

台灣人力發展品質管理系統專業人員評核職能調查研究

Investigation on the Assessment Competency of Professional Staff for the Talent Quality-management System in Taiwan

王淑卿* *Shu-Ching Wang*

朝陽科技大學資訊管理系

Department of Information Management,
Chaoyang University of Technology

熊維舒 *Wei-Shu Hsiung*

朝陽科技大學資訊管理系

Department of Information Management,
Chaoyang University of Technology

彭金山 *Chin-Shan Peng*

朝陽科技大學資訊管理系

Department of Information Management,
Chaoyang University of Technology

嚴國慶 *Kuo-Qin Yan*

朝陽科技大學企業管理系

Department of Business Administration,
Chaoyang University of Technology

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* Corresponding author: Shu-Ching Wang, Department of Information Management, Chaoyang University of Technology

摘要

由於使用訓練品質系統(TTQS)評核表時，因 TTQS 專業人員的經驗及對指標解讀之差異，造成 TTQS 團隊的專業形象受損。本研究為校準 TTQS 輔導顧問及評核兩類專業人員指標評分的落差，由適用於非營利事業機構的訓練單位的訓練機構版，了解 TTQS 輔導顧問及評核委員評核能力。依據本研究的研究結果發現，針對 TTQS 輔導顧問與評核委員，對同一個版本評核表指標的評分，在指標 1、4、18 及 19 有一致性的共識。因此，針對其他指標的「說、做、寫」在進行評估時之一致性及連接性，需更嚴謹的檢視。根據分區服務中心的研究發現輔導顧問有 13 項指標評分較評核委員寬鬆，有 1 項指標較寬鬆。本研究同時發現，由於服務區域不同，輔導顧問和評核委員在 19 個指標中存在認知差距。

關鍵字：TTQS、職能、人力發展、品質管理

Abstract

Because the result of Quality-management System (TTQS) assessment is often inconsistent among the TTQS professionals, who have different experiences and interpretations when using the TTQS assessment table, which damages the image of the TTQS team. To correct the gap of grading between the TTQS consultants and TTQS review committees, this study determined the capability of the TTQS consultants and review committees using the version of training organizations. According to the results of this study, it can be found that for the TTQS consultants and review committees, the scores of the same version of the assessment table had no difference among indicators 1, 4, 18, and 19. For the other indicators, the consistency between “speak, do, and write” and coherent procedures need to be reviewed more strictly when carrying out the assessment. According to the research divided by the Branch Service Center, 13 indicators were graded more loosely by consultants than review committees, and one indicator was graded more loosely by review committees than consultants. The study also found the consultants and the review committees have a cognitive gap in 19 indicators due to different service regions.

Keyword: Talent Quality-Management System (TTQS), Competency, Human Resource Development, Quality Management

1. Introduction

Starting from a small scale, most start-up enterprises gradually grow and become Small and Medium Enterprises (SMEs). It is at this time that they feel the importance of personnel training. The slow pace of personnel training will affect the overall development of an organization. According to the scale, SMEs focus on capital movement and business development, and do little about the retention of employees (Peng, 2013).

Since 2005, Workforce Development Agency, Ministry of Labor (WDA) in Taiwan has referred to ISO9000 and ISO10015 in the guideline of human resource development to set up the Talent Quality-management System (TTQS) in response to the focus on the training outcome and request for the participation of executives. In 2007 and 2012, the assessment indicators of TTQS were revised to adjust the key rating based on the scale of enterprises and training institutions (Yeh, 2012). Currently, there are four versions of the TTQS assessment tables serving as the basis of quality management assessment of personnel development, that are enterprise, training institution, training organization assessment table of enterprise, and external training of training institution. However, there are 19 individual indicators of the enterprise or training institution version. There are 14 indicators for the training organization assessment table of enterprise. And, there are 15 indicators for the external training of training institution (Instruction manual of TTQS, 2014).

To set up a complete and credible TTQS, the WDA reviews consultants, review committees and instructors every year and holds the assessment of training quality standards, management of counseling organization network, and planning of training quality management courses and teacher training through project organizations. It also strictly stipulates that the TTQS consultants shall not act as the review committees at the same time.

Although the TTQS was set up with reference to ISO9000 and ISO10015, the TTQS assessment benchmarking has not been officially disclosed on the open information platform; since 2011, no written document has been provided for TTQS consultants, review committees and instructors. In 2012, about 60 (10% of the professionals in these three categories) were replaced every year. From 2012 to 2015, almost 200 professionals in these three categories were replaced, accounting for 30% of the 587 professionals.

The result of TTQS assessment is often inconsistent among the three types of TTQS professionals, who have different experiences and interpretations when using the four TTQS assessment tables, which damages the image of the TTQS team. Thus, consultants and review committees must exercise a highly consistent and effective grading on TTQS, which is the key to making TTQS become the most objective, impartial and representative assessment tool in domestic training. To correct the gap in grading between TTQS consultants and TTQS review committees since the introduction of TTQS in 2007, the study first determined the capability of TTQS consultants and review committees using the version of training organizations in occupational trade unions, associations, vocational training centers and schools. The purposes are to:

- (1) Understand the result of 19 indicators and total score of TTQS consultants and review committees, and reduce the gaps in the results of 19 indicators.
- (2) Determine the priority of indicators to be corrected in the annual subsequent training.
- (3) Serve as a reference to the three other TTQS assessment tables.

2. Literature Review

In this section, the TTQS assessment indicators and grading standards, policy and current status of the competency analysis by the Taiwanese government and the result of competency analysis of the three categories of professionals in 2008-2012 are discussed.

2.1 TTQS assessment indicators and grading standards

According to the training quality management loop of TTQS, that is, the cycle of TTQS indicator inspection, the cycle of TTQS has five dimensions: Plan, Design, Do, Review, and Outcome (Kao et al., 2013).

- (1) Plan: Connect the business vision and training plan, with the focus on the connectivity between training clarity and systematization and goal achievement (Lee et al., 2015).

