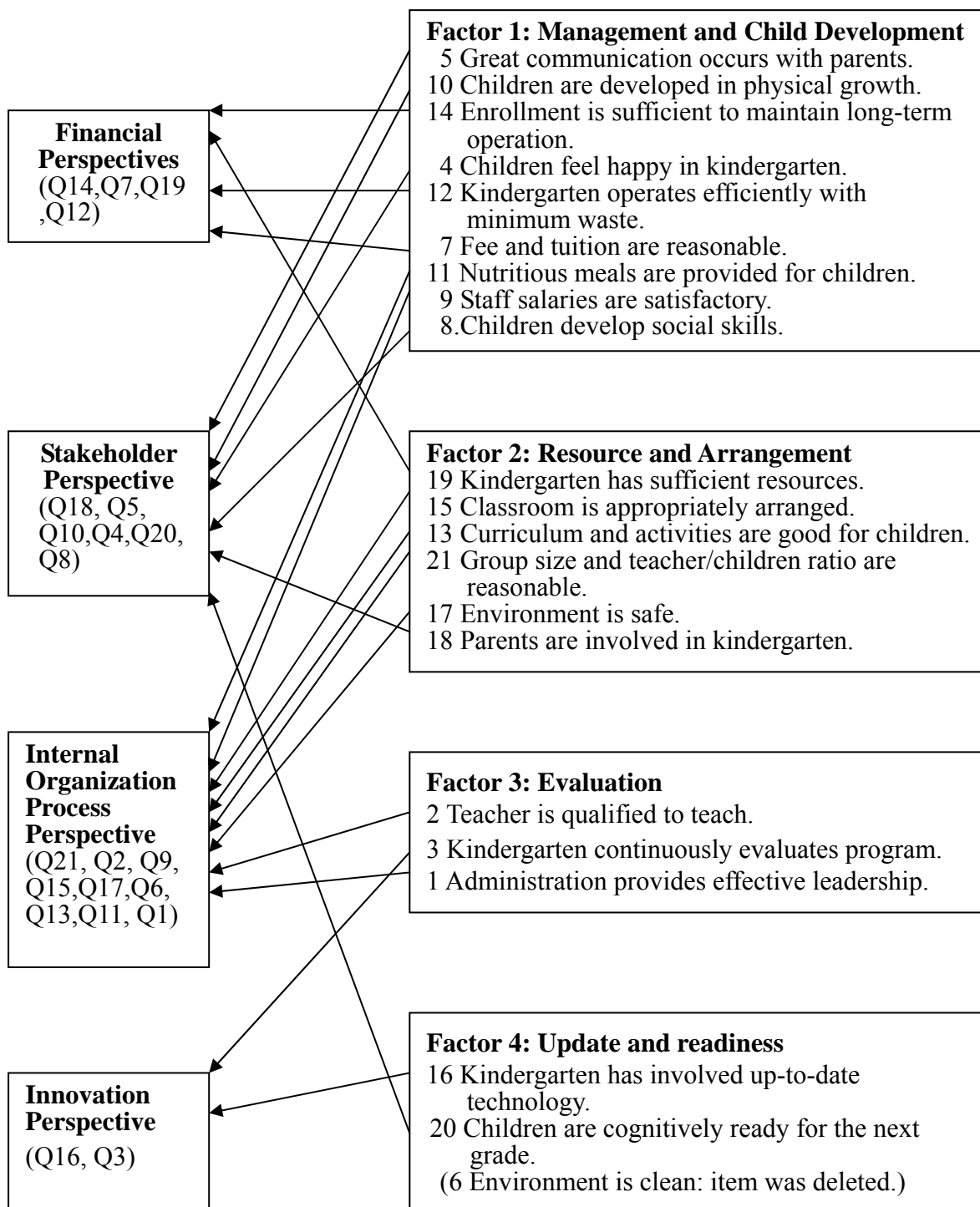
The third factor is *evaluation*. Two items (#2 and #1) are from an *internal organization process* perspective and one item (#3) is from *innovation* perspective.

In the last factor, *update and readiness*, two items (#2 and #21) are independently

from *innovation* and *financial* perspectives.

Table 4.13

Similarities between the Balanced Scorecard Perspectives and Four Factors of Importance of Measures-Kindergarten Insider Segment (n=122)



(Source: develop by researcher)

### **Factor Analysis of Actual Performance (the Degree of Agreement with the Current Situation)**

To test the factor structure of the Private Kindergarten Scorecard measures for the degree of agreement in the current kindergarten situation, an exploratory factor analysis and reliability estimates were conducted. The principal component factor analysis with orthogonal varimax rotation was performed on the 21 Private Kindergarten Scorecard items to measure kindergarten insiders' and outsiders' perceptions of the degree of agreement in the current situation. Several rules were applied in the previous section in running factor analysis. First, a combination of methods (e.g. The Kaiser-Meyer-Olkin eigenvalue-greater-than-one rule, and screen test), conceptual clarity, interpretability and theoretical salience of the rotated factors and simple structure were considered for determining the number of factors (Cattell, 1958; Pohlmann, 2004; Tabachnick & Fidell, 2001). Second, each item can only load one factor or dimensionality. Even though no commonly accepted value for a cutoff point exists, values in the range 0.3 to 0.4 have been used in past research to be the cutoff point and determine which items or measures should remain in the factor (Narasimhan & Carter, 1998). The factor loadings with a value of 0.4 or higher were used in factor interpretations (Hair, Anderson, Tatham, and Black, 1998). Third, Cronbach's Alpha was calculated for each factor and deleted the items that decreased the value of Alpha when the items or measures had similar factor loadings. Besides, several alternatives, including examining the conceptual fitness and factor interpretation of keeping items or measures to enhance explained ability, were applied in order to assess the robustness of the factor identification, both statistical and in content.

The four factors retained in this section and accounted for 52% of the variance. Table 4.14 shows the factor solution, all the items or measures of the Private Kindergarten Scorecard, eigenvalues, explained variance, Cronbach's Alpha and factor loading.



Table 4.14

Factor Analysis of Actual Performance (the Degree of Agreement with the Current Situation) (Factor Loadings of 0.40 or Higher, n=311)

<b>Variables</b>	<b>Factor 1</b> <i>Children's Experience</i>	<b>Factor 2</b> <i>Internal Structure</i>	<b>Factor 3</b> <i>Process Quality</i>	<b>Factor 4</b> <i>Setting</i>
8 Children develop social skills. 5 Great communication occurs with parents. 4 Children feel happy in kindergarten. 10. Children are developed in physical growth. 13 Curriculum and activities are good for children. 7. Fee and tuition are reasonable.	.699 .682 .658 .649 .499 .439			
9 Staff salaries are satisfactory. 18 Parents are involved in kindergartens. 21 Group size and teacher/children ratio are reasonable. 19 Kindergarten has sufficient resources. 1 Administration provides effective leadership. 12 Kindergarten operates efficiently with minimum wastes. 11 Nutritious meals are provided for children.		.767 .597 .578 .577 .501 .455 .400		
2 Teacher is qualified to teach. 3 Kindergarten continuously evaluates program. 14 Enrollment is sufficient to maintain long-term operation. 15 Classroom is appropriately arranged.			.688 .654 .549 .408	
17 Environment is safe. 6 Environment is clean. 16 Kindergarten has involved up-to-date technology. 20 Children are cognitively ready for the next grade.				.789 .770 .685 .506
Eigenvalues	3.31	2.71	2.42	2.35
Percent of Variance	15.76%	12.91%	11.52%	11.21%
Cronbach's Alpha	.79	.81	.60	.78
<b>Total Percent of Variance</b>	<b>51.40%</b>			

(Source: developed by the researcher.)

The first factor consists of six items, accounting for 15.76% of the variance, and is *children's experience*. The first factor contains items that measure what is provided to children. Items include "Children develop social skills," and "Children feel happy in kindergarten." (Only two or three examples are listed in the text; all items appear in Table 4.14.) The Cronbach's Alpha is 0.79.

The second factor, *internal structure*, consists of seven items, accounting for 12.91% of the variance. The second factor represents classroom, program and office structure. Items include "Staff salaries are satisfactory," "Parents are involved in kindergartens," "Group size and teacher/children ratio are reasonable," and "Kindergarten has sufficient resources." The Cronbach's Alpha is 0.81.

The third factor, *process quality*, consists of four items, accounting for 11.52% of the variance. The third factor contains items that measure the process quality. Items include "Teacher is qualified to teach," and "kindergarten continuously evaluates program." The Cronbach's Alpha is 0.6.

The fourth factor, *setting*, consists of four items, accounting for 11.21% of the variance. The fourth factor most represents kindergarten's overall environment and equipment. Items include "Environment is safe," and "Environment is clean." The Cronbach's Alpha is about 0.78. The intercorrelations and descriptive statistics for degree of agreement for the factors appear in Table 4.15.

Table 4.15.

Correlations and Descriptive Statistics of Four Factors Resulting from Actual Performance (the Degree of Agreement with the Current Situation, n=311)

Factor	M	SD	<i>Children's Experience</i>	<i>Internal Structure</i>	<i>Process Quality</i>	<i>Setting</i>
<i>Children's Experience</i>	3.42	.37	1.00			
<i>Internal Structure</i>	3.15	.42	.655**	1.00		
<i>Process Quality</i>	3.33	.37	.510**	.558**	1.00	
<i>Setting</i>	3.18	.44	.432**	.469**	.388**	1.00

\*\*Correlation is significant at the 0.01 level (2-tailed)

(Source: developed by the researcher.)

Table 4.16 presents similarities between the four dimensions of the Private Kindergarten Scorecard (*financial, stakeholder, internal organization process, and innovation*) and the four factors extracted from the degree of agreement in the current kindergarten situation.

In the first factor, *children's experience*, four items (#8, #5, #4, and #10) are the same as the items in the *stakeholder* perspective. One item (#13) is the same as the one in the *internal organizational process* perspective and the other one (item #7) is exactly the same as the one in the *financial* perspective.

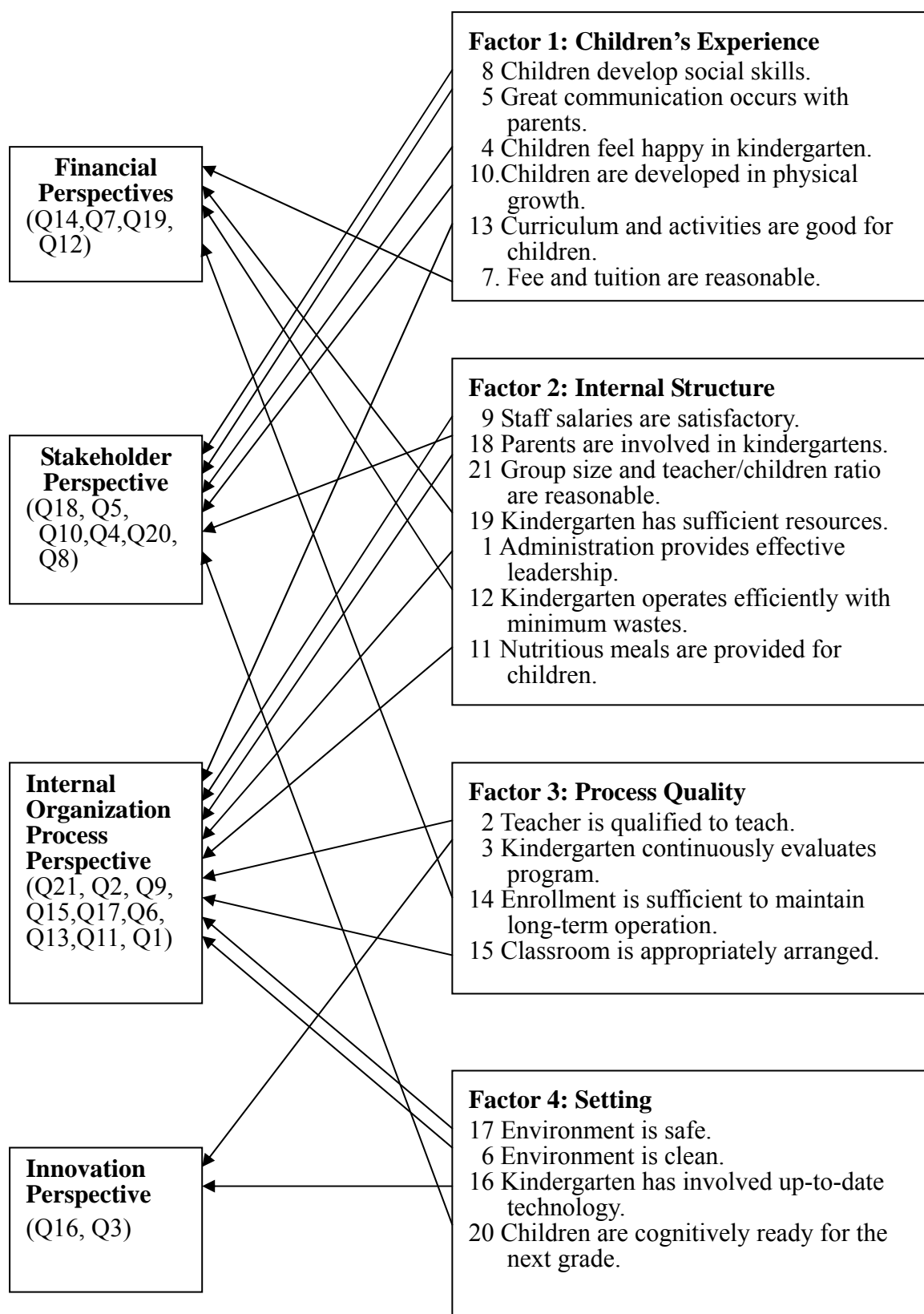
In the second factor, *internal structure*, four items (#9, #21, #1, and #11) are the same as the items in the *internal organization process* perspective. Two items (#19 and #12) are from the *financial* perspective. Only one item (#18) is from the *stakeholder* perspective.

In the third factor, *process quality*, two items (#2 and #15) are from the *internal organizational process* perspective, item #3 is from the *innovation* perspective, and item #14 is from the *financial* perspective.

