

# Perceived Competency Disparities between Pre-service Training and Job Demands of Primary School Administrators

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## Abstract

The aim of this study is to explore whether school administrators' training has provided necessary knowledge and competency for school management, which allows school administrators to cope with current demands in their profession. This study also examines competency disparities based on a survey. The 44-item, 6-category survey was then distributed to a sample of 1,872 elementary school administrators. These subjects consisted of nationwide elementary school principals, managers and team leaders. A return rate of 43.59% was achieved and 816 valid samples were collected and analyzed. The results indicated a common trend in all 44 items. The findings suggested that: perceptions of competency disparity in the six categories drawn from primary school administrators ranged from the low to the intermediate level. Among the six categories of elementary school administrators' competencies in school innovative management, "mental capability" was most significantly perceived and "professional capability" was least mentioned.

**Keywords:** administrators' competency, competency disparity, primary school administration

## Introduction

Administrative leadership of a school is a key element in terms of school effectiveness (Spencer & Kochan, 2000). Indeed, administration is a complex activity that generates new knowledge and requires the integration of heterogeneous knowledge to transform a set of requirements and constraints into administrative work. Administrators reuse and adapt their past knowledge in order to understand new problems that they encounter. They can then work with their partners, generate and evaluate different administrative alternatives, and explore and integrate new knowledge, in order to achieve the aim of producing competent administrators and to ensure high quality of education to students.

Research on administrators' competency is required to establish the long-term traceability. Many well-known I/O psychologists over the years have identified the characteristics that are important to effectiveness, although they have used different labels, such as attributes, executive dimensions (Dunnette, 1971; Hemphill, 1959), assessment dimensions (Thornton & Byham, 1982), competencies (McClelland, 1975), and global executive competencies (McCall & Hollenbeck, 2002). Many of these abilities were carefully identified based on different research.

The concept of competency assessment is also found, for example, in examining the competency disparities between professional development and practical administrative jobs. Such a disparity, coupled with the lack of opportune pedagogical adjustments responding to new learning needs (Kremer-Hayon & Zuzovsky, 1995), has contributed in the long run to administrators' elevated stress level (Murray, 2003; Murray & Male, 2005) and educational quality (Day, Elliot, & Kington, 2005). Fortunately, previous studies aimed to find what competencies are needed when applying a proper approach of integrating knowledge for problem-solving.

In the field of administration, schools are becoming more aware of the strong connection between competency management and professional development. For instance, Taiwan and other nations are entering a decade in which school administration are significantly challenged because the increase of school democracy has resulted in more conflicts between administrators and teachers. However, the administrative competency which pre-service education designs to build is insufficient for those in-service teachers currently holding school administrator positions. To meet the job demands and future professional development, this study has identified various administrative competencies required for school management. Then, certain competency disparities related to school management are examined and analyzed.

## Theoretical Background

In order to maintain a competitive advantage, organizations have to be producers of distinctive competencies (Hamel & Prahalad, 1994). This is especially true in the fields of innovation where leaders are aware of the impact of their colleagues' competencies on job performance as well as the requirements for fast competency evolution. They have to identify support for all the processes which are related to the development of these competencies (Belkardi, Bonjour, & Dulmet, 2007).

A competency is a construct: the result of a combination of individual cognitive resources and a network of resources from individual environment. Competency is regarded as an aptitude to know how and to behave. Competency is carried out in a context and depends on this context where it is concretized (Belkardi et al., 2007). Korthagen (2004) has identified four categories of competency: subject-oriented, methodological, communicative/reflective thinking, and organizational competency. Competency is further divided into internal and external competencies suggested by Koster, Brekelmans, Korthagen, and Wubbels (2005). For Tobias and Dietrich (2003), "competency is a set of personal characteristics (knowledge, skills, abilities) which are relatively stable across different situations." Belkardi et al. defined 1. Competency as a combination of various resources which goes beyond a simple possession of these resources; 2. Competency as related to an actor that may be, for instance, a company, a job team or an individual; 3. Competency as supported by a cognitive structure that organizes the way the activity is performed and that is relatively stable across a full range of situations, and 4. Competency as a construction because each time it is activated; it may be improved, enriched and developed to be adapted to the changing features of the situation but without getting out of the associated class of situations; otherwise a new competency may emerge.

Competency aims to achieve one or more goals, to bring missions to a successful conclusion or to carry out a task. Competency is always carried out in a context (Harzallah & Vernadat, 2002). The dimension of competency can be summarized to cover the following goals: 1. Competency identification which integrates all the processes concerning the inventory of competencies required by the administrative processes (with tasks and missions) and those acquired by the administrators; 2. Competency allocation which is the process of assigning various missions to human resources who possess different kinds of knowledge, according to defined administrative jobs (Berio & Harzallah, 2005).