- (2) Design: The combination of systemic design of training plans and training-related competency analysis and application, and personnel's participation, training and target needs, with the focus on the definition of demand for training plans (Zhuo et al., 2015).
- (3) Do: The implementation of training plan, the management and systemic information on training records, with the focus on the level of implementation of training (Lee et al., 2015).
- (4) Review: Review, evaluation and supervision of training, handling of instant abnormality and correction, and the establishment of regular review mechanisms to ensure that the training plan is effective (Lee et al., 2015).
- (5) Outcome: Level, diversity and completeness of outcome evaluation, presentation of continuous improvement and internal and external effects, presentation of training outcome, and the evaluation of business vision and achievement of training goal, with the aim of forming a circular system (Lee et al., 2015; Zhuo et al., 2015).

Five assessment dimensions of TTQS help organizations carry out systemic management and set up a complete and strategic human development system (TTQS - training organization version, 2015). Five dimensions of TTQS are shown in Figure 1.

According to four versions of TTQS assessment tables (The Report of 2012 Training Quality System Implementation Plan Consolidation Control Operation Services, 2012) promulgated by Workforce Development Agency, Ministry of Labor, Executive Yuan, the study referred to the indicator meanings in TTQS Guidebook compiled in 2013 and matched them with 19 indicators of TTQS assessment table (training institution version) in response to the purpose of the study: occupational trade union (TTQS - training organization version, 2015). The matching table is shown in Table 1.

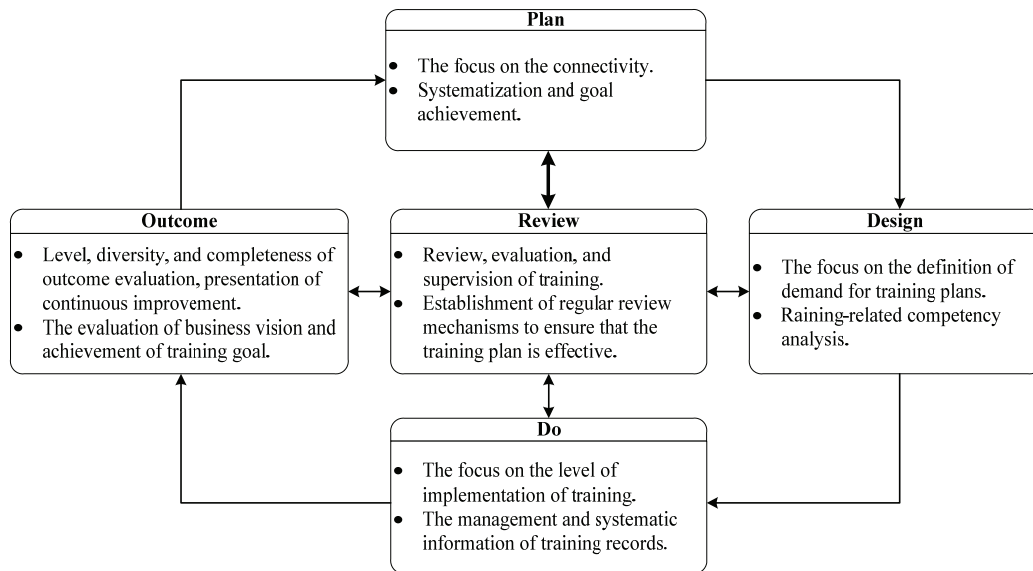


Figure 1: Five dimensions of TTQS

Data source: TTQS - training organization version, 2015

Table 1: TTQS assessment table - training institution version

TTQS cycle	Indicator index	Indicator name	Indicator meaning
Plan	1	Formulation of business direction and objectives of training institution	Formulate the future operating plan and position by disclosing the short, medium and long-term business directions and objectives, and connect it with clients' target.
	2	Clear training policy for external use	Formulate and disclose the clear training policy and action plans according to the market analysis, pay attention to the client's position, and demonstrate the organization's commitment, such as training quality, performance, and key courses.
	3	Clear PDDRO training courses and core training category	Set up a training system according to the training policy and position, and ensure the operation of the training quality management loop; clearly demonstrate the highlights and core competency of the training plan required to achieve good business performance.
	4	Systemic documents of TTQS	Connect with the last indicator and set up the systemic management documents of the training system to ensure that the operation and business of the training system comply with a systemic procedure. For any management system, a structure of documentation is divided into four levels: (1) Manual: Basic guidelines. (2) Procedural document: Expressly stipulated connection of operations among all departments in the

TTQS cycle	Indicator index	Indicator name	Indicator meaning
			organization . (3) Guidebook: Detailed description of standards for each action of implementing the training management system. (4) Form: Empty forms for documenting the implementation.
	5	Connectivity of training planning and business goal	The indicator emphasizes that the training courses shall be relevant to the business plan, target strategy, and key courses to prove the compliance with the structure of training system.
	6	Administration and competency of training institution	The indicator reviews the abilities and responsibilities of trainers and supervisors, including the understanding of trainees' competency and training courses, application of training effect, and improvements in trainees' result and organizations' performance.
Design	7	Analysis and application of competency related to training demand	The indicator emphasizes the course design based on client or market needs. It is second to connectivity (indicator 5). Finding how to help clients in exploring and analyzing market needs and designing courses accordingly is the major task in the stage of design.
	8	System design related to training plan	System design related to the training plan or course development must connect to performance achievement (effectiveness). A commonly seen design procedure is ADDIE. It shall be noted that every training plan shall start with the review and correction of problems identified in previous training courses.
	9	Participation process of stakeholders	In the process of course design, the participation of stakeholders is the key to response effectiveness. How to engage stakeholders and strengthen their participation is the focus of this indicator. In addition to the design, stakeholders shall participate in the process of Plan, Do, Review and Outcome.
	10	Procurement procedures and screening standards for training products or service	Course design provides a guideline for execution and shall have perfect screening standards and procurement procedures, including the selection of trainees, scheduling of training time, participation of related personnel, application of teaching methods, selection of materials and tools, application of resources, selection and management of instructors, and selection and management of sites.
	11	Combination of training and goal demand	The goals of the courses shall meet the training goals and needs, and solve problems identified in previous training. In addition, whether training courses are implemented according to the indicators 7, 8, 9 and 10 is the observation basis of connectivity.
Do	12	Level of consistency between the training plan and its	The indicator emphasizes whether the selection of trainees, materials, instructors, teaching methods, teaching environment and equipment complies with the