In the last factor, *setting*, two items (#17 and #6) are from the *internal organization process* perspective, item #16 is from the *innovation* perspective, and item #20 is from the *stakeholder* perspective.

Table 4.16

Similarities between the Balanced Scorecard Perspectives and Four Factors Resulting from Actual Performance (the Degree of Agreement with the Current Situation) (n=311)



(Source: developed by the researcher.)

In sum, all 21 measures are useful and need to remain in the Private Kindergarten Scorecard. Balanced Scorecard theory is useful and provides a guideline for developing a self-evaluation system for Taiwan's kindergartens. Four dimensions exist since each factor analysis has four factors with different names. Table 4.7 shows the factors resulting from importance of measure-combined data, kindergarten insider segment, kindergarten outsider segment, and actual performance.

Table 4.17

## Factors Resulting from Different Factor Analysis

<b>Running Order</b>	<b>Target</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>
First	Importance of Measures-Combined Data (n=311)	<i>Operation</i>	<i>Daily Support to Children</i>	<i>Resource</i>	<i>Evaluation</i>
Second	Importance of Measures-Kindergarten Outsiders Segment (n=189)	<i>Administration</i>	<i>Resources</i>	<i>Providing to Children</i>	<i>Assessment</i>
Third	Importance of Measures-Kindergarten Insider Segment (n=122)	<i>Management &amp; Child Development</i>	<i>Resources and Arrangement</i>	<i>Evaluation</i>	<i>Update &amp; Readiness</i>
Fourth	Actual Performance (n=311)	<i>Children's Experience</i>	<i>Internal Structure</i>	<i>Process Quality</i>	<i>Setting</i>
N/A	Original Version (PKS)	<i>Financial</i>	<i>Stakeholder</i>	<i>Internal Organization Process</i>	<i>Innovation</i>

(Source: developed by the researcher)

### Answering Research Question Three

The analytic hierarchy process (AHP) answers Research Question Three (What are the differences in kindergarten insiders' and outsiders' weighting on original dimensions for a self-evaluation system, the Private Kindergarten Scorecard?). In the 1970s, Dr. Thomas Saaty, a professor at the Wharton School of Business, University of Pennsylvania, developed the analytic hierarchy process (AHP) which continues to be the most highly regarded and widely used decision-making theory. In 1983, Dr. Saaty and Dr. Ernest Forman, a professor of management science at George Washington University, co-founded Expert Choice software to utilize the AHP method (Armacost, Hosseini, & Pet-Edwards, 1999). AHP is a powerful and is flexible decision making process and especially suitable for complex decisions which involve the comparison of decision elements which are difficult to quantify and related to both qualitative and quantitative aspects (Saaty, 1980;1982;1994). AHP has been widely and successfully used for various aspects of group decision making (Frair L, Matson, J. O., Matson, J. E., 1998; Golden, Wasil, & Harker, 1989; Zahedi, 1986; Vargas & Zahedi, 1993; Wasil & Golden, 1991). In an academic administrative setting, AHP has application in faculty evaluations (Liberatore & Nydick, 1997; Lootsma, 1980; Saaty and Ramanujam, 1983; Trout and Tadisina, 1992; Tummala & Sanchez, 1988), university budgeting (Arbel, 1983; Kwak & Diminnie, 1987), curriculum design (Frair L, Matson, J. O., Matson, J. E., 1998; Hope & Sharpe, 1989), and college major or program choices (Strasser, Ozgur, & Schroeder, 2002; Tadisina & Bhasin, 1989).

The calculation procedure of AHP begins with *establishment of a pair-wise comparison Matrix A*. Table 4.18 shows Saaty's scale of preferences in the pair-wise comparison process.

Table 4.18

## Standard AHP 1-9 Measurement Scale

Intensity of importance	Definition	Explanation
1	Equal importance	Two activities contribute equal to the objective
3	Moderate importance	Experience and judgment slightly favor one activity over another
5	Strong importance	Experience and judgment strongly favor one activity over another
7	Very strong or demonstrated importance	An activity is favored very strongly over another, its dominance demonstrated in practice.
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2,4,6,8	For compromise between the above values	Sometimes one needs to interpolate a compromise judgment numerically because there is no good word to describe it
1.1-1.9	For tied activities	When elements are close and nearly indistinguishable, moderate is 1.3 and extreme is 1.9
Reciprocals if above	If activity A has one of the above numbers assigned to it when compared with activity B, then B has the reciprocal value when compared to A	For example, if the pairwise comparison of A to B is 3.0, then the pairwise comparison of B to A is 1/3

Source: Adapted from Saaty (1994).

These pair-wise comparisons are eligible for using the standard one-to-nine AHP scale. An  $n$ -by- $n$  matrix  $A$  is as follows:

$$A=[a_{ij}] = \begin{array}{c} C_1 \\ C_2 \\ \vdots \\ C_n \end{array} \begin{array}{c} C_1 \\ C_2 \\ \dots \\ C_n \end{array} \begin{array}{c} 1 \\ 1/a_{12} \\ \vdots \\ 1/a_{1n} \end{array} \begin{array}{c} a_{12} \\ 1 \\ \vdots \\ 1/a_{2n} \end{array} \dots \begin{array}{c} a_{1n} \\ a_{2n} \\ \vdots \\ 1 \end{array}$$

where  $a_{ij}=1$  and  $a_{ji}=1/a_{ij}$ ,  $i, j = 1, 2, \dots, n$ ;

The next step is to calculate *Eigenvalue and Eigenvector*. The largest eigenvalue  $\lambda_{\max}$  will be equal to  $\sum_{j=1}^n a_{ij} W_j / W_i$ . Eigenvector  $X$  can be expressed as follows, if  $A$  is a consistency matrix (Saaty, 1990):

$$(A - \lambda_{\max} I)X = 0$$

The last step is to conduct *consistency test*. Saaty (1990) suggested that a consistency index (CI) and consistency ratio (CR) could examine the consistency of the comparison matrix. The consistency index (CI) may be represented by  $(\lambda_{\max} - n) / (n - 1)$ . The consistency index of a randomly generated reciprocal matrix from the scale one to nine, with reciprocals forced is called the random index (RI). Table 4.19 shows the average random index for corresponding matrix size.

Table 4.19

Average Random Index for Corresponding Matrix Size

Matrix size (n)	1	2	3	4	5	6	7	8	9	10
Random index (RI)	0	0	0.58	.90	1.12	1.24	1.32	1.41	1.45	1.49

(Source: Saaty, 1980.)



The consistency ratio (CR) is:

$$CR=CI/RI$$

Saaty (1980, 1990, 1996) mentioned that a value of the consistency ratio  $CR \leq 0.1$  is acceptable, and otherwise a new comparison matrix is solicited until  $CR \leq 0.1$ .

The following figure exemplifies a simple decision hierarchy.

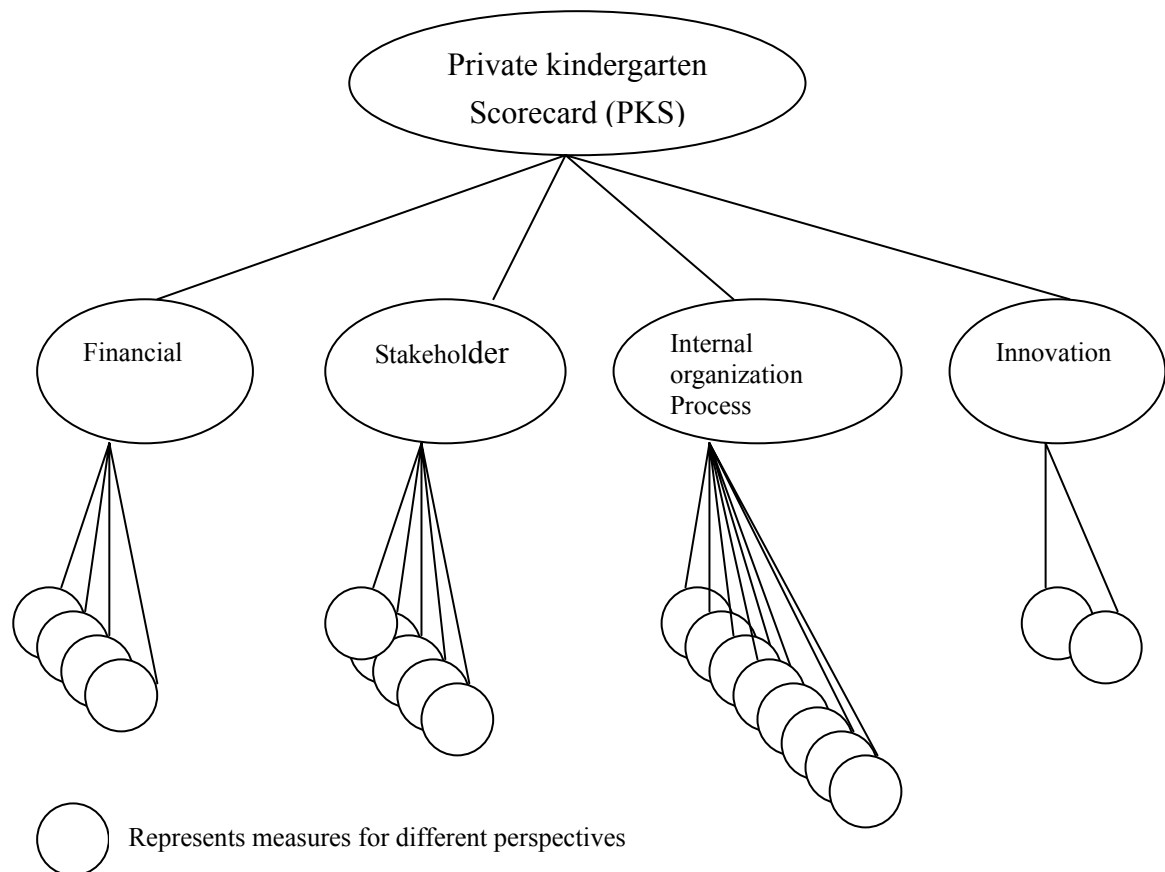


Figure 4.1  
Hierarchy Model of Private Kindergarten Scorecard

### Data Analysis Result of Kindergarten Outsider Segment

Expert Choice 2000 was conducted to analyze the data from Survey-Part II which included 189 kindergarten insiders for the sample. Forty participants left part II of the survey empty, gave the straight answer, or double checked one comparison. Consistency ratio (CR) from 68 survey participant was greater than 0.1. On the other hand, 81 surveys

passed the consistency ratio test ( $CR \leq 0.1$ ). The total valid response rate is 43% (81/189 $\approx$ 43%). The global or composite weights for the original dimensions of the Private Kindergarten Scorecard are as in Table 4.20.

Table 4.20.

Weights of the Original Dimensions of the Private Kindergarten Scorecard (PKS)

	<i>Kindergarten outsiders</i> (1)	<i>Kindergarten insiders</i> (2)	<i>Differences in Kindergarten outsiders and Insiders</i>
Original dimensions of PKS	Weights	Weights	(1)-(2)
<i>Financial perspective</i>	.157	.232	-.075
<i>Stakeholders' perspective</i>	.357	.257	.100
<i>Internal organization process perspective</i>	.186	.250	-.064
<i>Innovation perspective</i>	.300	.261	.039
CR=.00 $\leq$ 0.1			

(Source: developed by the researcher)

The weighting score for the original dimensions of Private Kindergarten Scorecard is as the follows: *financial* (0.157), *stakeholders* (0.357), *internal organization process* (0.186), and *innovation* (0.300) perspective. The weightings reveal that kindergarten outsiders believe the *stakeholders' perspective* is important. *Stakeholders' perspective* defined as parents', staffs' and teachers' perceptions of private kindergarten. The following most important dimension of the PKS is *innovation*, defined as what the organization is doing to make continuous improvement. Kindergarten outsiders have low weighting score on *internal organization process* and *financial perspective*. *Internal organization process*

defined as the internal process and organization capacity to see how well the organization is doing now. *Financial* perspective defined as organizational resources and expenditures. Generally speaking, kindergarten outsiders think that the *stakeholder* perspective is about 1.2 times more important than the *innovation* perspective ( $.357/.300 \approx 1.2$ ) when all of the judgments in the pairwise comparison matrix are considered. The *stakeholder* perspective is almost two times more important than the *internal organization process* perspective ( $.357/.186 \approx 2$ ), and the *innovation* perspective is about 1.6 times more important than the *internal organization process* perspective ( $.300/.186 \approx 1.6$ ). The *stakeholder* perspective is about 2.3 times more important than the *financial* perspective ( $.357/.157 \approx 2.3$ ), the *innovation* perspective is rounded to 1.9 times more important than the *financial* perspective ( $.300/.157 \approx 1.9$ ), and the *internal organization process* perspective is almost 1.2 times more important than the *financial* perspective ( $.186/.157 \approx 1.2$ ).

### **Data Analysis Result of Kindergarten Insider Segment**

The same procedures and software, Expert Choice 2000, examine this part of data. Of the 122 kindergarten insiders, 15 subjects did not complete and answer Part II of the survey. The results of the consistency test, and the CR of the comparison matrix from the 36 subjects are greater .01, and 71 subjects are  $\leq 0.1$ , indicating “consistency”. The total valid return rate is 58%. According to Table 4.20, the respective weights of the four original dimensions of the Private Kindergarten Scorecard are the *financial* perspective (.232), the *stakeholder* perspective (.257), the *internal organization process* perspective (.250), and the *innovation* perspective (.261). The weights among these four perspectives are similar. The weighting difference between kindergarten outsiders and insiders is listed on Table 4.20. The major difference between these two groups is *stakeholders’* perspective. The weight differences among other three perspectives are all below 0.1.

### Answering Research Question Four

In order to answer the Research Question Four: Do perceptual differences exist between two groups in the self-evaluation results when comparing the participants' responses regarding what they perceive to be important and what they perceive currently exists. Multiple analysis of variance (MANOVA) assesses the statistical significance of the group differences between kindergarten insiders and outsiders (independent variables) for four attribution variables. Specifically, the causal attribution variables are *operation*, *daily support for children*, *resources*, and *evaluation*.