Belkardi et al. (2007) described a competency through a set of knowledge linked to levels of mastery and a specific signature of competency with respect to cognitive capacities and action rules. The classification of knowledge as competency is described as follows: 1. Operational knowledge: it

is related to what is needed in order to perform a task for correct understanding and interpretation of all the prerequisite information about the specifications of the mission, and it is also to reading, understanding and interpreting technical materials on required standards and on unavoidable constraints (Harzallah & Vernadat, 2002); 2. Domain knowledge: it is related to the needs in dealing with entities having an object role in the interaction. It is related to the domain of the object itself (such as specific knowledge about the domain); 3. Support knowledge: it is related to the needs in dealing with the entities having a support role in the interactive domains; 4. Cognitive capacities: it is concerned with capacities for perceiving and analyzing a current situation, and being capable of extracting information or prioritizing the various actions constituting the activity; 5. Decisional aspects: it refers to the ability to react when encountering the unexpected in a situation and to be able to make the right decision in a complex situation, and 6. Relationship aspects: it is concerned with all behavioral aspects when one plays a specific role in a community during the activity.

Competency identification implies that the evaluation has to be made beforehand and that the performance indicators have to be well-defined. The evaluation concerns the comparison between the goals and the results and, sometimes, the way the administrator has performed his or her activity (Harzallah & Vernadat, 2002). In examining the skills set required for school administrators, their competency can be stratified into those relating to the individual's 1. cognitive aptitude, 2. acquired technical skills, 3. experience, 4. behavioral characteristics, and last but not least, 5. ability to manage relationships effectively (Propp, Glickman, & Uehara, 2003). The first two categories are entry-level threshold capabilities, and the fourth category is difficult to be modified, whereas the last group of attributes deals with a higher level performance.

However, professional competency is context dependent such that the salience of each competency as well as its components and how it is executed according to a setting (Lehex, Poland, & Daudelin, 2006). Competency disparity assessment constructed within professional psychology in regard to school administration competency is would be build up from this study.

## Research Design

This study was first to develop a competency inventory for the administrators serving at Taiwan primary schools. Then, the empirical study was adapted to test the feasibility of the new inventory and explore the competency disparity existing in school administrators.

## Research Method

In order to facilitate the appropriateness in developing of competency items, the research methods for evaluating the disparity of competency should aim at providing administration support at school different actions. The literature review showed that criterion-referenced assessment is more objective, valid and reliable than non-referenced assessment for developing the assessment tool. According to Vidal-Gomel and Samurçay (2002) and Neuendorf (2002), some ideas for illustration were adopted in this study.

According to Vidal-Gomel and Samurçay's research (2002), a global approach for characterizing competencies through work situations should be based on the following stages: 1. collection of data about the operator's activities through questions representing the situation and classes of situations; 2. analysis of events dealing with a specific situation and the functioning of the operator's cognitive model in that particular situation; 3. development of different connections between the kind of situation and the competency, and 4. definition of the competencies required and, finally, construction of a reference system. Neuendorf (2002) clearly defined content analysis as "a summarizing, quantitative analysis of messages that relies on the scientific method and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented".

This study first adopted a global approach following Vidal-Gomel and Samurçay (2002) for characterizing competencies, aiming at approximating the reasoning of the expert in charge of competency so that this activity could be at least partially programmed and a dynamic aspect (regular updating) could be integrated into competency banks. Then, Neuendorf's definition of content analysis was drawn and its techniques were employed to synthesize the individual competencies into categories developed in the first stage. Five stages were distinguished as sharing and comparing information, identifying areas of disagreement, negotiating meaning and co-construction of knowledge, evaluating and modifying new schemas resulting from co-construction, and reaching and stating agreement and applying the co-constructed knowledge (Schellens & Valcke, 2005; Wever, Keer, Schellens, & Valcke, 2007).

## Construction of Research Instrument

In order to determine the categories of competencies needed for school innovative administration in this study, each of the 235 competencies was written on a 3 × 5 card and screened by focus group meetings comprised of five administrators who had won awards of school innovative management. Then, the 235 competencies were assessed and grouped. Moreover, item statistics were

applied to examine the suitability of these competencies in the inventory.

Focus group methodologists generally advocate seeking homogeneity in group composition (i.e., segmentation). Bringing together participants for sharing similar characteristics is a kind of social glue that adds fluidity and depth to discussions (Lehex et al., 2006). Unlike the top-down approach used in Analytic Hierarchy Process (AHP), the categorization approach in this study adopted the K-J method to deconstruct the questions from bottom-up (Saaty, 1980).