TTQS cycle	Indicator index	Indicator name	Indicator meaning
		implementation	<p>training goals, procurement procedures and screening standards.</p> <p>12a. Level of consistency between selected trainees and training goal.</p> <p>12b. Level of consistency between selected materials and training goal.</p> <p>12c. Level of consistency between selected instructors and training goal.</p> <p>12d. Level of consistency between selected teaching methods and training goals.</p> <p>12e. Selection of teaching environment and equipment according to training goals.</p>
	13	Recommendation or assistance for training outcome transfer	The indicator reviews how organizations help trainees transfer and apply training effects or recommend clients to create a transfer environment and the level of implementation. Transfer and application of training shall be planned and entirely carried out to demonstrate the structural effects.
	14	Classification, creation, and systemic management of training materials	The indicator emphasizes that training documents shall be effectively managed through systemic information and knowledge management, and that the training system shall be optimized according to its strengths and weaknesses.
Review	15	Evaluation report and regular comprehensive analysis	The institution shall provide recommendations and feedback for trainees, and review and analyze training needs, goals and methods on a regular basis to manage the consistency between the individual course design, overall training development and its implementation and make necessary improvements.
	16	Supervision and abnormality and correction handling	Supervision of training, management of abnormality, and post-training corrective actions are steps that effectively demonstrate the system operation, with all records contained. In addition, recommendations for abnormality handling shall be proposed or carried out through problem collection and analysis.
Outcome	17	Diversity and completeness of training outcome evaluation (reaction, learning, behavior and outcome)	<p>As the goal of training is to accumulate human resources, the evaluation of outcome provides information on the effectiveness and validation of TTQS. Determining how to use it to confirm the value of training is an important issue. The diversity and completeness of this indicator comprise an important approach to evaluate the training outcome and avoid a dead end.</p> <p>17a Evaluate the intuitive impression of trainees on the training.</p> <p>17b Evaluate whether the outcome meets the expected requirements.</p> <p>17c Evaluate how trainees apply training to businesses and demonstrate it in the personal performances.</p>

TTQS cycle	Indicator index	Indicator name	Indicator meaning
			17d Evaluate the demonstration of the training outcome in business performances to determine the effectiveness of training.
	18	General function of training system: assessment of target client and trainee	The purpose of this indicator is to demonstrate the conception and feelings of target clients and trainees regarding the outcome of training in personal and business performances in different aspects of the system and procedures, learning skills, finance and society.
	19	Market function of training in system-value creation of target market and client	This indicator must be confirmed with indicator 17 and proved with sufficient data, or it cannot determine the effectiveness and connectivity of TTQS, but rather fall into an impression. Score 3~4 must list appropriate evidence, including system and procedures, learning skills, finance, society and others.

Data source: TTQS - training organization version, 2015

2.2 Policy and current status of the competency analysis by the Taiwanese government

The competency is divided into two categories, namely, managerial competency and functional competency. Among them, managerial competency (also known as soft competency) involves the ability to manage work and develop interactions with others (Schaffer et al., 2013). Functional competence (also known as hard competence) is primarily related to work-related abilities (Rozenky, 2014; Tripathi & Agrawal, 2014).

Basically, competency refers to the behavioral characteristics of people with high performance. In terms of choice of words, some people in China call competency *quality* or *capability*. In Taiwan, some people also translate it as endowments, knowledge, ability and fitness. Among these terms, competency is more common (Lee et al., 2015). According to the definition in the iCAP Competency Platform of the Human Development Agency, Ministry of Labor, Executive Yuan in Taiwan, competency refers to the combination of knowledge, skills, attitude and other traits required to successfully achieve certain tasks or improve personal and business performances at present or in the future (Lee et al., 2015).

In “Competence at Work – Models for Superior Performance” written by Spencer & Spencer (1993), competency refers to traits of a person who has

continuously effective and outstanding performance in a certain work; in other words (Spencer & Spencer, 1993), competency is knowledge, skills, motivation and behaviors required by employees to achieve outstanding performances. Spencer & Spencer (1993) posit that traditional aptitude test and proficiency examination, and scholastic records and experiences have the following defects: (1) It cannot accurately forecast a person's success and performance in life and at work; (2) It discriminates against disadvantaged groups, females, and people with a low socioeconomic status. Spencer & Spencer describe five competency traits using an iceberg model, as shown in Figure 2.

Spencer & Spencer (1993) suggest that competency has five traits:

- (1) Motives: A person's reason for taking actions, i.e. due to the continuous desire for a certain thing.
- (2) Traits: Physical traits and continuous responses to situations or messages.
- (3) Self-concept: A person's attitudes, values and self-image.

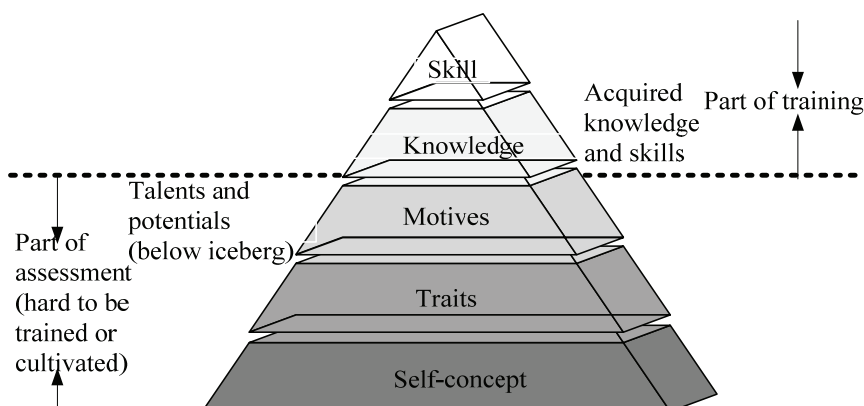


Figure 2: Iceberg model of competency

Data source: Spencer & Spencer, 1993

Spencer & Spencer put knowledge and skills above the water level of the iceberg, as they are easily evaluated and developed. Parts below the water level account for 80% of the entire iceberg, which are least likely to be evaluated and understood because they represent a person's unconscious traits, including attitudes, values, self-image, and personal traits and motives. Personal traits are innate, but they deeply influence people's work performance, making enterprises increasingly emphasize the development of competency (Spencer & Spencer, 1993).