#### First Part of MANOVA Analysis

The F test is still quite robust, even in the presence of departures from the assumption that the covariance matrices differ [P value of Box's M (39.10) is significant]. The results of the MANOVA reveal a significant main effect for kindergarten insiders and outsiders on weighting a self-evaluation system: Wilks' Lambda = .884,  $F(4,311)=9.814$ , and  $P=.000$ . The univariate tests reveal significant differences in one of the four attributions between kindergarten insiders and outsiders. The attribution dimensions that show the difference are: *operation*, *daily support to children*, and *evaluation* [*Operation*:  $F(1,311)=7.724$  and  $P=.006$ ; *Daily support to children*:  $F(1,311)=6.385$  and  $P=.012$ ; *Evaluation*:  $F(1,311)=20.754$  and  $P=.000$ ]. The *resource* dimensions did not reveal any significant difference at the 0.05 level [ $F(1,311)=1.864$  and  $P=.173$ ]. In sum, this means that kindergarten insiders and outsiders have different views of *operation*, *daily support to children*, and *evaluation* perspective, but not for the *resource* perspective. The effect sizes, measured by Eta squared ( $\eta^2$ ), are 0.025, 0.021, 0.006, and 0.064 respectively. It indicates that the differences are small between kindergarten insiders and outsiders.

Table 4.21 summarizes the basic statistic information and MANOVA results of kindergarten insiders' and outsiders' perception toward the four factors of importance of measures.

Table 4.21

Mean, Standard Errors and MANOVA Results for Kindergarten Insiders' and Outsiders' Perception Differences of Importance of Measures (n=311)

<b>Dependent Variable</b>	<b>Independent Variable</b>	<b>Mean</b>	<b>S.D.</b>	<b>n</b>	<b>F</b>	<b>Sig</b>	<b><math>\eta^2</math></b>
<i>Operation</i>	Kindergarten Insiders	3.63	0.34	122	7.724	.006	.025
	Kindergarten Outsiders	3.55	0.41	189			
	Total	3.58	0.38	311			
<i>Daily Support to Children</i>	Kindergarten Insiders	3.83	0.25	122	6.385	.012	.021
	Kindergarten Outsiders	3.87	0.20	189			
	Total	3.85	0.22	311			
<i>Resources</i>	Kindergarten Insiders	3.47	0.40	122	1.864	.173	.006
	Kindergarten Outsiders	3.39	0.44	189			
	Total	3.42	0.43	311			
<i>Evaluation</i>	Kindergarten Insiders	3.37	0.47	122	20.754	.000	.064
	Kindergarten Outsiders	3.60	0.39	189			
	Total	3.51	0.44	311			

(Source: developed by the researcher.)

### Second Part of MANOVA Analysis

This part of the analysis is primarily to understand whether kindergarten insiders and outsiders have different opinions of actual performance (degree of agreement). The F test is still quite robust even in the presence of departures from the assumption that the covariance matrices differ [Box's  $M=20.185$ ,  $F=1.988$ , and  $P=.030$ ]. The results of the MANOVA reveal a significant main effect for kindergarten insiders and outsiders when weighting a self-evaluation system: Wilks' Lambda = .943,  $F(4,311)=4.620$ , and  $P=.001$ . The univariate tests reveal significant differences in one of the four attributes between kindergarten insiders and outsiders. The attribution dimension that show difference at the 0.05 level is *operation* perspective [*Operation*:  $F(1,311)=11.438$  and  $P=.001$ ]. The *daily support to*

*children, resource, and evaluation* dimensions did not reveal any significant difference at the 0.05 level [*Daily support to children*:  $F(1,311)=.794$  and  $P=.374$ ; *Resource*:  $F(1,311)=.186$  and  $P=.667$ ; *Evaluation*:  $F(1,311)=.355$  and  $P=.551$ ]. In sum, this means that kindergarten insiders and outsiders disagree about current kindergarten situation regarding on the *operation* perspective. Table 4.22 summarizes the basic statistic information and MANOVA results of kindergarten insiders' and outsiders' differences regarding what they perceive currently exists. The effect sizes, Eta squared ( $\eta^2$ ), in four perspectives are 0.031, 0.003, 0.001, and 0.001. The Eta squared are still small among four perspectives.

Table 4.22

Mean, Standard Errors and MANOVA Results for Kindergarten Insiders' and Outsiders' Perception Differences of Actual Performance (n=311)

<b>Dependent Variable</b>	<b>Independent Variable</b>	<b>Mean</b>	<b>S.D.</b>	<b>n</b>	<b>F</b>	<b>Sig</b>	<b><math>\eta^2</math></b>
<i>Operation</i>	Kindergarten Insiders	3.07	0.41	122	11.438	.002	.031
	Kindergarten Outsiders	3.21	0.32	189			
	Total	3.15	0.36	311			
<i>Daily Support to Children</i>	Kindergarten Insiders	3.36	0.37	122	.794	.374	.003
	Kindergarten Outsiders	3.40	0.36	189			
	Total	3.38	0.36	311			
<i>Resources</i>	Kindergarten Insiders	3.13	0.47	122	.186	.667	.001
	Kindergarten Outsiders	3.15	0.40	189			
	Total	3.14	0.43	311			
<i>Evaluation</i>	Kindergarten Insiders	3.26	0.38	122	.355	.551	.001
	Kindergarten Outsiders	3.28	0.41	189			
	Total	3.27	0.40	311			

(Source: developed by the researcher.)

### Additional Findings

The previous sections reveal the perception difference between kindergarten insiders and outsiders for the Private Kindergarten Scorecard (PKS) dimensions. In the original data, apparently, most participants scored higher on the importance of measures and lower on the degree of agreement for the current situation. In order to have further understanding of the difference between the importance of measures and degree of agreement in the current situation for these 21 measures of the Private Kindergarten Scorecard, a paired *t*-test was conducted. The paired-samples *t*-test, a dependent *t*-test, compares the means of the two scores from related samples (Cronk, 2004; Urdan, 2005). This study seeks to determine if a significant change occurs in the scores of the same cases for the same variables over time. In this instance, a paired-sample *t*-test calculation compares the importance of measures score to the degree of agreement score.

Table 4.23 shows the results of a paired-sample *t*-test that compares how a group of participants weight differently the importance of measure and the degree of agreement in the current kindergarten situation. All significant results of 21 measures for the Private Kindergarten Scorecard (PKS) indicate that kindergarten insiders and outsiders believe differences exist between measure importance (importance of measure) and kindergarten actual performance (degree of agreement). The mean of the measure importance (importance of measure) among these 21 measures is higher than the mean of actual performance (degree of agreement). Significant findings for different groups (kindergarten insiders and outsiders) are revealed separately (see Table 4.24 and 4.25). Most paired-sample *t*-tests do differ significantly at the  $p=0.1$  level, except for a few measures. In Table 4.24, item #18, "Parents are involved in kindergarten," is not significant ( $t=1.3$  and  $p=.204$ ). In addition, item #20 in Table 4.25, "Children are cognitively ready for the next grade," is not significant ( $t=1.1$  and  $p=.287$ ). Based on the most accepted opinion by Cohen (1992), the effect size is "small,  $d=0.2$ ," "medium,  $d=0.5$ ," and "large,  $d=0.8$ ". In Table

4.23 and 4.24, most effect sizes are either medium, large or above. Only the effect size for item #18 (Table 4.24), “Parents are involved in kindergarten, is close to small ( $d=0.12$ ).

Table 4.25 shows two items with effect size lower than 0.2. The effect size of item #3, “Kindergarten continuously evaluates its program”, is 0.18. Additionally, effect size of item # 20, “Children are cognitively ready for the next grade”, is 0.12.



Table 4.23

A Paired-Sample t-Test for 21 Measures of the Private Kindergarten Scorecard (Combined Data, n=311)

Measures	Comparison	Mean	S.D.	t	Sig	Cohen's <i>d</i>
1. Administration provides effective leadership.	(1)	3.75	.49	14.1	.000	1.08
	(2)	3.19	.53			
2. Teacher is qualified to teach.	(1)	3.67	.54	5.8	.000	0.38
	(2)	3.46	.54			
3. Kindergarten continuously evaluates its program.	(1)	3.37	.67	5.9	.000	0.42
	(2)	3.11	.63			
4. Children feel happy in kindergarten.	(1)	3.91	.31	10.5	.000	0.81
	(2)	3.56	.53			
5. Great communication occurs with parents.	(1)	3.87	.34	11.0	.000	0.84
	(2)	3.51	.52			
6. Environment is clean.	(1)	3.88	.32	15.2	.000	1.14
	(2)	3.34	.59			
7. Fee/tuition is reasonable.	(1)	3.50	.58	5.9	.000	1.14
	(2)	3.23	.58			
8. Children develop social skills.	(1)	3.71	.48	9.7	.000	0.73
	(2)	3.34	.53			
9. Staff salaries are satisfactory.	(1)	3.51	.64	12.2	.000	1.14
	(2)	2.74	.69			
10. Children are developed in physical growth.	(1)	3.75	.49	11.1	.000	0.80
	(2)	3.35	.50			
11. Nutritious meals are provided for children.	(1)	3.84	.38	13.1	.000	0.97
	(2)	3.37	.55			
12. Kindergarten operates efficiently with minimum waste.	(1)	3.49	.59	6.6	.000	0.48
	(2)	3.22	.55			
13. Curriculum and activities are good for children.	(1)	3.85	.36	10.5	.000	0.74
	(2)	3.51	.54			
14. Enrollment is sufficient to maintain long-term operations.	(1)	3.52	.59	5.2	.000	0.39
	(2)	3.31	.52			
15. Classroom is appropriately arranged.	(1)	3.66	.51	6.4	.000	0.44
	(2)	3.43	.55			
16. Kindergarten has involved up-to-date technology.	(1)	3.09	.71	5.4	.000	0.37
	(2)	2.84	.64			
17. Environment is safe.	(1)	3.94	.23	18.2	.000	1.44
	(2)	3.27	.62			
18. Parents are involved in kindergarten.	(1)	3.25	.69	3.1	.002	0.21
	(2)	3.12	.66			
19. Kindergarten has sufficient resources.	(1)	3.68	.50	12.8	.000	0.90
	(2)	3.18	.63			
20. Children are cognitively ready for the next grade.	(1)	3.50	.66	5.3	.000	0.39
	(2)	3.25	.52			
21. Group size and teacher/child ratio are reasonable.	(1)	3.78	.43	14.7	.000	1.12
	(2)	3.15	.67			

(Source: developed by the researcher.) Note: (1) Importance of Measure, (2) Degree of Agreement.

Table 4.24

A Paired-Sample t-Test for 21 Measures of the Private Kindergarten Scorecard  
(Kindergarten Outsider Segment, n=189)

Measures	Comparison	Mean	S.D.	t	Sig	Cohen's <i>d</i>
1. Administration provides effective leadership.	(1) (2)	3.69 3.26	.54 .50	8.9	.000	0.83
2. Teacher is qualified to teach.	(1) (2)	3.78 3.52	.44 .50	5.5	.000	0.53
3. Kindergarten continuously evaluates its program.	(1) (2)	3.47 3.09	.66 .63	6.1	.000	0.58
4. Children feel happy in kindergarten.	(1) (2)	3.92 3.64	.29 .48	7.1	.000	0.71
5. Great communication occurs with parents.	(1) (2)	3.88 3.50	.32 .53	9.2	.000	0.87
6. Environment is clean.	(1) (2)	3.89 3.32	.31 .61	11.8	.000	1.18
7. Fee/tuition is reasonable.	(1) (2)	3.49 3.16	.58 .55	5.8	.000	0.58
8. Children develop social skills.	(1) (2)	3.71 3.36	.49 .55	7.2	.000	0.68
9. Staff salaries are satisfactory.	(1) (2)	3.37 2.94	.68 .50	5.7	.000	0.72
10. Children are developed in physical growth.	(1) (2)	3.75 3.34	.51 .48	8.7	.000	0.83
11. Nutritious meals are provided for children.	(1) (2)	3.86 3.37	.35 .55	11.1	.006	1.07
12. Kindergarten operates efficiently with minimum waste.	(1) (2)	3.43 3.29	.60 .51	2.8	.000	0.26
13. Curriculum and activities are good for children.	(1) (2)	3.87 3.54	.34 .54	7.9	.000	0.72
14. Enrollment is sufficient to maintain long-term operations.	(1) (2)	3.52 3.31	.57 .51	4.1	.000	0.40
15. Classroom is appropriately arranged.	(1) (2)	3.65 3.45	.52 .57	4.2	.000	0.37
16. Kindergarten has involved up-to-date technology.	(1) (2)	3.00 2.75	.71 .61	4.2	.000	0.37
17. Environment is safe.	(1) (2)	3.95 3.24	.21 .64	14.7	.000	1.50
18. Parents are involved in kindergarten.	(1) (2)	3.26 3.18	.72 .64	1.3	<b>.204</b>	<b>0.12</b>
19. Kindergarten has sufficient resources.	(1) (2)	3.65 3.21	.52 .55	9.8	.000	0.83
20. Children are cognitively ready for the next grade.	(1) (2)	3.55 3.22	.63 .53	5.9	.000	0.57
21. Group size and teacher/child ratio are reasonable.	(1) (2)	3.82 3.22	.40 .60	12.1	.000	1.18

(Source: developed by the researcher.) Note: (1) Importance of Measure, (2) Degree of Agreement.