In focus group sessions, Hydén and Bülow (2003) indicated two interactive moments that influence how participants relate to one another. The first is when participants establish a “common communicative ground.” This is influenced by the way the moderator initially presents the tasks to the group and invites specific participants to break the ice. The second is when participants add their “contribution to the common ground.” This involves referring to what has been said earlier by another participant and gradually co-constructing a narrative together (Hydén & Bülow, 2003). This double identification approach to the contents of a questionnaire explains the constructing of a questionnaire seen as a shared concept. Based on this premise, experts selected are the focus group members who have at least ten years of relevant work experiences.

After focus group discussion, the items were retained if being approved by over 70% of the focus group members, while the remainder was omitted. In this way a questionnaire for a pilot study was compiled. Meanwhile two analyses, item statistics and factor analysis, were undertaken. Data for item statistics were drawn from 200 subjects in order to examine the suitability of these competencies. The Likert-type scale ranging from 1 to 5 was adopted in the questionnaire to survey the school administrators’ perception of six-category, 44-item competencies for school innovative management. The reference values on the scale indicated to which degree the administrators’ performances have achieved.

An independent sample *t*-test was applied to examine the difference between the high-score and the low-score groups. Scores above 151 making up 27% of the total were considered the top group; on the contrary, scores under 90 making up 27% of the total were considered the low group.

Critical ratios were also employed to measure each item showing Critical Ratio (CR) of each item, ranging from 6.170 to 47.379, inventory of “Investigation Form for Primary School Administrators’ Competency Disparity in School Innovation Management” was statistically significant ( $p = .000 < .001$ ) in the pilot study. In order to realize the appropriateness of the research instrument, the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was employed. According to factor analysis proposed by Kaiser (1974), the KMO value of this questionnaire was .982, and the Bartlett test result was significant ( $p < .01$ ). The results indicated that this factor

analysis of the questionnaire design in this study resulted in marvelous appropriateness. And then, that factor analysis of inventory, Competency Disparity of School Innovation Management, lended itself to be employed for this study.

This research later classified administrators' competency into six categories by referring and integrating the theoretical frameworks suggested by the content analysis and focus group sessions. The categories comprising mental capabilities, value systems, interpersonal skills, management ability, professional capacity as well as personality traits were used as the theoretical framework for defining teachers' competency (Hong, Horng, ChanLin, & Lin, 2008). The following are the descriptions for the six categories:

1. Mental capabilities: the ability to discover and solve problems by using analytical thinking, forward thinking, deductive reasoning and creative thinking skills.

2. Value systems: the ability to be responsible and proactive, implement and follow through plans, tolerate frustration and stress, plan long-term and maintain a consistent belief system.

3. Interpersonal skills: the ability to be respectful and caring, and to use the right tones and registers for the communication context.

4. Management ability: the ability to plan, do, check and delegate work, and use a systematic decision-making process, standard operating procedures as well as an award and punishment system.

5. Professional capability: including declarative and procedural knowledge embedded in one's long-term working memory which can be retrieved when necessary.

6. Personality traits: being adventurous, curious, caring, confident, innovative, analytic, open-minded and motivated.

## **Reliability and Validity of Questionnaire**

The questionnaire draft was examined by experts for content validity, followed by the reliability test, which focused on the internal consistency by omitting the questions with lower Cronbach  $\alpha$  value.

### ***Validity of Questionnaire***

Content validity is the most important type of validity because it ensures congruence between the research target and data collection tool (Burns & Grove, 2001). In this study, the experts and primary school administrators were invited to provide suggestions to improve the appropriateness of the questionnaire content. First of all, the questions reviewed as appropriate items by 70% of the experts were reserved, and the remains were deleted. The reserved questions, then, were mixed with the questions reviewed as appropriate-after-revising items. The question with the percentage sum

over 80% would finally be reserved. The rest was omitted. In order to establish an optimum validity for the questionnaire, a draft of the inventory was first amended by the focus group sessions. The Pearson Product Moment Correlation was also applied to test the correlation between each category and the related items in the questionnaire for this study: The Competency Disparity between Pre-service and In-service of Primary School Administrators. Each category and item along with the whole scale reached significance, indicating validity of this questionnaire.

### ***Item Analysis***

Item analysis is used to measure the appropriateness of each question in a questionnaire. The CR value examines the level of item discrimination, followed by the correlation analysis to test the internal consistency among the questions.