Competency refers to the functions of people, things and institutions. In terms of people's competency, it refers to a person's ability to finish his/her work; in terms of things' competency, it equals the function of things; in terms of institutions' competency, it refers to the tasks, authority and functions borne by institutions (Schaffer et al., 2013; Goldman et al., 2017; Müller-Frommeyer et al., 2017). Competency refers to the combination of knowledge, skills, behaviors and attitude, which helps to improve people's work performance, and further drives the enterprises' influence on the economy and competitiveness (Rozenky, 2014; Wu, 2016).

To promote competency, the Ministry of Labor in Taiwan was established according to Paragraph 9, Article 3 of Organizational Act of the Executive Yuan. The policy was amended and promulgated on February 3, 2010 and implemented starting from January 1, 2012. National economic development stems from the growth of enterprises, which is based on premium labor and technical innovation (Chung & Chang, 2015). Thus, development, enhancement, and application of the labor force have become a global new trend, and the Ministry of Labor in every country includes them as an important labor-related policy.

In Taiwan, the main tasks of the Ministry of Labor are development, enhancement and application of labor forces, micro starts-up, skill certification, planning and promotion of a transnational labor force, and planning and development of competency standards, training courses and capacity assessment (Peng, 2013; Glass, 2014). In addition, one of the important responsibilities borne by the Ministry of Labor is the consistent integration of vocational education, training and employment, with the aim of enhancing the flow of the labor market, reducing the gap between learning and practice, and promoting life-long learning. The employment system and vocational training system are combined into a division of WDA, bringing about a consistent, local and lean service network (Peng, 2007).

According to 14 national prospective service industries specified in the "Guidelines and Action Plans for Service Industry Development" by the National Development Council in November 2004 (Guidelines and action plans for service industry development, 2004), the Bureau of Employment and Vocational Training, Council of the Labor Affairs, Executive Yuan, has held core competency training courses, including 9 units in 3 categories, since 2015 (Subsidize College Tertiary

Institutions for Employment Program – The courses of Common Core Competences, 2015). As of 2016, at least 1/10 of the total training hours in SMEs’ personnel enhancement plans are required courses and optional for unemployed and employees, respectively. Clearly the government is emphasizing people’s competency to a greater degree.

The vision of competency development in Taiwan is to strengthen the national human capital and competitiveness. Through competency development and detailed analysis of competency, the competency standards are formulated for the wide application of enterprises. These standards allow laborers to obtain the latest and the most detailed information on employment, provide basic training of personnel and human resources and ensure a certain level of training quality. The four-year competency plan is shown in Figure 3 (National development and functions to promote application policies of R.O.C., 2013). The vision of competency plan in Taiwan is shown in Figure 4 (National development and functions to promote application policies of R.O.C., 2013).

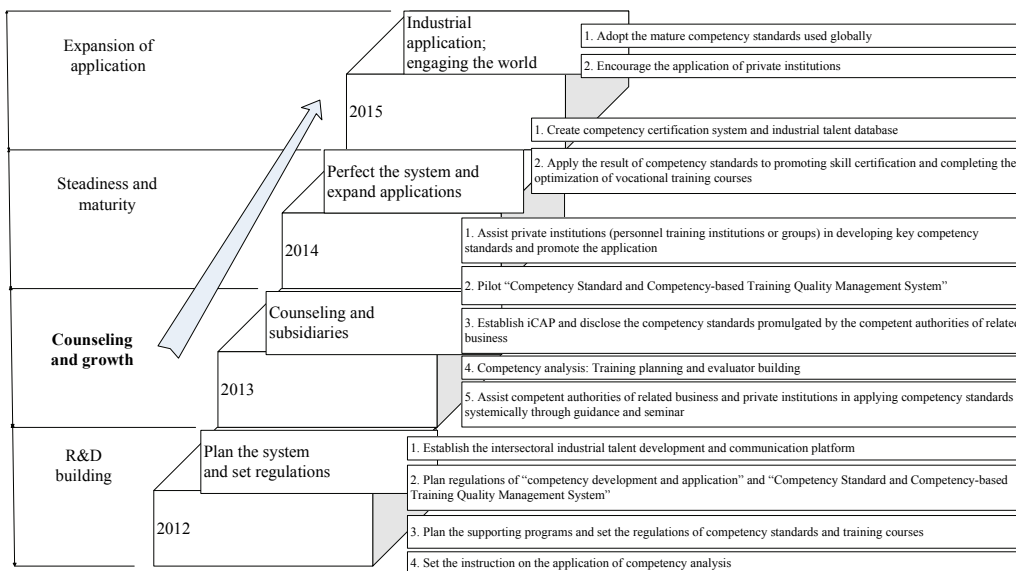


Figure 3: Four-year competency plan

Data source: National Development and Functions to Promote Application Policies of R.O.C., 2013