Table 4.25

A Paired-Sample t-Test for 21 Measures of the Private Kindergarten Scorecard  
(Kindergarten Insider Segment, n=122)

Measures	Comparison	Mean	S.D.	t	Sig	Cohen's d
1. Administration provides effective leadership.	(1) (2)	3.83 3.08	.40 .55	11.9	.000	1.55
2. Teacher is qualified to teach.	(1) (2)	3.49 3.35	.63 .57	2.4	.017	0.23
3. Kindergarten continuously evaluates its program.	(1) (2)	3.25 3.13	.66 .62	1.7	.090	<b>0.18</b>
4. Children feel happy in kindergarten.	(1) (2)	3.89 3.43	.34 .57	8.0	.000	0.98
5. Great communication occurs with parents.	(1) (2)	3.87 3.52	.36 .50	6.2	.000	0.81
6. Environment is clean.	(1) (2)	3.87 3.37	.34 .56	9.6	.000	1.08
7. Fee/tuition is reasonable.	(1) (2)	3.52 3.34	.59 .61	2.4	.000	0.30
8. Children develop social skills.	(1) (2)	3.70 3.31	.48 .51	6.6	.000	0.80
9. Staff salaries are satisfactory.	(1) (2)	3.63 2.52	.56 .78	12.3	.000	1.63
10. Children are developed in physical growth.	(1) (2)	3.74 3.37	.46 .52	6.8	.000	0.74
11. Nutritious meals are provided for children.	(1) (2)	3.80 3.38	.42 .57	7.2	.000	0.84
12. Kindergarten operates efficiently with minimum waste.	(1) (2)	3.58 3.12	.56 .59	7.1	.000	0.79
13. Curriculum and activities are good for children.	(1) (2)	3.81 3.45	.39 .53	6.9	.000	0.77
14. Enrollment is sufficient to maintain long-term operations.	(1) (2)	3.52 3.30	.61 .53	3.2	.002	0.39
15. Classroom is appropriately arranged.	(1) (2)	3.67 3.39	.49 .52	5.0	.000	0.57
16. Kindergarten has involved up-to-date technology.	(1) (2)	3.23 2.98	.67 .67	3.4	.001	0.38
17. Environment is safe.	(1) (2)	3.93 3.31	.26 .59	10.7	.000	1.35
18. Parents are involved in kindergarten.	(1) (2)	3.26 3.02	.65 .69	3.6	.000	0.35
19. Kindergarten has sufficient resources.	(1) (2)	3.73 3.12	.45 .72	8.4	.000	1.01
20. Children are cognitively ready for the next grade.	(1) (2)	3.36 3.29	.68 .51	1.1	<b>.287.</b>	<b>0.12</b>
21. Group size and teacher/child ratio are reasonable.	(1) (2)	3.73 3.04	.48 .76	8.7	.000	1.08

(Source: developed by the researcher.)

Note: (1) Importance of Measure, (2) Degree of Agreement.

## **DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS**

Developing a self evaluation system for private kindergartens as a performance management tool is the primary purpose of this study. Furthermore, it involves testing the Balanced Scorecard theory, constructing a questionnaire, and studying the difference in the stakeholders' (kindergarten insiders' and outsiders') perceptions of the importance of measure of the Private Kindergarten Scorecard (PKS) and their expectations of actual performance of their child's kindergarten. This chapter has four major sections for presenting and discussing the findings. The first section presents a summary of the present investigation and procedures employed. Subsequent sections cover major findings and follow a discussion of each research question. The third section addresses conclusions. The final section presents recommendations to different interested parties and suggestions for future research.

### **Summary**

The primary purpose of this study is to design a self-evaluation instrument for private kindergarten to measure their performance. The Private Kindergarten Scorecard (PKS) was developed based on the literature and a panel review. The questionnaire development accepted contributions from the dimensions of the Balance Scorecard theory, 2005 Baldrige Education Criteria for Performance Excellence, and quality criteria in assessing early childhood education programs. In order to collect data relative to the main purpose of this study, a pilot-survey tested in one kindergarten became the basis for the refined questionnaire. The questionnaire was administered to ten additional kindergartens in Tainan City, Taiwan during the summer of 2005. This study involved 400 participants, and ended with a total of 311 valid participants including 122 subjects, kindergarten insiders (16 administrators, 105 teachers and 1 volunteer) and 189 subjects, kindergarten outsiders

(parents). The Statistical Package for the Social Sciences (SPSS) and Expert Choice software was used to record and analyze the data. The information and results accumulated from the following statistical analysis procedures: descriptive statistics, panel review, exploratory factor analysis, analytic hierarchy process (AHP), multiple analysis of variance (MANOVA), and a Paired-Sample *t*-Test for additional finding.

## **Discussion of Major Findings**

### **Research Question One and Two**

***Q1: What are the major component measures for a self-evaluation system for assisting kindergartens develop successful strategies?***

Kelloway (1995) claimed that exploratory factor analysis is useful in the early stages of scale development. The major purpose of conducting exploratory factor analysis is to test the existence of a coherent factor structure that underlies the items in the Private Kindergarten Scorecard (PKS). In addition, the factor results confirm the major component measures in the self-evaluation instrument from the literature review and the panel review. The evidence reveals that the 21 items of the PKS are the major component measures for the self-evaluation system.

Factor analysis has four parts: importance of measure (combined data, kindergarten insider, and kindergarten outsider) and actual performance (combined data). The factor analysis result supported that 21 measures of Private Kindergarten Scorecard (PKS) are valid and useful as a self-evaluation instrument since no item deletions were necessary for most parts of the factor analysis. With one exception, the factor analysis of measure of importance (kindergarten insider) revealed that item #6 (Environment is clean) needed to be deleted because the factor loading (-0.359) is below 0.4 and the result defied explanation. In spite of its negative fact loading in this result, the literature shows that item #6, measuring physical environment, has great contribution for evaluating early childhood

programs (Sakai, et al., 2003; Textor, 1998; William & Ainley, 1994). Therefore, the data analysis results support keeping these 21 measures in the Private Kindergarten Scorecard (PKS) as the self-evaluation instrument.

***Q2: Are the four PKS perspectives sufficient and effective for measuring private kindergarten performance?***

Evaluation of the four parts of the factor analysis results (importance of measure-combined data; importance of measure-kindergarten outsiders, importance of measure-kindergarten insiders, actual performance-combined data) is according to prior criteria stated in Chapter 4 for statistical suitability and substantive meaningfulness. The four factor model appears to be a potentially viable factor solution. Therefore, the four perspectives (dimensions) are sufficient and effective for use in designing a kindergarten self-evaluation system.

***(1) First part of factor result-Importance of measure (combined data)***

As shown in Table 4.5, four factors are the results with eigenvalues of 3.04, 2.84, 2.39, and 1.58, respectively, but they account for only a 47% proportion of data. Measure items (variables), ordered and grouped according to the size of the factor loading, facilitate interpretation. Only salient factor loadings are included. In Table 4.7, Factor 1 (*operation*) related to operation efficiency, enrollment, salary, fee, tuition and administration. This shows that Factor 1 (*operation*) encompassed aspects of *financial, stakeholder and internal organization process*. Factor 2 (*daily support to children*) consists of items dealing with children's meals, physical growth, environment, curriculum, activities, children's emotions and class size. Factor 2 is very similar to the *internal organization process* perspective. In addition, the remainder of measure items are similar to the variables in the *stakeholder* perspective. Factor 3 (*resources*) includes technology, parent involvement, and classroom arrangement. This factor reflects elements from each of

the *financial, stakeholder, internal organization process, and innovation* perspectives. Factor 4 (*evaluation*) relates to teacher qualification, program evaluation, and children's readiness and is congruent with the variable of the *stakeholder, internal organization process, and innovation* perspectives. The results show that the items in *operation, daily support to children, resources, and evaluation* factors classify with some similarities and differences as compared to the original classifications in the Private Kindergarten Scorecard (PKS).

The grouping of the variables in the factor analysis (combined data) has some similarities and differences with the Private Kindergarten Scorecard. Development of the Private Kindergarten Scorecard followed a top-down approach. This means applying four Balanced Scorecard dimensions and then developing various variables from each dimension. Nevertheless, the factor analysis is quite similar to a bottom-up approach. In other words, the bottom-up approach collected the data on how the variables are viewed from below- via the participants. Then, the four factors were generated. Since this study is an exploratory research, no similar study exists to verify variable grouping. The ambiguity of variable grouping might be the cause of difference between the original design and the factor analysis results. For example, group size and teacher/student ratio could be categorized either as an *internal organization process* or a *stakeholder* perspective. Satisfaction of staff salary is the other variable that could be classified either as a stakeholder or an *internal organization process* perspective (Bailey et al., 1999; Chang & Chow, 1999; Haddad et al., 1999). Other possibilities causing the difference in classification of variables might be related the participants. The study uses more kindergarten outsiders (n=189) than insiders (n=122). Therefore, a bias might occur since kindergarten outsiders do not have much knowledge of the kindergarten's financial situation.

**(2) Second Part of Factor Result-Importance of Measure (Kindergarten Outsider Segment)**

This section successfully identifies four factors of importance of measure for kindergarten outsiders (see Table 4. 8). Four factors account for 48% of the variance explained, with eigenvalues of 3.34, 2.76, 2.44, and 1.54, respectively. Table 4.10 shows Factor 1 (*administration*) contains the variables including kindergarten operation, fee/ tuition, salaries, enrollment, classroom arrangement, and so on. This factor contains the variables from the *financial, and internal organization process* perspectives. Factor 2 (*resources*) included resource sufficient, parent involvement, technology, children's readiness, curriculum and activities, and environment. The variables in Factor 2 came from the *financial, stakeholder, internal organization process, and innovation* perspectives. Factor 3 (*providing to children*) relates to what support the kindergarten offers to the children. This factor encompasses aspects of the *stakeholder, and internal organization process* perspectives. Factor 4 (*assessment*) contains teacher qualification, program evaluation, group size, and teacher children ratio. The variables in this factor come from the *internal organization process, and innovation* perspectives. An interpretation of this result suggests that kindergarten outsiders (most participants are parents) concern what to provide to children from every perspective, how the kindergarten continues to evaluate the program, and keeping the kindergarten in running. This result reveals the parents' view toward quality kindergarten program and is similar to attitudes expressed in previous research (Ceglowski, 2004; Hedge & Cassidy, 2004; William & Ainley, 1994). Anticipating children's need, stability and continuity of care, and program evaluation are the major focuses that parents define and assess as the important measures for kindergarten self-evaluation..



### **(3) Third Part of Factor Result-Importance of Measure (Kindergarten Insider Segment)**

With respect to factor analysis of importance of measure-kindergarten insiders, this study successfully identifies four factors: *management and child development, resource and arrangement, evaluation, and update & readiness* (Table 4.11). The factors explain the variance by 52%. The eigenvalues were 3.98, 3.39, 1.79, and 1.68, respectively. In Table 4.13, Factor 1 (*management and child development*) contains the variables that seem congruent with two sections: *management* (enrollment, kindergarten operation, fee/ tuition, salaries), and *child development* (physical and social development, emotional support, and nutritious meals). This factor is similar to the *financial, stakeholder, and internal organization process* perspectives. The variables in Factor 2 seem to divide into two parts: *resource* (sufficient resource, curriculum and activities, parents' support), and *arrangement* (classroom organization, group size, teacher/student ratio, environment). Factor 2 contains the *financial, stakeholder, internal organization process* perspectives. Factor 3 (*evaluation*) includes three variables: teacher qualification, effective leadership, and program evaluation. Teacher qualification and effective leadership are from the *internal organization process* perspective. Program evaluation is from the *innovation* perspective. Factor 4 (*update and readiness*) only contained two variables: up-to-date technology and connection to next grade. One variable is from the *stakeholder* perspective and the other is from the *innovation* perspective.

Most factors revealed that each factor could be divided into two dimensions. Ceglowski (2004) stated that the definition of quality child care may vary significantly by the stakeholders' perspective or their statuses. Thus, kindergarten insiders with different background and social & economic status provide various opinion on the importance of measures. This explains why each factor seems to

construct two sub-perspectives. In addition, most teachers (n=105) have no capitable knowledge of a kindergarten's financial situation in every detail. Therefore, participants in this part may have caused the grouping differences and similarities between the findings and original design.

#### **(4) Fourth Part of Factor Result-Actual Performance (Combined Data)**

Table 4.14 shows that the four factors explain 52% of the variance. The eigenvalues are 3.31, 2.71, 2.42, and 2.35, respectively. Factor 1, *children's experience*, contains the variables of *financial* (fee and tuition), *stakeholder* (social skill development, communication, children's emotional support and physical growth), and *internal organization process* (curriculum and activities) perspectives. Factor 2 (*internal structure*) encompasses *financial*, *stakeholder*, and *internal organization process* perspectives. The variables include salaries, parent involvement, group size, teacher/children ratio, resources, leadership, operation, and meal plan. Factor 3 (*process quality*) has four variables from three perspectives: enrollment (*financial*), teacher qualification and classroom arrangement (*internal organization process*), and program evaluation (*innovation*). Factor 4 (*setting*) relates to environment, up-to-date technology, and readiness for next grade. These variables are from the *stakeholder*, *internal organization process*, and *innovation* perspectives.

The purpose for conducting factor analysis is to discover if the four perspectives in the Private Kindergarten Scorecard are sufficient and effective in evaluating kindergarten performance. This part of the analysis is to test kindergarten's actual performance and not to test the kindergarten insiders' and outsiders' perception for importance of measures in Private Kindergarten Scorecard. However, the study of this part still supports the previous findings that the four perspective (dimension) should be used in designing a kindergarten self-evaluation system.

In sum, an interpretation of factor analysis results suggests that kindergartens may change the name of four perspectives (dimensions). Theoretically, the four perspectives or dimensions of the Balanced Scorecard (*financial, stakeholder, internal organization process, and innovation*) seem functional. The evidence shows that the 21 measured items should remain in this study. Changing the names of the four factors or adopting reclassification of the 21 measured variables in this study is other option when designing the kindergartens' self-evaluation system.

### **Research Question Three**

***Q3: What are the differences in kindergarten insiders' and outsiders' weighting of the dimensions for a self-evaluation system?***

According to Table 4.20, the kindergarten's outsiders (most are parents) weigh the four perspectives of the Private Kindergarten Scorecard as *stakeholder* (0.357), *innovation* (0.300), *internal organization process* (0.186), and *finance* (0.157). Kindergarten outsiders obviously want communication with families to be a characteristic of quality providers. In addition, they focus on the children's whole development (Hegde & Cassidy 2004). Thus the *stakeholders'* perspective should be the major concern. The next most important perspective, then becomes the devotion of kindergartens to continue to improve programs. Meanwhile, the third consideration is internal process and organization capacity to see how well the organization is doing at a given point. The last concern is the financial situation of the kindergarten. This shows that most kindergarten outsiders will not concern themselves about the organization's resources and expenditures.