The results of 200 pre-testers were ranked from high to low. The top 27% and low 27% (respectively 54 persons) were classified as the extreme groups. There were totally 108 questionnaires. The top 27% (the score  $\geq 151$ ) was considered as the high-score group, while the low 27% (the score  $\leq 90$ ) was regarded as the low-score group. The independent sample *t*-test was used to examine the discrimination between these two groups, and resulted in the CR values of each item. The item analysis result of “Inventory of Investigation Form for Primary School Administrators’ Competency Disparity in School Innovation Management” indicated that the CR value among the items was between 6.170 and 47.379, which showed the significant difference ( $p = .000 < .001$ ).

### ***Factor Analysis***

Six dimensions were incorporated into this questionnaire: mental capabilities, value systems, interpersonal skills, and so on. The principal component analysis was used to examine the factorial analysis on each of these dimensions for screening the questions and inducing the factors. The questions with eigenvalue  $> 1$  and factor loadings  $> .3$  were reserved. After analyzing, all the questions were reserved. In addition to the expert validity test, the Pearson product-moment correlation analysis was used to examine these questions, too. The result ended up with excellent validity ( $p < .01$ ).

### ***Reliability of Questionnaire***

An instrument is said to have a high degree of reliability when a significant association between responses to each of the attributes is shown. In effect, it is ‘an indicator of how well the different indexes measure the same issue’ (Litwin, 1995). Construct reliability is determined by using Cronbach’s Alpha and factor analysis. The alpha co-efficient “represents the most widely used and most general form of internal consistency estimate” (Murphy & Davidshofer, 1994). All the



constructs have an alpha value in excess of .7. Factor analysis is used to reveal underlying common themes and also as a means of data reduction.

The criterion of selecting a question was based on low or minus value of the corrected item-Total Correlation; omitted questions leading to an  $\alpha$  coefficient shift indicated that these questions lowered the reliability of the questionnaire. After analyzing the pilot study, the total score for  $\alpha$  coefficient value exceeded .9863. Questions resulting in  $\alpha$  coefficient shift after omission ( $\alpha$  coefficient = .9858) indicated satisfactory reliability.

Multiple correlation coefficient squares indicates that the more explanations are offered to each category's item, the higher the internal consistency will be. Item number four (Mandarin proficiency) showed the lowest internal consistency ( .214). In reference to the overall reliability coefficient exceeding .9863, Kline (1994) suggested that 'factor loadings are high if they are above .6, and moderately high if they are above .3'. This study adopted the more stringent criteria and retained factors with loadings above .6.

## Data Collection

Similar to other professional competencies, school administration requires a foundation and continuous self-assessment. Self-assessment is at the heart of developing competency (Kaslow, 2004), as an individual can identify areas of strength and weakness to establish priorities and to commit to learning. In the area of school administrative competency, administrators would be able to critically assess their capability to perform administrative activities. Therefore, the sample of this study included the administrators, such as principals, directors, and coordinator, of primary schools in Taiwan. Four districts of Taiwan: the north, middle, south, and east, were distinguished for stratification. The stratified proportional random sampling method was then used to select samples based on school size. The questionnaires were delivered to the selected schools. The principals or directors of academic affairs were advised to help distribute the questionnaires to the administrators, and collect them after the questionnaires were completed.

Two-stage sampling method was used in this study to ensure the representation of this sample. The first stage, stratified proportional sampling, centered on the school size, while the second stage, simple random sampling, aimed at selecting the sample.

## Stratified Proportional Sampling

Three levels were categorized based on the school size: below 12 classes, 13-48 classes, and more than 48 classes. In order to enhance the representation, each stratified cell was selected based on their proportion in the population. The number of schools in each cell was randomly selected. The

sample size was a tenth of the population. Therefore, the sample was 262 administrators out of the population with a total of 2,602 persons. The sample schools included: 37 schools in the below-12-class level, 101 schools in the 13-48-class level, and 124 schools in the over-49-class level. Totally there were 262 schools selected.

### **Simple Random Sampling**

The simple random sampling method was used in the three levels of the schools. Five administrators per school were selected out of the below-12-class level, eight administrators per school were selected out of the 13-48-class level, and 12 administrators per school were selected out of the last level. Totally there were 1,872 administrators involved in this study. The sample was from all over Taiwan, including the north, middle, south, and east. 5-12 copies of the questionnaires were delivered to the schools based on their size. Data were collected concurrently from all 262 schools. 1,872 individuals were identified as the subjects. After the initial mailing, reminders followed up in one week. A second round of reminders was sent again to those who had not responded. Samples were reduced by duplicate entries. The questionnaires retrieved from 816 administrators reached an effective response rate of 43.59%.

## **Research Findings**

The purpose of this paper is to argue that differentiation and integration of the dimensions of competency disparity between the pre-service training and job demands of the primary school administrators, which is essential to successful school management.