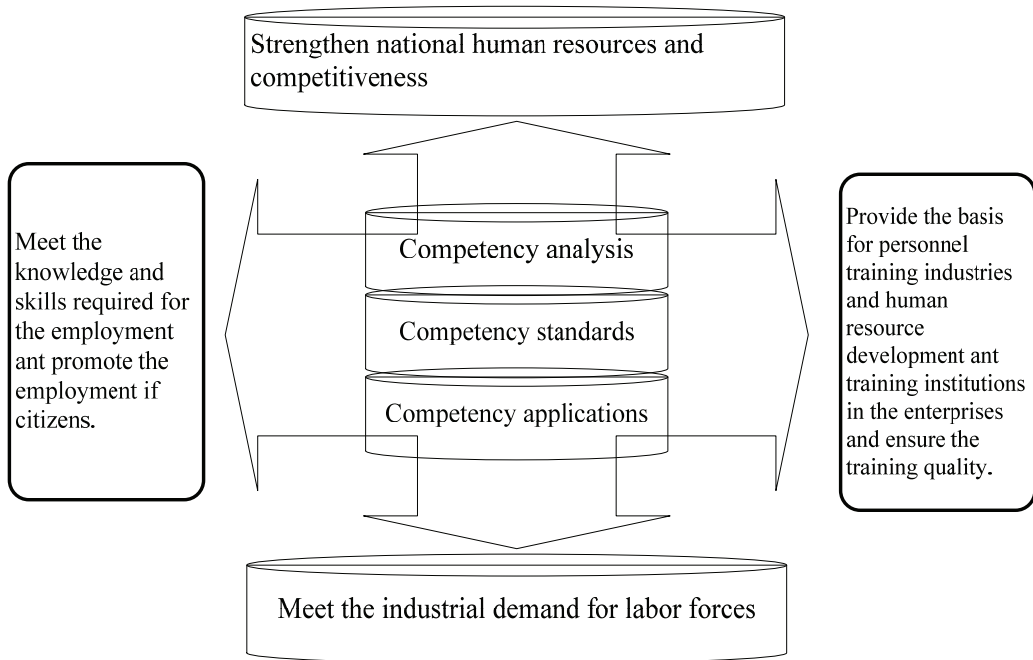


Figure 4: Vision of competency plan in Taiwan

Data source: National Development and Functions to Promote Application Policies of R.O.C., 2013

2.3 Result of competency analysis of the three categories of professionals in 2008-2012

According to the study of “Assessment service standard practices of TTQS”, the results of the competency analysis of three categories of professionals in 2008-2012 are shown in Table 2 (Assessment service standard practices of TTQS, 2015). According to each region’s and experts’ analysis of knowledge, skills and attitude of the three categories of professionals, that is, the viewpoints of managers from North, Tao-Chu-Miao, Central, Yun-Chia-Nan, and Kao-Ping region and interview experts, the total average of scores of six dimensions is the standard value of self-evaluation of professional competency; the standard value and the average score of 65.79% of 425 professionals were adopted to conduct the single sample t-test of TTQS value (Assessment service standard practices of TTQS, 2015). The results of the t-test are shown in Table 3 (Assessment service standard practices of TTQS, 2015).

Table 2: Results of competency analysis of the three categories of professionals in 2008-2012

Literature	Consultant	Review committee	Instructor
Tsai, Shir-Tau (Cai, 2008)	Problem diagnosis, Training ability, Organizational analysis, Interpersonal communication skills, Written assessment	Problem diagnosis, Interpersonal communication skills, Problem solving, Training planning, Training assessment, Competency building	Interpersonal communication skills, Verbal communication skills, Problem diagnosis, Training ability
Bureau of Employment and Vocational Training, Council of Labor Affairs, Executive Yuan (Instruction manual of TTQS, 2014)	Written assessment, Consulting skills, Organizational analysis and diagnosis, Data collection and integration, Strategic analysis, Training planning and design	Problem diagnosis, Guidance, Operating procedure analysis, Training planning and evaluation, Organizational strategy analysis, Competency analysis and building	Verbal communication skills, Teaching design, Course execution, Emergency response, Innovation, Course design
National Association of Small & Medium Enterprises, R.O.C. (The report of 2012 training quality system implementation plan consolidation control operation services, 2012)	<u>Core competency</u> Empathy, Fairness and objectivity, Knowledge and information sharing, Flexible correspondence, Determination, Observation	<u>Core competency</u> Empathy, Knowledge and information sharing, Patience, Expression, Observation, Motivation	<u>Core competency</u> Passion, Patience, Active care, Motivation, Observation, Confidence
	<u>Professional competency</u> Communication and expression, TTQS know-how, TTQS system and procedure audit, Organizational analysis, Document audit, Compilation of assessment reports	<u>Professional competency</u> Interpersonal communication, Problem diagnosis, Training demand analysis, Training planning, Organizational analysis, TTQS introduction	<u>Professional competency</u> Communication and expression, Teaching skills TTQS know-how, Material design, Teaching progress and time, Management, Teaching design

Data source: Assessment service standard practices of TTQS, 2015

Table 3. t-test of TTQS values between self-evaluation of the three categories of professionals and the total average of each region and experts

Object	Competency	Nature of competency	Self-evaluation average	Expert's average	TTQS value
Review committee	TTQS grading ability	Skill (S)	4.67	5.00	-9.595*
Consultant	Understanding of TTQS (PDDRO inclusive)	Knowledge (K)	4.78	5.00	-5.833*
Instructor	TTQS	Knowledge (K)	4.81	5.00	-4.677*

Note: *p <0.05

Data source: Assessment service standard practices of TTQS, 2015

The analysis of the gaps between the three categories of professionals and TTQS competency is described next. The self-evaluated scores of TTQS grading ability and understanding of TTQS are 4.67, 4.78 and 4.81, respectively, which are lower than the average of experts 5.0, showing that the understanding and ability of TTQS of the three categories of professionals in the assessment table should be continuously adjusted. In particular, four versions of enterprise, training institution, training organization assessment table and external training cost great labor forces, materials and governmental budgets. According to the researcher's participation in and observation of TTQS for 9 years, and the assessment of 884 training institutions and 835 enterprises in 2015, the number of assessments of training institutions was higher than that of enterprises. Accordingly, the study undertook 6 seminars (6 hours per session) in 5 regions, totaling 307 man-times, held by the TTQS Project Office to correct 19 indicators of TTQS starting from the training institution, hoping to reduce the gaps in TTQS grading ability and understanding of TTQS, as reference for the future correction of other three versions.

3. Methodology

In this section, the procedures and limitations of the study will be described separately.

3.1 Procedures

According to Table 3, the average self-evaluated score of TTQS grading ability and understanding of TTQS by three categories of professionals was 4.75, lower than the experts' average 5.0, showing that the understanding and ability of TTQS of the three categories of professionals in the assessment table should be continuously adjusted. In particular, four versions of enterprise, training institution, training organization assessment table, and external training cost great labor forces, materials and governmental budgets. Since the number of assessments of training institutions was higher than that of enterprises in 2015, the study corrected 19 indicators of TTQS starting from the training institution, hoping to reduce the gaps in TTQS grading ability and understanding of TTQS, as reference for the future correction of the other three versions.

The researcher personally undertook 6 TTQS consultant and review committee calibration seminars, totaling 307 man-times, held by the TTQS Project Office in November and December 2015. The number of respondents accounted for 69% of consultants and review committees. The researcher took the case of Taichung Cosmetics Business Association, which was assessed with the silver medal in 2015, and made the presentation of the TTQS 19 indicators into a video.