*Expert choice* is used because of the ease of conducting and providing a full range of options for structuring, entering, editing and analyzing hierarchies (Liberatore, & Nydick, 1997). The differences in weights among those four perspectives given by kindergarten insiders are generally fairly small (Table 4.20). The interpretation is that, on average, kindergarten insiders value and believe every perspective in kindergarten is important.

Lacking or ignoring any one dimension or perspective will affect the capacity to improve the quality of learning and organizational improvement and development. Slightly surprising is recognizing that kindergarten insiders give the highest priority score to *innovation*. This might relate to the definition of *innovation*. The *innovation* is “what the organization is doing to make continuous improvement” in the questionnaire, Part II. This reveals that teachers, staff, and administrators favor the kindergartens establishing systems or approaches to make great contributions to the pursuit of continuous progress. Based on the priority scores, kindergarten insiders rank the *stakeholders’* perspective as being a little more important than the *internal organization process* perspective. This could lead to the interpretation that kindergarten insiders might think satisfaction of the stakeholder is slightly more important than internal processes and organizational capacities in a kindergarten self-evaluation system. The kindergartens randomly selected for this study happened to be successfully operated over 8 years, at least. Therefore, the financial situation of the kindergartens is certainly not a significant concern for the majority of kindergarten insiders participating in this study. Perhaps, the financial perspective might be more important to insiders in a newly established kindergarten.

#### **Research Question Four**

***Q4: Do perceptual differences exist between these two groups in the self-evaluation results when comparing the participants’ responses regarding what they perceive to be important and what they perceive currently exists?***

Multiple analysis of variance (MANOVA) compares mean differences of two sets of scores to the outcome variables at the same time (Anderson, 2003). In order to investigate the expected differences between kindergarten insiders and outsiders in importance of measure, a MANOVA was carried out. Table 4.21 shows significant results. The results from the first part of MANOVA analysis indicate that kindergarten insiders are different

from kindergarten outsiders in the perceptions of the importance of measures with respect to the *operation*, *daily support to children* and *evaluation* perspective variable (at the .05 or less level) but the effect size is small. However, no significant difference exists between kindergarten insiders and outsiders for the *resource* perspective.

Kindergarten outsiders have significantly higher mean scores than do kindergarten insiders for the *daily support to children* and *evaluation* perspectives (*daily support to children*: AvgKO=3.87>AngKI=3.83; *evaluation*: AvgKO=3.6>AngKI=3.37). Compared to kindergarten outsiders, kindergarten insiders rate higher mean score for the *operation* perspective (*operation*: AvgKO=3.55<AngKI=3.63). This suggests that kindergarten outsiders (parents) regard these key performance indicators (measures) to be among two perspectives, *daily support to children* and *evaluation*, higher in importance than do kindergarten insiders (administrators, staffs and teachers). On the other hand, most parents regard the major measures of the *operation* perspective (eg. operation efficiently, sufficient enrollment, staff salaries, fee/tuition and administration) to be less important than kindergarten administrators, staff and teachers. These results are comparable to the results of previous studies investigated by Ceglowski (2004) and Textor (1998). These researchers found that all parents emphasized learning activities, program structure, teacher qualification, interaction with children and various support for children. These criteria are very similar to the measures of two perspectives, *daily support to children* and *evaluation*. Kindergarten teachers and administrators named the following criteria as being important for high quality education: group size and ratio, effective partnership, teacher qualification, and safety and nutrition (Ceglowski, 2004; Blekin et al., 1995; Fthenakin et al., 1996). In contrast with the present results, a slight difference exists in administrators' and educators' opinions. The present study indicates that kindergarten outsiders emphasize more teacher qualification (*evaluation*), group size and ratio, effective partnership, safety and nutrition (*daily support to children*) than kindergarten insiders do. This does not suggest that

kindergarten insiders believe these quality measures have low value in assessing the kindergarten performance. The mean score in these two perspectives are still over 2.5 (*daily support to children: 3.83; evaluation: 3.37*).

However, the finding in this study is a little different from earlier research results conducted by Williams and Ainley. Williams and Ainley (1994) found the largest difference between parents and professionals was for rating the importance of *administration, staff qualifications, staff/parents interaction, and evaluation*. The parent group did not rate these four criteria as highly for importance as did both of the professional groups. The *administration* perspective difference is consistent with the present research. Results of the present research indicate that kindergarten insiders put great value on the *operation* perspective, more so than kindergarten outsiders. The language used in the present study for the *operation* perspective is similar to the *administration* perspective named by William and Ainley. Both studies found that administrators and teacher educators differed in the degree to which parents contribute to kindergarten operation and administration. The surprise is that parents rate the following criteria much lower than the professional groups: *staff qualifications, staff/parents interaction, and evaluation*. Compared to presents results from this study, the variance might be caused by countries and culture differences. Williams and Ainley collected the data in Melbourne, Australia. The culture difference between Australia and Taiwan may create the difference in perspectives.

The present findings gave confidence since teacher qualification and evaluation are significant issues in Taiwan's early childhood education. Government, early childhood researchers and educators try to resolve these long-term problems in early childhood setting. Teacher qualification and training are important quality components of early care and education. Effective teaching leads to positive student outcomes (Zaslow & Martubez-Beck, 2005).

Currently, qualifications are declining among early childhood education teachers. The

Economic Policy Institute, the Keystone Research Center, and the Foundation of Child Development reported (2002-2004) that only 30% of centered-based early childhood education (ECE) teachers and administrators hold a high school diploma or less, and 30% of centered-based ECE teachers and administrators have a four-year college degree (Coleman et.al, 2005). This explains why kindergarten outsiders rated the *evaluation* perspective higher than kindergarten insiders in present study.

The second part of MANOVA analysis is to understand the two group differences in the self-evaluation result regarding what they perceive currently exists. Table 4.22 shows that the only significant finding is *operation* perspective ( $p$  value=.001) but the effect size is small. No significant differences exist between kindergarten insiders and outsiders for *daily support to children*, *resources*, and *evaluation* perspectives. The actual performance results for the *operation* perspective rates higher by kindergarten outsiders than by insiders (AvgKO=3.21>AngKI=3.07). This reveals that most parents, kindergarten teachers, staffs and administrators have similar opinions on actual performance results. However, teachers, staff and administrators regard kindergarten *operation*, such as efficient running, sufficient enrollment, staff salaries, reasonable fee/tuition, and effective leadership far below parents' evaluations. This finding might arise from kindergarten insiders knowing the internal situation much better than the outsiders. This supposition explains why kindergarten outsiders rated these criteria higher for actual performance of *operation* perspective than did kindergarten insiders.

### **Additional Finding**

The pair  $t$ -test results show that all the measures differ significantly ( $p$ = .000; Table 4.23) and almost all the effect sizes in this table are from medium to large. The results of this comparison suggest that all the participants (kindergarten insiders and outsiders) agree that actual performance is worse than the importance of measure. This implies that the early childhood program in Taiwan still has much room for enhancing overall performance.

However, one pair *t*-test from Table 4.24 (#18) and one from Table 4.25 (#20) both reveal no significant difference, at the 0.1 level, while the participants are separately kindergarten insiders and outsiders. The result of item #18 (for Table 4.24 Kindergarten Outsider Segment) shows that most parents have no different opinions of all measures between “importance of measure” and “actual performance”. Parents tend to believe that their actual involvements in kindergarten program are at the same level of the importance of measures. This same item (#18, Table 4.24) has low effect size ( $d=0.12$ ). In Table 4.25 (item #20), kindergarten insiders (kindergarten professionals) think no significant difference exists. This generally implies that kindergarten professionals feel the actual performance of whether or not children are cognitively ready for the next grade is about the same level as the importance of measure. In addition, Table 4.25 has two items (#3 and #20) with low effect sizes ( $d=0.18$  and  $0.12$ ).

### **Linkage between Private Kindergarten Scorecard and Quality Criteria in Assessing Early Childhood Program**

The Private Kindergarten Scorecard (PKS) was developed from the dimensions of the Balanced Scorecard theory, 2005 Baldrige Education Criteria for Performance Excellence and Quality criteria in assessing early Childhood education programs. Chapter three in this study describes the actual instrument developing process. The 21 items of Private Kindergarten Scorecard cover all the quality criteria in assessing Early Childhood Program that list on Table 2.8. The *financial* perspective of Private Kindergarten includes the quality criteria #12, cost and continuity of care. The *stakeholders* perspective covers quality criteria #7 (staff & teachers), #8 (communication with parents and parent involvement), #9(happy child), and #10 (school readiness and child development). The *internal organization process* perspective includes most of quality criteria as the follows: #1 (group size), #2 (adult-child ratio), #3 (classroom), #4 (environment), #5 (curriculum, program, instruction, and activities), #6 (nutrition meals and health), and #7 (staff and teachers). The



*innovation* perspective includes quality criteria #11, evaluation and assessment. The linkage between PKS and quality criteria implies that the 21 measures of Private Kindergarten Scorecard cover all frequently used quality criteria in assessing early childhood program. In addition, the PKS list couples measures extending from Balanced Scorecard theory, such as kindergarten has involved up-to-date technology and sufficient resources. In sum, Private Kindergarten Scorecard, developed from solid theory and literature, and supported by the statistic results, could use in early childhood setting.

### **Conclusions**

Several conclusions arise from the findings:

#### **Conclusion One**

The revision of the Balance Scorecard, the Private Kindergarten Scorecard, results in a valid and reliable instrument that kindergartens could use to self-evaluate their baseline quality performance practices. The exploratory factor test result verifies that all 21 measures are necessarily embedded (contained) in the Private Kindergarten Scorecard. Additionally, it proves that the Balance Scorecard theory provides a solid basis for designing a self-evaluation instrument because:

1. A clear demarcation line exists between the four factors (dimensions) from each factor testing.
2. The four-factor model meets criteria of having dimensions with a minimum number of items with salient loadings and reasonable internal consistency.
3. The factors are substantively sound and are consistently stable across extractions.

The 21 measures are reliable and valid items to remain in the Private Kindergarten Scorecard. In addition, the four dimensions exist since the Balanced Scorecard theory is useful and could serve as a framework for building a competency self-evaluation model.

## Conclusion Two

Arranging the list order by the scores, kindergarten insiders very closely weigh those four dimensions: *innovation* (0.261), *stakeholder* (0.257), *internal organization process* (0.250), and *financial* (0.232) perspectives. The reason that weighted scores are fairly close among four dimensions is that these four dimensions are key elements and essential for continuously operating kindergartens. With the failure of any one of the dimension, the kindergarten would face incredible crisis. On the other hand, kindergarten outsiders are more concerned about the *stakeholders'* perspective (0.357). The dimensions followed are *innovation* (0.300), *internal organization process* (0.186), and *financial* (0.157) perspectives.

The applied Analytic hierarchy process (AHP) determines the relative weights of four dimensions derived from the Private Kindergarten Scorecard by kindergarten insiders and outsiders. The analytical results indicate that kindergarten insiders believe these four dimensions are vital for managing a kindergarten. Otherwise, kindergarten outsiders emphasize the *stakeholder* and *innovation* perspectives. This means that most parents focus on the development of their children, the relationship and communication with the kindergarten, and the continuous improvement of the early childhood program.

## Conclusion Three

The only perceptual difference between kindergarten insiders and outsiders in the self-evaluation result is in the *operation* perspective. No statistical significant differences exist for other perspectives. This implies that most staff member of kindergartens are not satisfied with the operation, enrollment, salaries, fee/tuition, and leadership. The additional finding is that kindergarten insiders and outsiders have great perceptual differences for the importance of measure of *operation*, *daily support to children*, and *evaluation* perspectives. Kindergarten outsiders regard these two perspectives, *daily support to children*, and *evaluation*, to be much important than kindergarten insiders. Nevertheless, kindergarten

outsiders treat the *operation* perspective as less important than kindergarten insiders. These findings confirm the results from other researchers and are very similar to the AHP test results. Compared to kindergarten insiders, outsiders (most parents) pay more attention to the providing for children, child development and growth, and kindergarten's continuous improvement and innovation.

#### **Conclusion Four**

The paired-t test results conclude that all participants are disappointed and not satisfied with kindergarten performance. This suggests that a greater effort is required in various aspects to improve the performance and quality of early childhood settings.

In sum, this study adds important information to understanding kindergarten insiders' and outsiders' perceptions toward self-evaluation and performance management. Furthermore, it also raises some interesting topics for further research.

#### **Implications**

The purpose of this study is to develop and present a new model for a self-evaluation instrument based on kindergarten insiders' and outsiders' perceptions. Such an instrument, Private Kindergarten Scorecard, provides an objective and effective basis for kindergarten stakeholders to use in evaluating performance and efficacy.

#### **Recommendations**

The study finds that the Balanced Scorecard theory provides solid framework for kindergarten stakeholders. Specifically, the Private Kindergarten Scorecard (PKS) designed and developed for this study can contribute to promoting the self-evaluation function that the Taiwanese government is urgently promoting. The government, researchers and practitioners all believe that self-evaluation systems need to prevail in early childhood settings to help kindergartens improve performance and operation. Therefore, the essential focus is to help kindergarten insiders and outsiders understand and become thoroughly

assimilated to the self-evaluation instrument, Private Kindergarten Scorecard. Further, the strategies and actions are :1) implementing the PKS regularly and 2) sharing self-evaluation results broadly with both external and internal stakeholders to inform early childhood program priorities and the change and renewal efforts. The perceptions, needs, and expectations of current and future stakeholders are necessary to fulfill and direct the methods for increasing satisfaction.

The innovation dimension is valued by kindergarten insiders and outsiders. The use of technology will prepare the next generation of kindergarten professionals and build good relationships and partnerships between kindergartens and homes. Kindergartens need to provide more effective technology support throughout the organization. Even though most kindergartens have their own websites, accessing a classroom's or a teacher's website is difficult. The strategies imply from the innovation dimension are:

1. Extending the electronic technology knowledge and skill levels of kindergarten professionals.
2. Ensuring that all staffs have the same professional development opportunities.
3. Revitalizing the curricula and teaching in new.