### **Competency Disparity by Category**

Statistical analysis was carried out using SPSS 10.0 software. Based on TTT analysis, the mean scores for each competency category were 2.79 (Category 1), 2.78 (Category 2), 2.77 (Category 3), 2.77 (Category 4), 2.74 (Category 5) and 2.71 (Category 6). The average mean was 2.76, indicating little disparity between primary school administrators in perceiving the six competency categories (Table 1).

Through repeated measures variable analysis in the six categories, *F* value reached 6.481 at a significant level ( $p = .000 < .001$ ). The post hoc test revealed the school administrators' perceptions of disparity in mental capabilities, value systems and personal traits were greater than those in management abilities and professional capabilities. Therefore, primary school administrators

Table 1 Descriptive Analysis of Competency Disparity in Six Constructs

No.	Category	Items	<i>M</i>	<i>SD</i>
1	Mental Capabilities	5	2.79	.94
2	Personal Traits	11	2.78	.99
3	Value Systems	6	2.77	1.01
4	Interpersonal Skills	7	2.77	1.08
5	Management Abilities	6	2.74	.98
6	Professional Capabilities	9	2.71	.89
Total		44	2.76	.93

perceived greater disparity in mental capabilities, value systems and personal traits than in professional capabilities (Table 2).

Table 2 Construct Repeated Measures in Competency Disparity

Source Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	Post hoc tests
Between Groups	3.855	5	.771	6.452***	1 > 4, 5
Within Groups					2 > 4, 5
Intercept	4219.264	815	5.177		3 > 5
Residual	487.013	4075	.120		6 > 4, 5
Total	4709.817	4895			

Note. 1: mental capabilities; 2: value systems; 3: interpersonal skills; 4: management abilities; 5: professional capabilities; 6: personal traits

\*\*\* $p < .001$ .

On the other hand, in Pearson's correlation coefficient analysis, correlation ranged from .837 to .932 included as follows: personal traits ( $r = .932$ ), professional capabilities ( $r = .899$ ), interpersonal skills ( $r = .896$ ), mental capabilities ( $r = .872$ ), value systems ( $r = .845$ ) and management abilities ( $r = .837$ ), which indicated a positive correlation of overall competency disparity in each category ( $p < .01$ ). Moreover, the value of correlation between professional capabilities and personal traits was higher than the other ( $r = .969$ ), while the value of correlation between professional capabilities and management abilities was lower ( $r = .826$ ) in competency disparity (Table 3).

As a whole, perceptions of category competency disparity drawn from primary school administrators ranged from the low to the intermediate level. According to the result of one-way ANOVA, six categories were perceived and listed in order based on intensity as follows: mental capabilities, personal traits, value systems, interpersonal skills, management abilities and professional capabilities. Among primary school administrators, perceptions of mental capabilities, value systems and personal traits were higher than those of professional capabilities. Note that how the categories interact could be a question for further research.

Table 3 Correlation Matrices of Each Category in Primary School Administrators' Competency Disparity

Category	Sum	Mental Capabilities	Value Systems	Interpersonal Skills	Management Abilities	Professional Capabilities	Personal Traits
Sum	1						
Mental Capabilities	.872**	1					
Value Systems	.845**	.927**	1				
Interpersonal Skills	.896**	.904**	.879**	1			
Management Abilities	.837**	.838**	.828**	.868**	1		
Professional Capabilities	.899**	.935**	.928**	.890**	.826**	1	
Personal Traits	.932**	.963**	.955**	.950**	.914**	.969**	1

\*\* $p < .01$ .

Mental capabilities, value systems, interpersonal skills, management abilities and professional capabilities were positively correlated to the overall School Innovation Management. Above all, professional capabilities and personal traits displayed the highest correlation, while management abilities and professional capabilities showed the lowest.

### Competency Disparities for Each Item

The perceptions ranging from the highest scores to the lowest were listed based on TTT analysis. The top five items were proactive thinking ( $M = 2.83$ ), risk management ( $M = 2.83$ ), mental awareness ( $M = 2.83$ ), strategic thinking ( $M = 2.83$ ) and team building ( $M = 2.44$ ). The bottom five items were English proficiency ( $M = 2.67$ ), Mandarin proficiency ( $M = 2.44$ ), resource management ( $M = 2.68$ ), management by objectives ( $M = 2.69$ ) and depth of domain-general knowledge ( $M = 2.70$ ).