Every seminar lasted 6 hours. In each seminar, the TTQS Project Office would select a representative case to record a 30-minute video presentation, which would be played in the whole seminar. Thirty minutes later, consultants and review committees would be asked to grade and provide recommendations for 19 indicators in the TTQS assessment table training institution version; assistants would input the personal scores and come up with the gap between two professionals based on the statistics showing the highest score, lowest score, average score and mode.

Participants would be put into groups to reach a consensus on the indicator grading and total score of TTQS. In 20 minutes, each group would review the score and explain the gap exceeding 1 point between the highest score and the lowest score. After making the gap smaller than 1 point through persuasion, the group moved into the next indicator. In five minutes, each group summarized each indicator and gave a total score for the assessment table. Forty minutes later, each group presented the evidence of grading for each of 19 indicators by holding a placard. If the gap between the highest score and the lowest score exceeded 1 point, the group explained the deviation. After discussion and persuasion, each group of the seminar held up the placard to grade, until the gap was smaller than 1 point. The same procedures were applied until all 19 indicators were graded. The gap of the total score should not exceed 2 points (Standard Practices of TTQS, 2017). After the assessment level of the seminar was confirmed, the assessment table should be withdrawn. And the assistant would conduct the statistics on the highest score, lowest score, average and mode of each indicator in the seminar. Upon the confirmation of consultants and review committees, the investigation was ended.

According to the results of the six seminars held from November 19th to December 2, 2015 and the gap between consultants and review committees, regional gap, and indicators with large deviation, the study recommended that TTQS consultants and review committees should have a consistent assessment competency; that is, the gap of each of 19 indicators should be within ± 0.5 point of mode, and the

total score of 19 indicators should be within 2 points. The recommendation and conclusions were provided as reference to related research and for improving the assessment competency of consultants and review committees.

3.2 Limitations

The object of the training institution version includes occupational trade unions, associations, schools, and vocational training centers. The scale and capacity for training organization vary. It is not easy to achieve the silver medal. Take the occupational trade union for example, which has organized training courses for more than 20 years in Central Taiwan. The score of 19 indicators by investigating TTQS consultants and review committees varied due to personal work experiences, familiarity with indicators, understanding of the trade union, and experiences in assessment or counseling service.

TTQS assessment tables referred to in this study contain four versions. The difference in indicators was summarized by the researcher in the materials on the official website of TTQS in 2012, as shown in Table 4. The score of each indicator did not apply completely. In view of this, this study set up a calibration method for reference to subsequent calibration research on enterprises, training organization assessment tables and external training.

4. Research Analysis

In this section, the objects and the analysis of gap in indicators are described.

4.1 Object

The object of the study includes TTQS review committees, consultants and instructors registered with the WDA. According to the list disclosed on the official website of Talent Quality-management System (<http://ttqs.wda.gov.tw>), as of December 31, 2015, there were 587 professionals in these three categories, including 177 consultants, 269 review committees and 141 instructors, as shown in Table 5. The number of total professionals in three categories and respondents in each seminar accounted for 69% of the total professionals in two categories, indicating that the score of professionals in the three categories has a certain reference value.

The number of investigated consultants accounted for 42% of total respondents, and the number of investigated review committees accounted for 58% of total respondents, with the rate of about 2:3, which is closely equivalent to the actual situation, where one consultant and two review committees are required. The time and percentage of respondents in the three categories of professionals are shown in Table 6.

Table 4: Comparison among the four versions of the TTQS assessment (summarized by the study)

Version Item	Enterprise			Training institution			
	Enterprise	Training organization assessment table		Training institution		External training (trade union)	
		Score	Difference	Score	Difference	Score	Difference
Planning	30	20	None 3, 4	30		20	Lacks connectivity in the fourth category
Design	25	20	None 7	25		10	Product selection + specification (4 Items)* 5 points)* (0.5 times)
Do	15	10	None 13	15		30	(6 Items) * (5 points)
Review	10	10		10		20	(2 Items)* 5 points)* (2 times)
Outcome	20	9	None 17c, 17d, 18, 19	20	17a-17d: (4 Items)* 3 points) 18-19: (2 Items)* 2 points)	20	1. (Diverse and complete) * (5 points) * (2 times) 2.(Evaluation + Outcome) * (5 points)
Total	100	69		100		100	

Data source: this research

Table 5: Number of TTQS professionals at the national and regional level

Professional	Region	Number of regions	Number of regions by percentage	Number of professionals	Number of professionals in two categories	Number of professionals in three categories
Consultant	North	61	34%	177	446	587
	Tao-Chu-Miao	32	18%			
	Central	33	19%			
	Yun-Chia-Nan	24	14%			
	Kao-Ping	27	15%			
Review committee	North	68	25.3%	269	446	587
	Tao-Chu-Miao	39	14.5%			
	Central	71	26.4%			
	Yun-Chia-Nan	46	17.1%			
	Kao-Ping	45	16.7%			
Instructor	National	141	100%	141	141	

Data source: this research

Table 6: Total # of professionals in the three categories and respondents in six seminars held in 2015

Seminar	Date	Location	Professional	Number	Subtotal by seminar	Subtotal by region	Percentage of professionals by region to total respondents		
1	2015/11/19	Taipei	Consultant	38	69	135	44%		
			Review committee	31					
2	2015/11/22	Taipei	Consultant	29	66				
			Review committee	37					
3	2015/11/23	Kaohsiung	Consultant	17	51			78	25%
			Review committee	34					
4	2015/11/25	Kaohsiung	Consultant	11	27				
			Review committee	16					
5	2015/11/30	Taichung	Consultant	22	64	94	31%		
			Review committee	42					
6	2015/12/02	Taichung	Consultant	11	30				
			Review committee	19					
Total								307	100%
Percentage of respondents to professionals in two categories:								69%	
Percentage of respondents to professionals in three categories:							52%		
Percentage of investigated consultants to total respondents:							42%		
Percentage of investigated review committees to total respondents:							58%		

Data source: this research

4.2 Comparison and analysis of gap in indicators

This study analyzed the gaps of 19 indicators between review committees and consultants, and further noted the indicators whose gap exceeded the total score by 2.0 points and the single indicator by 0.5 point, and proposed recommendations for improving the gap in TTQS grading competency. This study set two hypotheses as follows:

Hypothesis 1: The total score of indicators in the same version of the assessment table graded by TTQS consultants and review committees will not exceed 2 points (Standard Practices of TTQS, 2017). Thus, there is no gap.