The results reveal that kindergarten outsiders (parents) emphasize children's development and growth and providing for children. Most parents in Asia believe and focus on students' academic achievement in the early stages of development. In addition, due to significant current and anticipated changes in Taiwan, such as the birth rate and number of children in one family dramatically declining, more attention is on each child. The changing environment and the focus on children require kindergarten professionals to modify their policies in various ways:

1. Decreasing teacher/child ratio.
2. Enriching the educational experience of all children by becoming a more-student centered kindergarten.

3. Assessing children's learning outcomes to ensure and enhance the excellence and effectiveness of all early childhood programs, and developing the features of kindergartens in order to be more attractive to potential customers.

Mission, vision and goal are vital and essential in applying Balanced Scorecard theory. Policymakers need to carefully reflect on the mission, vision and goal that they establish for early childhood program to determine whether these mission, vision and goal are realistic and achievable. In order to design and develop an effective self-evaluation system, and consider equitable education opportunity, the government should strengthen the process and held a much more prudent attitude toward providing kindergarten guidelines and bases of developing mission, vision and goal for early childhood settings.

The nationwide database for early childhood education is still not found in Taiwan. The government should take the responsibility to collect data from the entire Taiwanese early childhood population for researchers and professions. The advocacy of early childhood research enhances knowledge discovery and assists in kindergarten transformation and reformation. With kindergarten professions providing feedback to policymakers, researchers, and stakeholders, process of developing collaborative partnerships facilitates the creation of world-renowned early childhood centers of excellence. In addition, policymakers should encourage kindergartens to publish the self-evaluation results on their websites. This policy might scare some kindergartens with bad performance. Therefore, the benefits of publishing the results need to be clear and appeal to kindergarten administrators. The strategies for encouraging the publication of self-evaluation result are:

1. Using money or intensive reward.
2. Providing free consultation and diagnostic conclusions from experts.
3. Helping poor performing kindergartens to implement reengineering in the organization without other costs.

4. Identifying the potential market and facilitating link between kindergartens.
5. Consolidating kindergartens with different areas of strengthen, an alliance strategy which results in cost-saving and the resource sharing.

The government should provide the stakeholders with regular updates of national and international trends in early childhood education including news, theory, conference, short courses, other lifelong learning opportunities, future enrollment rates of children, and number and locations of kindergarten. In addition, the government should publish financial information about budgeting, appropriation for public and private early childhood programs and expenditures per child. The public's easy access to information will facilitate the development of public policies, the collaborative development of the early childhood profession, and research and education equalization and accountability. In this globalization era, schools and early childhood programs all face severe international competition; therefore, policymakers should have more an open attitude toward foreign investing and English teaching in kindergarten.

#### **Future Research:**

First, similar research is rare for early childhood programs. This study is exploratory analysis, useful for the early stages of scale or instrument development (Kelloway, 1995). In order to verify the validity of the Private Kindergarten Scorecard and investigate whether the PKS might be useful for early childhood settings, the instrument was passed to the kindergarten insiders and outsiders to test the usefulness of the measures. In the future, confirmatory factor analysis with independent sampling might be the other research to test the factor structure of the measures obtained from this study.

Second, researchers could conduct qualitative approaches in order to determine whether other possible measures exist or not. An in-depth interview process could be utilized in the readiness stage of developing the instrument. Additional measures might be included in the Private Kindergarten Scorecard to test whether it will increase the validity

and reliability of the instrument. The qualitative methodology could provide input from a variety of participants regarding to the clarity, terminology, knowledge, meaning, and interest of the content of the instrument.

Third, this study only recruited private kindergartens as subjects. Public kindergarten might be recruited for this type of study. Therefore, a comparative study could be conducted in order to understand the perceptual differences of kindergarten insiders and outsiders toward private and public kindergartens. Further, the choice model might be established and strategies for private and public kindergarten competition could be understood and developed.

Fourth, due to the limitation of time and cost in this study, the population for this study is the private kindergartens of Tainan City, Taiwan. The population could be enlarged to all the kindergartens in Taiwan. The different population could increase the generalization of test results.

Fifth, a further study might be designed to collect two levels of data from kindergartens (schools) and people (insider and outsider). Therefore, Hierarchical Linear Modeling (HLM) could be applied in this kind of study to examine the nested data structure and direct effects that indicate relations between predictors and the outcome variables at both kindergarten and people levels.

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## Appendix A

### 1. Business School Deans' Suggested Goals and Measures for the Customer Perspective

Goals	Measures
<i>The stakeholders: Students, employers, faculty, alumni, and parents.</i>	
1. Students Attract high-quality, ethnically diverse students	<ul style="list-style-type: none"> <li>● No. and quality of students</li> <li>● Persistence rate</li> <li>● Applications to programs</li> <li>● % admitted</li> <li>● Yield</li> <li>● GMAT, GPA, and work experience</li> <li>● Test scores for entering freshmen/transfers</li> <li>● Market share</li> <li>● Geographic draw area</li> <li>● % of undergraduates selecting business as major</li> <li>● % minority enrollment</li> </ul>
Develop high-quality students	<ul style="list-style-type: none"> <li>● Quality of teaching and advising</li> <li>● Pre-/posttests</li> <li>● Student portfolios</li> <li>● GPA over time</li> <li>● Integration of technology into curriculum</li> </ul>
Retain high-quality students; Recognize high-quality students	<ul style="list-style-type: none"> <li>● Scholarships and awards provided by donors</li> <li>● Competitiveness of students in both internal and external competitions/recognition opportunities</li> </ul>
Graduate high- quality students	<ul style="list-style-type: none"> <li>● Quality and appropriateness of each graduate's knowledge, Skill, and abilities</li> <li>● Quality of teaching and advising</li> <li>● Response to both niche or unique offerings as well as service courses</li> <li>● Quality and timeliness of placements(both employment and graduate school)</li> <li>● Outcome assessment (5, 10, 20 years after graduation)</li> <li>● Starting salaries</li> <li>● Quality and no. of on-campus recruiters</li> <li>● No. of students recruited</li> <li>● No. of jobs offered</li> </ul>
Increased acceptance of Students into graduate/professional schools	<ul style="list-style-type: none"> <li>● No. of visits by recruiters</li> <li>● Acceptance rate</li> <li>● Survey of graduate schools</li> <li>● Test scores</li> <li>● Quality of institution where accepted</li> <li>● Fellowships, assistantships, scholarships</li> </ul>
Improved placement	<ul style="list-style-type: none"> <li>● % employed 3 months from graduation</li> <li>● No. of campus visits by recruiters</li> <li>● No. of offers made</li> <li>● Average starting salaries</li> <li>● Rate of placement of graduates</li> <li>● Success of graduates</li> <li>● Contributions to business program</li> <li>● No. of requests for interviews</li> <li>● Survey of employers</li> <li>● Scope of employers</li> <li>● Type of employers</li> </ul>



	<ul style="list-style-type: none"> <li>● Internship programs</li> </ul>
Student satisfaction	<ul style="list-style-type: none"> <li>● Perceived rate value of the degree (e.g., national ranking)</li> <li>● Ability to get access to “needed” courses</li> <li>● Ease in getting “good” job</li> <li>● Academic climate</li> <li>● Focus group comments</li> <li>● No. of complaints or positive sentiments reported</li> <li>● Voluntary attrition as % of students</li> <li>● Students evaluations of faculty/courses</li> <li>● Graduate exit surveys</li> <li>● Direct current student survey of satisfaction</li> <li>● Advising assessment survey</li> <li>● Student retention (nonfailing) rates</li> <li>● “Satisfaction with \$ for value received”</li> <li>● Alumni retroactive ratings of their experience</li> </ul>
2. Employers Business community (employer) satisfaction, esteem for graduates	<ul style="list-style-type: none"> <li>● Students employed 3 months after graduation</li> <li>● Employer survey rating graduates’ effectiveness</li> <li>● Comparative ranking of graduates vs. competing programs</li> <li>● Ability of graduates to “move up”</li> <li>● Quality and scope of non degree programs</li> <li>● Service to community</li> <li>● No. of faculty involved in community/business service</li> <li>● Trends in recruiter visits/return visits</li> <li>● Trends in corporate giving</li> <li>● Perception surveys</li> <li>● Student placement rates</li> <li>● Support of programs and initiatives</li> </ul>
3. Faculty Faculty satisfaction	<ul style="list-style-type: none"> <li>● Faculty ability to participate in those decisions affecting them</li> <li>● Encouragement given faculty to engage in developmental activities (e.g., relevant research, and attendance or presentations at conferences)</li> <li>● Effectiveness of orientation and inculcation process for new faculty</li> <li>● Availability of well-defined personnel policies and procedures available to faculty</li> <li>● Office space and computer availability</li> </ul>
4. Alumni Increased alumni satisfaction and activities	<ul style="list-style-type: none"> <li>● Increased assistance with placement</li> <li>● Level of active alumni chapters</li> <li>● Level of alumni giving</li> <li>● Alumni service on projects</li> <li>● No. of alumni attending special events</li> </ul>
5. Parents Parents satisfaction	<ul style="list-style-type: none"> <li>● Response to surveys</li> <li>● Focus groups</li> </ul>
<i>Quality programs: Quality of students and faculty, quality of teaching, Integrated and practical curriculum</i>	
Academic excellence	<ul style="list-style-type: none"> <li>● Quality of students admitted-GPAs, SAT/ACT, etc.</li> <li>● Quality of faculty - % full-time</li> <li>● % doctorally qualified</li> <li>● Retention rates of students</li> <li>● Community survey – exit interviews</li> <li>● Placement record of students (work, graduate</li> </ul>

	<p>school, etc.)</p> <ul style="list-style-type: none"> <li>● Assessment of student academic achievement (including but not limited to student performance on national exams, e.g., CPA, GMAT)</li> <li>● No. of applicants</li> <li>● No. of graduates</li> <li>● Accreditation status</li> <li>● Self-evaluation reports</li> </ul>
Quality research contributions	<ul style="list-style-type: none"> <li>● Level of faculty publications/citations</li> <li>● Consulting</li> <li>● No. of articles written by faculty</li> <li>● Presentations</li> </ul>
Teaching quality	<ul style="list-style-type: none"> <li>● How teaching skills are perceived by students</li> <li>● Faculty posted and kept office hours</li> <li>● Student perception of faculty concern for knowledge</li> <li>● Corporate evaluation of curriculum</li> <li>● Qualifications of faculty</li> <li>● Student evaluations of faculty</li> <li>● Focus on up-to-date teaching practices</li> </ul>
Integrative curriculum	<ul style="list-style-type: none"> <li>● Graduates' understanding of interrelatedness of business functions</li> <li>● Variety of teaching and learning methods</li> </ul>
A teaching focus	<ul style="list-style-type: none"> <li>● % of doctoral qualified faculty teaching at undergraduate level</li> <li>● Rewards for good teaching</li> <li>● % of budget devoted to faculty development</li> <li>● Lecture vs. team or discussion formats</li> </ul>
Program and teaching innovation	<ul style="list-style-type: none"> <li>● Quality of instruction</li> <li>● Quality of advising and mentoring</li> <li>● Program growth</li> <li>● Creativity in degree programs for nontraditional customer</li> </ul>
Course scheduling for content and time	<ul style="list-style-type: none"> <li>● Classes offered when needed</li> <li>● Scheduling courses at reasonable times</li> <li>● Offering courses and programs over interactive video</li> </ul>
Establish multidisciplinary	<ul style="list-style-type: none"> <li>● New and growing specialized undergraduate programs and graduate degrees</li> <li>● Campus funding of programs</li> <li>● Campus constituents/success in joint programs</li> <li>● Collaborative efforts with other on-campus schools</li> </ul>
Be seen as relevant and in touch with the business community's need	<ul style="list-style-type: none"> <li>● Advisory boards in use</li> <li>● Business linkages to assure relevance of curriculum to the contemporary needs of business</li> <li>● Placement rates</li> <li>● Employer surveys</li> <li>● Outreach programs to business community</li> </ul>
Enhance relationships with the business community	<ul style="list-style-type: none"> <li>● Provision of consulting and services to the community</li> <li>● Participation in civic and philanthropic activities</li> <li>● Community perception of faculty and staff</li> <li>● Perceived quality of corporate entity</li> <li>● Revenue generation</li> </ul>

	<ul style="list-style-type: none"> <li>● Types of services provided</li> <li>● Internships/co-op programs</li> <li>● Support levels</li> <li>● Advisory committees</li> <li>● Participation in Chamber of Commerce and other professional associations</li> <li>● Donations of time, equipment, and funds</li> <li>● Scholarships</li> </ul>
<i>Public image: Value added of programs, reputation of school</i>	
Be seen as providing “value” for the cost	<ul style="list-style-type: none"> <li>● Student and parent perceptions</li> <li>● Tuition compared with comparable schools</li> <li>● Customers’ willingness to pay</li> <li>● Student satisfaction with services</li> </ul>
Reputation of business school program	<ul style="list-style-type: none"> <li>● Career placements after graduation – This would reflect acceptance within community of programs’ graduates</li> <li>● National rankings</li> <li>● Internal surveys of students</li> <li>● Alumni satisfaction surveys</li> <li>● Accreditation</li> <li>● Reputation among non alumni, peers, and stakeholders</li> <li>● Attendance of former students in advanced programs</li> <li>● No. of 2<sup>nd</sup> generation (3<sup>rd</sup>, 4<sup>th</sup>, etc.) students</li> <li>● Scholarships</li> </ul>
Achieve external visibility	<ul style="list-style-type: none"> <li>● New articles featuring school and/or faculty</li> <li>● Newsletters/alumni magazines</li> <li>● External events (speakers, symposiums )</li> </ul>
Outstanding customer/school image	<ul style="list-style-type: none"> <li>● Application rates</li> <li>● Acceptance rates</li> <li>● Quality of firms recruiting on campus</li> <li>● Requests for assistance from community</li> <li>● Quality of alumni success</li> <li>● Recognition of faculty</li> <li>● Increased scholarships, endowments, unrestricted gift, etc.</li> <li>● Opinion survey</li> <li>● Reports from key civic organizations</li> </ul>
Increased faculty reputation	<ul style="list-style-type: none"> <li>● Rankings of departments</li> <li>● Editorships</li> <li>● Ability to recruit top candidates</li> </ul>
<i>Quality service and continuous improvement</i>	
Service to the university	<ul style="list-style-type: none"> <li>● Adequacy of participation in campus-wide activities</li> <li>● Quality of relationships with other elements on campus</li> <li>● Responsiveness to the Office of the President programs and other senior executives on campus</li> </ul>
Quality of support services	<ul style="list-style-type: none"> <li>● On-line delivery of service or hassle rates</li> <li>● Efficient registration</li> <li>● Ease of communication</li> <li>● Extent advisement and enrollment processes are student-centered, effective, and efficient</li> <li>● Availability and adequacy of library services for student and faculty needs</li> <li>● Adequacy and availability of technical support services and equipment to students</li> <li>● Responsiveness of support personnel to</li> </ul>