In regard to the scores of  $SD$  in order, the top five items were Mandarin proficiency ( $SD = 1.34$ ), sense of sharing ( $SD = 1.30$ ), learning sense ( $SD = 1.28$ ), practical orientation ( $SD = 1.25$ ) and curiosity of mind ( $SD = 1.25$ ). The bottom five items were breadth of domain-general knowledge ( $SD = 1.09$ ), proactive thinking ( $SD = 1.09$ ), meetings management ( $SD = 1.10$ ), strategic thinking ( $SD = 1.10$ ) and analytical thinking ( $SD = 1.10$ ). The scores of  $SD$  indicated the following findings:

1. Disparity perceptions of mental capabilities were greater than those of other categories. Among the five items above the mean, two items belonging to Category 1 indicated that primary school administrators had greater disparity perception of Category 1—mental capabilities—than of the others.

2. The total mean of the competency disparity perceptions in the six categories ranged from 2.44 to 2.87, which was identical to the results of the analysis of the six categories.

### ***Mental Capability***

Through repeated measures variable analysis,  $F$  value reached a significant level of 7.109. In Scheffe's post hoc tests, perceptions of such items as strategic thinking, proactive thinking and creative thinking were all better than those of analytic thinking and reasoning. Therefore, in terms of competency disparity, primary school administrators had a higher perception of such items as strategic thinking, proactive thinking and creative thinking, while the administrators showed a lower perception of items such as analytical thinking and reasoning (Table 4).

Table 4 Repeated Measures in Category 1—Mental Capabilities

Source Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	Post hoc tests
Between Groups	12.977	4	3.244	7.109***	3 > 1, 2
Within Groups					4 > 1, 2
Intercept	3564.021	815	4.373		5 > 1, 2
Residual	1487.823	3260	.456		
Total	5064.821	4079	8.073		

Note. 1: analytical thinking; 2: reasoning; 3: strategic thinking; 4: proactive thinking; 5: creative thinking  
\*\*\* $p < .001$ .

### ***Value System***

Through repeated measures variable analysis,  $F$  value reached 2.309 at a significant level ( $p = .042 < .05$ ). In Scheffe's post hoc test, quality orientation as an item was better perceived compared to long-term planning ability, time management and practical orientation. In addition, disparity in priority management was better perceived compared to practical orientation. Therefore, primary school administrators had a higher perception of quality orientation, while practical orientation was less perceived by the administrators in terms of competency disparity (Table 5).

### ***Interpersonal Skills***

Through repeated measures variable analysis,  $F$  value reached 4.491 at a significant level ( $p = .000 < .001$ ). In Scheffe's post hoc test, items such as concern for others, communication skills, team building, learning sense and sense of sharing were better perceived than language application, while team building was better perceived than concern for others. Therefore, primary school administrators showed a higher perception of team building and a lower perception of respect toward others in terms of competency disparity (Table 6).

Table 5 Repeated Measures in Category 2—Value System

Source Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	Post hoc tests
Between Groups	4.654	5	.931	2.309*	3 > 6
Within Groups					5 > 1, 4, 6
Intercept	4959.195	815	6.085		
Residual	1742.680	4075	.403		
Total	6706.529	4895	7.419		

Note. 1: long-term planning ability; 2: resource vitality; 3: priority management; 4: time management; 5: quality orientation; 6: practical orientation

\* $p < .05$ .

Table 6 Repeated Measures in Category 3—Interpersonal Skills

Source Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	Post hoc tests
Between Groups	10.106	6	1.684	4.491***	2 > 1
Within Groups					3 > 1
Intercept	6657.340	815	8.169		5 > 1, 2, 4
Residual	1833.894	4890	.375		6 > 1, 4
Total	8501.340	5711	10.228		7 > 1, 4

Note. 1: respect toward others; 2: concern for others; 3: communication skills; 4: language application; 5: team building; 6: learning sense; 7: sense of sharing

\*\*\* $p < .001$ .

### **Management Abilities**

Through repeated measures variable analysis, *F* value reached 5.770 at a significant level ( $p = .000 < .001$ ). In Scheffe's post hoc test, risk management was the best perceived in Category 4. The perception of efficiency management was better than that of management by objectives and resource management. A higher perception of risk management was shown and a lower perception of resource management was indicated in terms of competency disparity (Table 7).

Table 7 Repeated Measures in Category 4—Management Abilities

Source Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	Post hoc tests
Between Groups	13.320	5	2.664	5.770***	1 > 3, 6
Within Groups					2 > 1, 3, 4, 5, 6
Intercept	4679.646	815	5.742		
Residual	1881.346	4075	.462		
Total	6574.312	4895	8.868		

Note. 1: efficiency management; 2: risk management; 3: management by objectives; 4: meetings management; 5: knowledge management; 6: resource management

\*\*\* $p < .001$ .