Hypothesis 2: TTQS consultants and review committees will not have a cognitive gap in 19 indicators due to different service regions.

This study played the presentation of the same case in each seminar. The case was Taichung Cosmetics Business Association. In the first phase, each participant graded the indicators; in the second phase, each group carried out the discussion and reached a consensus on the score of indicators; in the third phase, all of the groups participated in a discussion and reached a consensus on the score of indicators. Through the three phases, the following values and the gaps between indicators would be revealed. According to these values and gaps, the analysis of the professionals' score of indicators and the gaps between consultants and review committees was conducted:

- (1) Difference between scores of indicators graded by individuals and groups: After group calibration, this study evaluated whether any score of indicator graded by individuals required modification, further producing different grading between individuals and groups.
- (2) Frequency of difference in grading between consultants and review committees: According to the analysis of difference in grading between consultants and review committees, this study produced indicators with differences in grading and those with consensus. Based on an analysis of indicators with differences, this study produced the conception of grading by consultants and review committees.
- (3) Differences in the average of assessment between consultants and review committees: The frequency of difference in the average of assessment between consultants and review committees could be produced through six seminars based on the same case. It would influence the priority of consensus-based assessment of such indicator. If the frequency of difference in the score of assessment is high, the consensus-based assessment should be conducted first, while when it is low, the priority of consensus-based assessment is low.
- (4) Difference in the mode between consultants and review committees: Based on the difference in the mode between consultants and review committees, the indicators with gaps could be understood through six seminars based on the same case. These indicators are recommended to be improved by consultants and review committees.

5. Analysis of the Results

In this section, the results of the analysis, differences in the score of indicators graded by individuals and groups, and the differences in the mode between consultants and review committees are described separately, as follows.

5.1 Differences in the score of indicators graded by individuals and groups

This study played the presentation of the same case in each seminar. The case was Taichung Cosmetics Business Association. In the first phase, each participant graded the indicators; in the second phase, each group had a discussion and reached a consensus on the score of indicators; in the third phase, all of the groups engaged in a discussion and reached a consensus on the score of indicators. Then, the individual indicators for each seminar are averaged to obtain the average scores, as shown in Table 7. This study also summarized and analyzed the mode of indicators in each seminar, as shown in Table 8. Through the modes shown in Tables 7 and 8, the calibrated score based on the gap between individual and group assessment is shown in Table 9.

Table 7: Mode of indicators graded by individuals in each seminar

<i>Seminar</i> <i>Indicators</i>	2015/11/19	2015/11/22	2015/11/23	2015/11/25	2015/11/30	2015/12/02	Mode
1	4	4	4	4	4	4	4
2	4	4	4	3.5	4	4	4
3	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
5	3.5	4	3.5	4	4	4	4
6	4	4	4	4	4	4	4
7	4	3.5	3.5	3.5	4	4	3.5
8	4	3.5	3.5	3.5	4	3.5	3.5
9	4	4	4	3.5	4	4	4
10	4	3.5	3.5	4	4	4	4
11	4	4	3.5	4	4	4	4
12	4	4	4	4	4	4	4
13	4	4	4	4	4	4	4
14	4	4	4	4	4	4	4
15	3.5	3.5	3.5	3.5	3.5	4	3.5
16	4	4	4	3.5	4	4	4
17a	2	2	2	2	2	2	2
17b	2	2	2	2	2	2	2
17c	2	2	2	2	2	2	2
17d	2	2	2	2	2	2	2
18	3	3	3	3	3	3	3
19	3	3	3	3	3	3	3
Total mode	77	76	75	75	77.5	77.5	75

Data source: this research

Table 8: Mode of indicators in each seminar

<i>Seminar</i> <i>Indicators</i>	2015/11/19	2015/11/22	2015/11/23	2015/11/25	2015/11/30	2015/12/02	Mode
1	3.5	4	3.5	3.5	4	4	3.5
2	4	3.5	4	3.5	4	4	4
3	4	4	3.5	3.5	4	4	4
4	4	4	4	3.5	3.5	4	4
5	3.5	3.5	3.5	3.5	3.5	4	3.5
6	4	4	3.5	4	4	4	4
7	3.5	3.5	3.5	3.5	3.5	3.5	3.5
8	3.5	3.5	3.5	3.5	3.5	3.5	3.5
9	4	4	4	3.5	4	4	4
10	3.5	3.5	3.5	3.5	3.5	4	3.5
11	3.5	3.5	3.5	3.5	3.5	4	3.5
12	4	4	4	3.5	4	4	4
13	4	4	4	3.5	4	4	4
14	4	4	4	3.5	4	4	4
15	4	3.5	3.5	3.5	3.5	4	3.5
16	3.5	3.5	4	3.5	3.5	4	3.5
17a	2	2	2.5	2	2	2.5	2
17b	2	2	2	2	2	2.5	2
17c	2.5	2	2	2	2	2.5	2
17d	2.5	2	2	2	2	2.5	2
18	3	3	3	3	3	3	3
19	3	3	3	3	3	3	3
<i>Total mode</i>	75.5	74	74	70.5	74	79	74

Data source: this research

Table 9: Calibrated score based on the gap between individual and group assessment

Indicator	Individual's mode	Seminar's mode	Calibrated score
1	4	3.5	-0.5
2	4	4	0
3	4	4	0
4	4	4	0
5	4	3.5	-0.5
6	4	4	0
7	3.5	3.5	0
8	3.5	3.5	0
9	4	4	0
10	4	3.5	-0.5
11	4	3.5	-0.5
12	4	4	0
13	4	4	0
14	4	4	0
15	3.5	3.5	0
16	4	3.5	-0.5
17a	2	2	0
17b	2	2	0
17c	2	2	0
17d	2	2	0
18	3	3	0
19	3	3	0
<i>Total mode</i>	75	74	-1