	<ul style="list-style-type: none"> <li>● students</li> <li>● Provision and adequacy of job counseling, placement, and internships</li> <li>● Student surveys of advising function</li> </ul>
Inquiry response time Preparing students who are capable of continuous learning	<ul style="list-style-type: none"> <li>● % of calls returned within 24 hours</li> <li>● Alumni with advanced classes</li> <li>● Professional certification, etc.</li> </ul>
<b>2. Business School Deans' Suggested Goals and Measures for Internal Business Perspective</b>	
<b>Goals</b>	<b>Measures</b>
<i>Teaching/learning excellence</i>	
Teaching excellence	<ul style="list-style-type: none"> <li>● Student satisfaction</li> <li>● Employer satisfaction</li> <li>● Faculty acquisition of competencies, skills, knowledge over time</li> <li>● Use of latest technology</li> <li>● Awards to faculty from outsiders</li> <li>● Teaching awards</li> <li>● Student performance on assessment measures, pass rate on CPA exams, etc.</li> <li>● No. of students/graduates</li> <li>● Placement of graduates</li> <li>● No. of "successful" graduates after x years</li> <li>● Student evaluations</li> <li>● Course evaluations</li> <li>● Peer review</li> <li>● Outside reviews</li> </ul>
Excellence in developing learning and learning skills (classroom experiences that prepare graduates for success)	<ul style="list-style-type: none"> <li>● Written and oral exit exams (national scores)</li> <li>● Portfolios</li> <li>● Evaluations by external reviewers and employers in the case of internships</li> <li>● Grade point standards</li> <li>● Use of senior seminars</li> <li>● Placement rates</li> <li>● Pass rates on professional exams</li> <li>● Opportunities for writing and oral presentations</li> <li>● Improved quantitative skills and frequency of opportunities for application</li> <li>● Assessments by course</li> <li>● Testimony of professors in "capping" courses</li> <li>● Acquisition of strategic thinking skills by students</li> <li>● Student recognition of relative relevance of various business disciplines</li> <li>● Quality of recruiters</li> <li>● No. of students going to graduate/professional schools</li> <li>● Advancement of alumni in profession</li> <li>● Alumni satisfaction with academic program</li> </ul>
Develop state-of-the-art teaching facilities	<ul style="list-style-type: none"> <li>● Inventory of teaching/learning facilities</li> <li>● Computer labs</li> <li>● Presentation capabilities</li> </ul>
Information technology currency, usage, and applications	<ul style="list-style-type: none"> <li>● Students' degree of access to technology</li> <li>● Degree of development of technology in learning experience</li> <li>● Currency and appropriateness of hardware/software</li> <li>● Internet access/use</li> </ul>

	<ul style="list-style-type: none"> <li>● Distance learning</li> </ul>
<i>Curriculum/program excellence and innovation</i>	
Curriculum excellence and innovation	<ul style="list-style-type: none"> <li>● No. of new courses developed</li> <li>● Degree of innovation</li> <li>● No. of new initiatives implemented</li> <li>● Employer satisfaction with student capabilities</li> <li>● Degree to which curriculum is up-to-date with educational, business, and commercial trends</li> <li>● Research output of faculty</li> <li>● Regular feedback from recruiters, alumni, and prospective students</li> <li>● Degree program internationalization</li> <li>● International exchange programs established and used</li> <li>● Reviews by advisory boards</li> <li>● Accreditation – AACSB and NASPAA</li> <li>● Periodic review of each program on a rolling schedule</li> </ul>
Introduction of new programs/innovations	<ul style="list-style-type: none"> <li>● Actual versus planned</li> <li>● No. within last 5 years</li> <li>● % of students in programs started in past 5 years</li> <li>● Concept to implementation time</li> <li>● Speed of new program introduction</li> <li>● Timeliness of delivery of new products</li> </ul>
<i>Quality and currency of faculty</i>	
Quality faculty	<ul style="list-style-type: none"> <li>● Faculty credentials</li> <li>● Faculty development plans</li> <li>● Faculty appraisals</li> <li>● Endowed development outcomes</li> </ul>
Currency of faculty and classroom materials/experiences	<ul style="list-style-type: none"> <li>● Changing classes resulting in new research</li> <li>● Contacts with business and industry</li> <li>● Utilization rate of multimedia in classroom</li> </ul>
<i>Efficiency and effectiveness of service</i>	
Production efficiency	<ul style="list-style-type: none"> <li>● Degree cycle time</li> <li>● Flunk-out rate of qualified students</li> <li>● Pass rates on professional exams</li> <li>● Yield</li> <li>● Teaching load policy management</li> <li>● % of students completing program in 4 years</li> <li>● % of entering students graduating</li> <li>● Teaching costs/student</li> <li>● Administrative costs/student</li> <li>● % of budget dedicated directly to learning</li> <li>● Allocation and use of equipment and supplies</li> <li>● Analysis of use of space</li> </ul>
Student services effectiveness, including advising	<ul style="list-style-type: none"> <li>● Type and no. of services provided</li> <li>● Student satisfaction</li> <li>● Placement services and opportunities</li> <li>● Quality of instruction and advising</li> <li>● No. and frequency of advising errors</li> <li>● Time required to register</li> <li>● No. of students in wrong classes</li> <li>● Quality of mentoring programs</li> <li>● Availability of internships – co-ops</li> <li>● Effective use of Internet</li> </ul>
Positive climate	<ul style="list-style-type: none"> <li>● Degree to which staff is professional, friendly, and helpful</li> </ul>

	<ul style="list-style-type: none"> <li>● Quality of library</li> <li>● Degree of access to technology</li> </ul>
Increased diversity	<ul style="list-style-type: none"> <li>● Minority recruiting (students &amp; faculty) and mentoring</li> <li>● No. of female and minority faculty members</li> <li>● No. of female and minority PhD students</li> </ul>
<i>Strategic issues</i>	
Ability to change	<ul style="list-style-type: none"> <li>● Curriculum and pedagogy currency</li> <li>● Opportunities for alumni updates and retraining</li> <li>● Success of accepted reforms/changes</li> <li>● No. of new/revised programs to meet needs of external stakeholders</li> </ul>
Shared expectations and collaborative relations Mission updates	<ul style="list-style-type: none"> <li>● Buy into goals and harmony in internal operations</li> <li>● Constituency feedback</li> <li>● Situation analysis</li> <li>● Modification methods</li> </ul>
Positioning of school	<ul style="list-style-type: none"> <li>● Match with mission</li> <li>● Establishment of image with constituents</li> <li>● Measures of students' value/knowledge</li> </ul>
<b>3. Business School Deans' Suggested Goals and Measures for Innovation and Learning Perspective</b>	
Goals	Measures
<i>Teaching/learning excellence and innovation</i>	
Faculty development	<ul style="list-style-type: none"> <li>● Self-reports</li> <li>● Degree to which continuous faculty development is expected, encouraged, suggested and evaluated</li> <li>● Expenditures for teaching enhancement</li> <li>● Expenditures for development in the discipline</li> <li>● Faculty evaluations by students/chairs</li> <li>● No. and quality of presentations/publications</li> <li>● Honors and awards received</li> <li>● Dollars for research, travel, library, computer hardware/software</li> <li>● Attendance at conferences</li> <li>● No. of grants</li> <li>● Teaching assessments</li> <li>● Participation rate of faculty in professional development activities</li> <li>● Funding level for faculty</li> <li>● No. of faculty in training</li> <li>● Practical applications</li> </ul>
Technology leadership (use, development, application)	<ul style="list-style-type: none"> <li>● No. and types of activities</li> <li>● Awards</li> <li>● Student and faculty satisfaction</li> <li>● Notice in local and national media</li> <li>● Degree to which technology is used in specific courses</li> <li>● Speed of introducing technology and technology adoption</li> <li>● Expenditures on hardware and software</li> <li>● Acquisition of databases</li> <li>● Distance learning</li> </ul>
Teaching/ learning innovations	<ul style="list-style-type: none"> <li>● Number of innovations incorporated into classroom</li> <li>● Methods update</li> <li>● Level of equipment</li> </ul>

	<ul style="list-style-type: none"> <li>● Degree of usage of multimedia presentations</li> <li>● Teaching assessments</li> <li>● Degree to which newest technology is integrated into instructional delivery</li> <li>● Implementation of alternatives to traditional lecture/discussion classes</li> <li>● Value-added measures for particular sections/classes</li> <li>● Quality of instruction</li> <li>● Quality of advising and mentoring</li> <li>● No. of ongoing instructional development programs</li> <li>● Adequacy of resources provided to motivators and experimenters</li> </ul>
Program and curricular innovations/improvement	<ul style="list-style-type: none"> <li>● No. of new programs</li> <li>● Extent of curriculum revision</li> <li>● No. of new courses introduced per year</li> <li>● Time to deliver new products</li> <li>● No. of new initiatives</li> <li>● Market response to initiatives</li> <li>● No. of applicants</li> <li>● Rate of change in academic/degree programs</li> <li>● Reports of continuous improvement committees</li> <li>● Formally approved curriculum changes</li> <li>● Innovation versus competitors</li> </ul>
Pedagogy enhancement	<ul style="list-style-type: none"> <li>● Course revise/development</li> <li>● Guest lecturers used in classes</li> <li>● Field trips</li> <li>● Attendance at pedagogy workshops</li> <li>● Interaction with business</li> <li>● Development of assessment technique/device for each innovation</li> </ul>
Distance learning	<ul style="list-style-type: none"> <li>● No. of classes offered</li> <li>● Remote sites accessed</li> <li>● % of programs offered to time and place bound students</li> </ul>
Value-added learning	<ul style="list-style-type: none"> <li>● Pre- and post learning measures</li> <li>● Integrative experiences</li> <li>● Learning portfolio</li> </ul>
Lifelong learning	<ul style="list-style-type: none"> <li>● Seminars presented</li> <li>● Alumni relations/development</li> </ul>
<i>Quality of facilities</i>	
Adequate physical facilities	<ul style="list-style-type: none"> <li>● Adequacy of classroom and equipment facilities for providing globally relevant management education</li> <li>● Level of adequacy of computer resources for faculty and students</li> <li>● Adequacy of library resources to support academic programs</li> <li>● % of budget for improved facilities</li> <li>● Types of equipment</li> <li>● Uses of equipment</li> <li>● Time required to service, replace, allocate</li> </ul>
<i>Mission-driven processes and reward system</i>	
Mission-driven processes Measure, evaluate, and reward goal attainment Establish broad-based and continuous strategic planning process	<ul style="list-style-type: none"> <li>● Documentation for each process</li> <li>● Evaluation of measuring and reward systems in college</li> <li>● Evaluation of strategic planning</li> </ul>
<b>4. Business School Deans' Suggested Goals and Measures for the Financial Perspective</b>	

Goals	Measures
<i>Fund raising</i>	
Building endowment/fund raising/annual giving	<ul style="list-style-type: none"> <li>● Level of fund-raising activity for the school/university</li> <li>● Level of contribution of school personnel to the university</li> <li>● Alumni/business funds generated</li> <li>● Size/growth of endowment</li> <li>● Increase in private giving</li> <li>● No. of donors</li> <li>● Donor support for new initiatives</li> <li>● Total funds raised</li> <li>● Growth rate of annual fund</li> </ul>
Increased grants and contracts	<ul style="list-style-type: none"> <li>● No. and amount of grants from external agencies</li> <li>● Rate of increase in Federal/state contracts</li> <li>● Contributions from private courses</li> <li>● Volume and no. raised</li> <li>● Level of unrestricted funding</li> </ul>
<i>Revenues from operations</i>	
Develop revenue streams	<ul style="list-style-type: none"> <li>● Executive education profitability</li> <li>● Degree education "profitability"</li> <li>● Grant success</li> <li>● Non tuition revenue as % of annual budget</li> <li>● % of alumni contributions</li> <li>● Growth rate of annual fund</li> <li>● % of funds from tuition that stay internally</li> <li>● Total revenue/costs</li> </ul>
Increased student fees Increased state appropriation	<ul style="list-style-type: none"> <li>● % of contribution cost</li> <li>● % of funding relative to others in system</li> <li>● Per school, compared with last year</li> <li>● Comparison with inflation</li> <li>● Fair treatment in approval</li> <li>● Level of allocation from fund pool</li> <li>● Growth rate</li> </ul>
Profitable program mix Executive education	<ul style="list-style-type: none"> <li>● Contribution analysis</li> <li>● Growing no. of courses</li> <li>● Enrollment and firms involved</li> <li>● Geographic scope of program</li> <li>● Quality of firms using program</li> </ul>
Increase teaching productivity	<ul style="list-style-type: none"> <li>● Class size</li> <li>● Student/faculty ratio</li> </ul>
<i>Human capital investments</i>	
Chairs and professorships Maintain/enhance salaries to retain and attract quality faculty	<ul style="list-style-type: none"> <li>● No. and magnitude of new chairs and professorships</li> <li>● Salaries relative to peer group</li> <li>● Schools attended by job applicants</li> <li>● Distinguished chairs</li> <li>● Faculty satisfaction</li> <li>● Faculty turnover rate</li> </ul>
Provide adequate resources for faculty development	<ul style="list-style-type: none"> <li>● Dollars for travel, research assistance, computers, etc.</li> <li>● Dollars/faculty</li> <li>● Program for release time and sabbaticals</li> </ul>
<i>Financial management</i>	
To be financially sound	<ul style="list-style-type: none"> <li>● Balanced budgets</li> <li>● Growth in fund raising</li> <li>● Satisfaction of graduates and employers</li> <li>● Funds totally accountable</li> <li>● Extent books are open</li> </ul>