### ***Professional Capabilities***

Through repeated measures variable analysis,  $F$  value reached 14.663 at a significant level ( $p = .000 < .001$ ). In Scheffe's post hoc test, perceptions of breadth of domain-specific knowledge, depth of domain-specific knowledge, breadth of domain-general knowledge, ICT proficiency, activity design proficiency and executive proficiency were greater than those of English proficiency and Mandarin proficiency. In addition, disparity in Mandarin proficiency was better perceived than English proficiency, breadth of domain-general knowledge was better than depth of domain-general knowledge and English proficiency, and depth of domain-general proficiency was better than English proficiency. Higher perceptions of Breadth of domain-specific knowledge, depth of domain-specific knowledge, breadth of domain-general knowledge, ICT proficiency, activity design proficiency and executive proficiency were found. English proficiency was less perceived in terms of competency disparity (Table 8).

Table 8 Repeated Measures in Category 5 – Professional Capabilities

Source Variable	SS	df	MS	F	Post hoc tests	
Between Groups	71.564	8	8.945	14.663***	1 > 5, 6	2 > 5, 6
Within Groups					3 > 4, 5, 6	4 > 5
Intercept	5756.665	815	7.063		6 > 5	7 > 5, 6
Residual	3977.770	6520	.610		8 > 5, 6	9 > 5, 6
Total	9805.999	7340	16.618			

Note. 1: breadth of domain-specific knowledge; 2: depth of domain-specific knowledge; 3: breadth of domain-general knowledge; 4: depth of domain-general knowledge; 5: English proficiency; 6: Mandarin proficiency; 7: ICT proficiency; 8: activity design proficiency; 9: executive proficiency

\*\*\* $p < .001$ .

### ***Personal Traits***

Through repeated measures variable analysis,  $F$  value was equal to 2.356 reaching a significant level ( $p = .009 < .01$ ). In Scheffe's post hoc test, perceptions of awareness of mind, inquiring mind, self-confidence and decisiveness were better than initiative, truth-finding and progressiveness, while awareness of mind was better perceived than explorative mind and curiosity. Therefore, higher perceptions of awareness of mind, inquiring mind, self-confidence and decisiveness were found. Explorative mind, curiosity, initiative, truth-finding and progressiveness were shown to be less perceived in terms of competency disparity (Table 9).

Table 9 Repeated Measures in Category 6—Personal Traits

Source Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	Post hoc tests
Between Groups	11.099	10	1.110	2.356**	1 > 3, 5, 6, 10, 11
Within Groups					2 > 6, 10, 11
Intercept	8759.529	815	10.748		4 > 6, 10, 11
Residual	3838.719	8150	.471		7 > 6, 10, 11
Total	12609.347	8975	12.329		

*Note.* 1: awareness mind; 2: inquiring mind; 3: explorative mind; 4: self-confidence; 5: curiosity; 6: initiative; 7: decisiveness; 8: risk-taking; 9: open-mindedness; 10: truth-finding; 11: progressiveness

\*\* $p < .01$ .

### ***Summary and Discussion***

Competency is a central principle and value that inform psychology as a profession (Falender & Shafranske, 2007). Identifying measures that assess competency domains in a developmentally appropriate fashion was the first challenge in evaluating the degree of perceived disparity between pre-service training and job demands. Next, identified measures were grouped into cohesive and meaningful units in order to decrease the number of indicators of each domain. A series of exploratory factor analyses was used to empirically construct indicators of six competency domains using our developmentally appropriate measures of administrative competency.

The results showed a statistically significant difference of competency disparity between pre-service training and job demands perceived by school administrators in all 44 items ( $p < .01$ ). (1) In mental skills, the competency disparity of primary school administrators had a higher level of such items as strategic thinking, proactive thinking and creative thinking, while the administrators showed a lower disparity of items such as analytical thinking and reasoning. (2) In value system, quality orientation as an item was better perceived compared to long-term planning ability, time management and practical orientation. In addition, disparity in priority management was better perceived compared to practical orientation. (3) In interpersonal skills, items such as concern for others, communication skills, team building, learning sense and sense of sharing were better perceived than language application, while team building was better perceived than concern for others. (4) In management ability, risk management was best perceived in Category 4. The perception of efficiency management was better than that of management by objectives and resource management. A higher perception of risk management was shown and a lower perception of resource management was indicated in terms of competency disparity. (5) In professional ability, perceptions of breadth of domain-specific knowledge, depth of domain-specific knowledge, breadth of domain-general knowledge, ICT proficiency, activity design proficiency and executive proficiency



were greater than those of English proficiency and Mandarin proficiency. In addition, disparity in Mandarin proficiency was better perceived than English proficiency. Breadth of domain-general knowledge was better than depth of domain-general knowledge and English proficiency, whereas depth of domain-general proficiency was better than English proficiency. English proficiency was less perceived in terms of competency disparity. And (6) In personal traits, perceptions of awareness of mind, inquiring mind, self-confidence and decisiveness were better than initiative, truth-finding and progressiveness, while awareness of mind was better perceived than explorative mind and curiosity.

This study articulated and applied the construct of competency in the profession and particularly in school administration. Data analyses indicated that a disparity apparently existed between “professional capabilities for work” and “development capabilities for pre-service education.” Besides, ten items which should be emphasized more are namely proactive thinking, risk management, awareness of mind, strategic thinking, team building, quality orientation, inquiring mind, sense of sharing, creative thinking and decisiveness. Three of the ten items belonging to mental capabilities indicated that courses related to mental capabilities should be made compulsory in centers of professional development. As a whole, mental capabilities were better perceived than professional capabilities by primary school administrators. This implied that school management could only be effective when administrators focus on mental capabilities such as strategic thinking, proactive thinking and creative thinking.

The assessment of the competency disparity found that the gap of mental cognitive competency was not much different across various time points (Obradović, van Dulmen, Yates, Carlson, & Egeland, 2006), but the stability of Social competency would be changed after working a while. Pre-service levels of administrative competency explained a significant portion of competency in the same domain at in-service, which in turn accounted for a significant portion of variability in the same competency domain between pre-service and in-service and so forth.

## Conclusion

This study aims to produce criteria to establish the threshold of competency for practice and encourage continuous professional development. In other words, this kind study is helpful for both individuals and organizations in developing administrative skills. Competency disparity study can help individuals by: 1. Specifying a range of useful administrator behaviors, 2. Providing a tool for determining their self-development, and 3. Outlining an administrative framework for helping select, develop, and understand administration effectiveness. Competencies are equally valuable in teaching

people how to observe and evaluate the administrative effectiveness of others. They have significantly raised the performance evaluation skills of managers or administrators in many organizations (Hollenbeck, McCall, & Silzer, 2006). Organizations have also benefited from the understanding of competency disparity. Understanding competency disparity can help organizations in: 1. Helping to design professional development in administrative skills for individuals, 2. Linking administrator behaviors to the goals of school management, and 3. Providing an integrative model of administration that is relevant across many positions and administrative situations based on the strength of individual competency.

School organizations may develop different, modified versions of competency contents for different job levels, job functions, or job clusters. However, because individual jobs continue to rapidly change, we are unlikely to explore the disparity in competencies for specific position in the way that job duties and organizational cultural context always have been changed and as a result quickly became outdated. To assess the disparity between what administrators possess and what they do not have plays a pivotal position in the development of competency and is required to address the complex responsibilities involved in maintaining competency throughout one's career. On the other hand, the disparity can be decreased through pre-service education, in which built-in competency assessment should be incorporated in existing programs.

According to the findings of this study, there is mild competency disparity between the pre-service training and job demands for the primary school administrators, especially in terms of mental capability. This fact indicated that those administrators handled their work based on their experiences, instead of implementing creative thinking or innovative management mindsets. Two ways for improving future pre-service training for primary school administrators can be concluded. One is to establish a constructive environment in which primary school administrators can exchange work experiences and share practical solutions. The other is to enhance their creative thinking capability. In terms of curriculum design, this capability needs to be included so that the pre-service administrators can be embedded with appropriate knowledge and skills for future jobs. This capability can steadily facilitate their professional growth in a world with rapidly changed demands.

These findings indicated the future improvement for administrators' professional training. The training designers can create better training curriculum based on different disparity. In addition, the future in-service training courses can be designed to strengthen the competencies which were relatively overlooked. The universities of education as well as the governmental units can develop the professional training design. For example, the planning ability, time management and practical orientation should be well converted into training for pre-service administrators. Meanwhile,

language application is a concern for the school administrators, which can contribute their capabilities of communication and professional skills. Exploring school administrators' competencies can help to realize the current status of administrator training, and develop the positive development for future training design.

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## 國小行政人員感知到職前訓練與 工作需求的能力落差之研究

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### 摘要

本研究旨在探討行政人員之教育訓練是否能培訓其校園行政管理的知識與技能，以應付當前學校行政的工作需求。在研究中，共有 1,872 位國小行政人員接受問卷調查，該問卷共計有 44 題，分為六大類，藉此來瞭解行政主管對能力落差的看法。此樣本包括來自全國的國小校長、主任及組長級行政人員，問卷回收率達 43.59%，計有 816 份進行分析處理。研究結果發現，這些行政人員對問卷中六類能力落差的感受多偏於中低程度，而這些學校創新管理的能力中，心智能力是最被注重，而專業能力是最少被提及。

關鍵字：行政能力、能力落差、國小行政管理

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