	<ul style="list-style-type: none"> <li>● State support multiplied by outside funding</li> <li>● Extent budget submissions cover all essential requirements</li> <li>● Efficiency and effectiveness of budget allocations spent</li> </ul>
Be perceived as responsible stewards of the resources under our control (resource accountability)	<ul style="list-style-type: none"> <li>● No scandals – rational, sensible spending policies and procedures</li> <li>● Effective stewards of university resources entrusted to us</li> <li>● Effectiveness of methods of monitoring our supplies and equipment</li> <li>● Degree to which expenditures are essential</li> <li>● Ability to direct resources to programmatic needs</li> <li>● Efficiency and effectiveness of use of resources given university mission</li> <li>● Graduates' track record</li> <li>● "Reasonable tuition</li> <li>● Cost per unit of production relation to peers</li> </ul>
Succeed	<ul style="list-style-type: none"> <li>● Rate of annual increase to cash reserves</li> <li>● Rate of increase in no. of employees to students</li> <li>● Faculty – student ratio</li> <li>● Rates of change of the survival measures</li> <li>● Market growth</li> <li>● Rate of increase in generation of student credit hours</li> </ul>
Prosper	<ul style="list-style-type: none"> <li>● Growth in quantity or quality of students</li> <li>● Endowment growing in real terms</li> <li>● No. and dollars of alumni/ae gifts</li> <li>● No. and dollars of corporate/foundation gifts</li> <li>● Increased external funding</li> <li>● % surplus fund balance of operating budget</li> <li>● National ranking</li> <li>● Increasing market share</li> <li>● Product dominance</li> <li>● Increased budget</li> <li>● Increased faculty lines</li> <li>● Increased grants</li> <li>● Media mentions</li> </ul>
Survival	<ul style="list-style-type: none"> <li>● Budget maintenance</li> <li>● Recruiting success</li> <li>● Positive cash flow</li> <li>● Enrollment trend</li> <li>● Relative preference by students</li> <li>● Revenue production</li> <li>● Spending relative to budget</li> <li>● Level of student credit hours</li> </ul>
Stability	<ul style="list-style-type: none"> <li>● Ups and downs in enrollment</li> <li>● Financial statements</li> <li>● Endowment</li> </ul>
<i>Relationships and public image</i>	
Building alumni relations	<ul style="list-style-type: none"> <li>● No. of active alumni chapters</li> <li>● Level of alumni giving</li> </ul>
Building industry/business partnerships	<ul style="list-style-type: none"> <li>● Types of services provided</li> <li>● Internships/co-op programs</li> <li>● Support levels</li> </ul>
Develop service programs that project value to community and legislature	<ul style="list-style-type: none"> <li>● Effectiveness of service programs</li> <li>● Inventory of service programs</li> </ul>
Be respected as source of knowledge and new	<ul style="list-style-type: none"> <li>● Research funding</li> </ul>

ideas	<ul style="list-style-type: none"> <li>● Publications</li> <li>● Consulting relationships</li> <li>● Business incubation successes</li> </ul>
Contributions of faculty to society and discipline	<ul style="list-style-type: none"> <li>● Research output/contribution to economic development/decision making</li> <li>● Application to constituent problems</li> <li>● Level of acceptance</li> </ul>
Maintenance of accreditation	<ul style="list-style-type: none"> <li>● AACSB review</li> </ul>
(Source: Adopted from Bailey, et al (1999), pp. 169-178, Continuous improvement in business education: Insights from the for-profit sector and business school deans)	

### Appendix B

The survey is simply for research purposes. Your responses are recorded anonymously. There are no “right” or “wrong” answers. The purpose of this study is to develop a self-evaluation system (private kindergarten scorecard) for Taiwan’s private kindergartens. There are three parts to this survey (p1-p4). Thank you very much for your patience and participation!

Penn State University

Yu-chuan Huang (Graduate Student)

#### Part I:

Importance of measures				Private Kindergarten Scorecard (Self-Evaluation System): Measures	The degree of agreement in current situation			
Very Important	Moderately Important	Low Important	Not Important	<b>Direction:</b> 1. <i>Left side:</i> Please circle the degree of importance about measures to use in private kindergarten self-evaluation systems. 2. <i>Right side:</i> Please circle the degree of agreement in evaluating your kindergarten current situations.	Strong Agree	Agree	Disagree	Strong Disagree
4	3	2	1		1. Administration provides effective leadership.	4	3	2
4	3	2	1	2. Teacher is qualified to teach.	4	3	2	1
4	3	2	1	3. Kindergarten continuously evaluates its program.	4	3	2	1
4	3	2	1	4. Children feel happy in kindergarten.	4	3	2	1
4	3	2	1	5. Great communication occurs with parents.	4	3	2	1
4	3	2	1	6. Environment is clean.	4	3	2	1
4	3	2	1	7. Fee and tuition are reasonable.	4	3	2	1
4	3	2	1	8. Children develop social skills.	4	3	2	1
4	3	2	1	9. Staff salaries are satisfactory.	4	3	2	1
4	3	2	1	10. Children are developed in physical growth.	4	3	2	1
4	3	2	1	11. Nutritious meals are provided for children.	4	3	2	1
4	3	2	1	12. Kindergarten operates efficiently with minimum waste.	4	3	2	1
4	3	2	1	13. Curriculum and activities are good for children.	4	3	2	1
4	3	2	1	14. Enrollment is sufficient to maintain long-term operations.	4	3	2	1
4	3	2	1	15. Classroom is appropriately arranged.	4	3	2	1
4	3	2	1	16. Kindergarten has involved up-to-date technology.	4	3	2	1
4	3	2	1	17. Environment is safe.	4	3	2	1
4	3	2	1	18. Parents are involved in kindergarten.	4	3	2	1
4	3	2	1	19. Kindergarten has sufficient resources.	4	3	2	1
4	3	2	1	20. Children are cognitively ready for the next grade.	4	3	2	1
4	3	2	1	21. Group size and teacher/child ratio are reasonable.	4	3	2	1

**Part II:**

In the table you are required to make six comparisons about your beliefs related to the importance of different perspectives on the private kindergarten scorecard (self-evaluation system). Please make the most appropriate response to each comparison. The bigger the number is, the more important the perspective is.

**Example:** Which is most important in deciding whom you will marry: love, wealth or health? (As the check mark gets closer to either the left or right side, the perspective in the chosen side becomes stronger.)

Comparison	Perspective	The left side is more important than right side.								Equal Importance	The right side is more important than left side.								Perspective
	Scale	9:1	8:1	7:1	6:1	5:1	4:1	3:1	2:1	1:1	1:2	1:3	1:4	1:5	1:6	1:7	1:8	1:9	Scale
1	Love		✓																Wealth
2	Wealth															✓			Health

**Example results:** Comparison 1: If you choose 8:1, it means that you think love is much more important than wealth in deciding who you will marry.

Comparison 2: If you choose 1:7, it means that you think wealth is much less important than health in deciding who you will marry.

**Explanation of perspective:**

*Financial perspective:* Sufficient money to operate kindergarten.

*Stakeholders' perspective:* Parents', staffs' and teacher's satisfaction with the private kindergarten.

*Internal organization process perspective:* The internal process and organizational capacity are sufficient to the organization to do well.

*Innovation perspective:* Organization makes continuous improvement.

**Beginning of survey:**

	Perspective	The left side is more important than the right side.								Equal Importance	The right side is more important than the left side.								Perspective
		9:1	8:1	7:1	6:1	5:1	4:1	3:1	2:1	1:1	1:2	1:3	1:4	1:5	1:6	1:7	1:8	1:9	
1	Financial																		Stakeholders
2	Financial																		Internal Organization Process
3	Financial																		Innovation
4	Stakeholders																		Internal Organization Process
5	Stakeholders																		Innovation
6	Innovation																		Internal Organization Process

(If anyone has any difficulty filling out this form, I will be glad to have a conference with you to explain it.)

**Part III:**

The following questions are about you and the kindergarten. Please check and describe the most appropriate answer.

1. Are you:  1. Administrator  2. Staff  3. Teacher  4. Parents
2. Gender:  1. Male  2. Female
3. Your age: \_\_\_\_\_
4. Your highest education level:
  - 1 Primary school or less  2. Junior high school  3. Senior high school
  - 4. College/University  5. Graduate school or higher
5. Your occupation:
  - 1. Managerial and professional  2. Technical, sales, and administrative support
  - 3. Service  4. Operators, laborers, and fabrications
  - 5. Precision, production, craft , and repair  6. Farming, forestry and fishing
  - 7. Other \_\_\_\_\_
6. How many children do you have registered in the kindergarten? \_\_\_\_\_
7. If you have two or more than two children that go to kindergarten, do they attend the same kindergarten?  1. No  2. Yes
8. How much money does the kindergarten charge for one semester?
 

Register fee \_\_\_\_\_ Monthly fee \_\_\_\_\_
9. Number of students in each class: \_\_\_\_\_;  
Number of teachers in each class: \_\_\_\_\_
10. Disposable income for the household per month:
 

<input type="checkbox"/> Less than NTD 10,000	<input type="checkbox"/> NTD 10,000 ~ 20,000
<input type="checkbox"/> NTD 20,001 ~ 30,000	<input type="checkbox"/> NTD 30,001 ~ 40,000
<input type="checkbox"/> NTD 40,001 ~ 50,000	<input type="checkbox"/> NTD 50,001 ~ 60,000
<input type="checkbox"/> NTD 60,001 ~ 70,000	<input type="checkbox"/> NTD 70,000 ~ 80,000
<input type="checkbox"/> NTD 80,001 ~ 90,000	<input type="checkbox"/> NTD 90,001 ~ 100,000
<input type="checkbox"/> More than NTD100,000	
11. Do you know whether the kindergarten has implemented self-evaluation?
  - 1. No, go to question  2. Yes
  - 11.a. If your answer is yes, how often does the kindergarten implement self-evaluation?
    - 1. Once per semester  2. Once per year
    - 3. Depends on the government evaluation  4. Other \_\_\_\_\_
  - 11.b. If your answer is yes, who is involved in the kindergarten self-evaluation?
    - 1. Professor and experts  2. Administrators  3. Teachers
    - 4. Other kindergarten  5. Parents  6. I do not know

12. Has the kindergarten won the best performance award before?

1. No  2. Yes

12.a. If the answer is yes, which part of your kindergarten won?

1. Early childhood administration  2. Teaching and nursing

3. Teaching facilities and public safety.  4. I do not know

**After completing the survey, please write down additional comments in the following :**

## Appendix C

### Informed Consent Form for Social Science Research The Pennsylvania State University

**Title of project:** Private kindergarten scorecard

**Principle investigator:** Yu-Chuan Huang (Graduate Student)

E-mail: [yxh156@psu.edu](mailto:yxh156@psu.edu)

**Academic Advisor:** Dr. Yawkey (Professor)\

E-mail: [tdy1@psu.edu](mailto:tdy1@psu.edu);

Address: 0165 Chambers BLDG University Park, PA 16802

Phone Number: (814) 863-2937

1. Purpose: The purpose of this study is to develop an effective self-evaluation system in Taiwan's private kindergartens to enhance their performance, pursue continuous improvement and develop successful strategies.
2. Benefits: The research increases each participant's understanding of how to improve the kindergartens' performance.
3. Duration: It will take about 20-25 minutes to complete the survey.
4. Procedures to be followed: The principal investigator (PI) will distribute the informed consent form, questionnaire, and empty envelope to each participant. The PI will ask each participant to first read the informed consent form, and have questions answered, complete the questionnaire by circling the correct answer or filling in the blanks, put the completed questionnaire to envelope, seal it, return to the investigator. The participant shall retain a copy of the consent form for records.
5. Statement of confidentiality: Your participation in this research is confidential. The survey does not ask for any information that would identify who the responses belong to. No personal information will be disclosed in the dissertation, presentation, or publication. The Office for Research Protections may review data related to this research. The paper copies will be kept in a locked cabinet in the investigator's home until the investigator finishes the research. Data will be stored on a password protected computer.
6. Risks: There is no risk involved in participating in this study beyond normal daily living.
7. Voluntary participation: Your participation is voluntary. You can stop your participation at any time or refuse to answer any specific questions without penalty.
8. Right to ask questions: You can ask the questions about the research. The person in charge will answer your questions. If you have any question, please contact me (Yu-Chuan Huang) at (05)277-8705, (814)862-2061, or [yxh156@psu.edu](mailto:yxh156@psu.edu). If you need any further information about your rights as research participant, please contact Penn State's Office of Research Protection at (814)865-1775.

You must be at least 18 years old to consent to participate in this research study.

Completion and return of the survey implies that you have read the information above and consent to participate in the research.

Please keep this page for your records or future reference. Thank you very much for your participation!

## Appendix C

### Informed Consent Form for Social Science Research Agreement Form

I have read and understood the information and agree to participate in the study “Private kindergarten Scorecard.” I consent to participate in this study and give my support to the research conducted by Ph. D. candidate, Yu-Chuan Huang, of The Pennsylvania State University. I understand that my consent may be withdrawn at anytime.

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Signature

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Date



**Vita**  
**Yu-Chuan Huang**

Yu-Chuan Huang was born in southern Taiwan. Her academic aspirations parallel the accomplishments of her successful parents. In 1995, she received a Master of Science degree from the University of Colorado at Boulder. After her returning to Taiwan, she conducted and participated in some research projects from the National Science Council of Taiwan and the National Youth Commission of the Executive YUAN of Republic of China. In 2003, she enrolled in the Ph.D. program at The Pennsylvania State University. Since 2003, she has been awarded grants and appointed as a judge for the graduated conference at Penn State University. In addition, she has several publications and has been a teaching assistant in the Educational Leadership and Administration Department.