Data source: this research

After group calibration, this study evaluated whether any mode and assessment graded by individuals required modification, and further produced the different grading between individuals and groups. The results of the analysis are as follows:

- (1) After group calibration, the modes of five indicators: 1, 5, 10, 11 and 16, graded by consultants and review committees shall be modified downward by 0.5 point.
- (2) In indicator 1: “Formulation of business direction and objectives of training institution”, indicator 5: “Connectivity of training planning and business goals”, indicator 10: “Procurement procedures and screening standards for training products or service”, indicator 11: “Combination of training and goal demand”, and indicator 16: “Supervision and abnormality and correction handling”, the consistency between “speak, do and write” and coherent procedures shall be reviewed more strictly when carrying out the assessment.
- (3) After group calibration, the mode of total scores of the 19 indicators graded by consultants and review committees shall be modified downward by 1.0 point, showing that the score of assessment graded by individuals can easily be 1.0 point higher than the score with consensus reached by more than two participants. Within a tolerant range of 2 points higher than the total score of TTQS, it is necessary that two participants shall grade the score jointly.

5.2 Difference in the mode between consultants and review committees in each seminar

This study divided consultants and review committees according to the score of assessment graded by individuals in each seminar and carried out the comparison between the score of assessment graded by consultants and review committees, as shown in Table 10. In addition, the average and standard deviation of consultants and review committees in each region is shown in Table 11 and the average and standard deviation of consultants and review committees is shown in Table 12.

According to Table 10, this study proposed the following findings:

- (1) Consultants and review committees had no difference in the mode of indicators 1, 4, 18 and 19 out of the 19 indicators and reached a consensus. These indicators

had lower scores and were most controversial when organizations introduced the TTQS.

- (2) If the total score of assessment exceeded 2 points, two committees should reach a consensus on each indicator, or a re-assessment should be carried out. According to the total mode of assessments graded by consultants and review committees in the region of trainees, the total mode of assessment graded by consultants in the first seminar in the Southern region was 77, and that graded by review committees was 73, with a gap of 3.5 points; in the second seminar in the Southern region, the total mode of assessment graded by consultants was 78, and that graded by review committees was 72.5, with a gap of 5.5 points; in the first seminar in the Central region, the total mode of assessment graded by consultants was 73.5, and that graded by review committees was 77.5, with a gap of 4 points; these modes exceeded the total score of assessment by 2 points, which should be calibrated. In addition, the scores of assessment graded by consultants and review committees in the Northern region were consistent, while the gap in the second seminar in the Southern region exceeded 3.5 points. If the priority of calibration is determined by region, the top priority should be the Southern region, followed by the Central region.
- (3) According to the research divided by Branch Service Center, 13 indicators were graded more loosely by consultants than by review committees, and one indicator was graded looser by the review committees than by the consultants.

The frequency of difference in assessment between consultants and review committees, the difference in assessment (average) between consultants and review committees, and the difference in assessment (mode) between consultants and review committees are analyzed in Table 13. According to Table 13, the difference and consensus in the score of indicators graded by consultants and review committees could be produced through the frequency of difference in assessment between consultants and review committees. After the indicators with differences were indicated, the conception of assessment by consultants and review committees could be produced. According to the research, for the same case in six seminars, based on the higher frequency of difference in the average of the indicator between consultants and review committees, the top priority should be given to reaching consensus on the indicator.

Table 10: Difference in the calibrated mode between consultants and review committees

Date	2015/11/19			2015/11/22			2015/11/23			2015/11/25			2015/11/30			2015/12/2		
Region of trainees	North region			North region			South region			South region			Central region			Central region		
Object	Consultant	Review committee	Difference	Consultant	Review committee	Difference	Consultant	Review committee	Difference	Consultant	Review committee	Difference	Consultant	Review committee	Difference	Consultant	Review committee	Difference
1	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0
2	4	4	0	4	4	0	4	3.5	0.5	4	3.5	0.5	4	4	0	4	4	0
3	4	4	0	3.5	4	0.5	4	3.5	0.5	4	4	0	4	4	0	4	4	0
4	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0
5	4	3.5	0.5	3.5	4	0.5	4	3.5	0.5	4	3.5	0.5	3.5	4	0.5	4	4	0
6	4	4	0	4	4	0	4	4	0	4	3.5	0.5	4	4	0	4	4	0
7	3	4	1	3.5	3.5	0	4	3.5	0.5	4	3.5	0.5	4	4	0	4	4	0
8	4	3.5	0.5	3.5	3.5	0	3	3.5	0.5	4	3.5	0.5	3	4	1	4	3.5	0.5
9	4	4	0	4	4	0	4	4	0	4	3.5	0.5	3.5	4	0.5	4	4	0
10	4	3.5	0.5	4	3.5	0.5	4	3.5	0.5	4	4	0	4	4	0	4	4	0
11	4	4	0	3.5	4	0.5	4	3.5	0.5	4	4	0	3	4	1	4	4	0
12	4	4	0	4	4	0	4	4	0	4	3.5	0.5	4	4	0	4	4	0
13	4	4	0	4	4	0	4	4	0	4	3.5	0.5	4	4	0	4	4	0
14	4	4	0	4	4	0	4	3.5	0.5	4	3.5	0.5	3.5	4	0.5	4	4	0
15	3.5	4	0.5	3.5	3.5	0	4	3.5	0.5	4	3.5	0.5	3.5	3.5	0	4	4	0
16	4	3.5	0.5	4	3.5	0.5	4	4	0	4	3.5	0.5	3.5	4	0.5	4	4	0
17a	3	2	1	3	2	1	2	2	0	2	2	0	2	2	0	3	2.5	0.5
17b	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	3	2.5	0.5
17c	2	2	0	3	2	1	2	2	0	2	2	0	2	2	0	2	2	0
17d	2	2	0	2.5	2	0.5	2	2	0	2	2	0	2	2	0	2	2	0
18	3	3	0	3	3	0	3	3	0	3	3	0	3	3	0	3	3	0
18	3	3	0	3	3	0	3	3	0	3	3	0	3	3	0	3	3	0
Total mode	77.5	76	1.5	77.5	75.5	2	77	73.5	3.5	78	72.5	5.5	73.5	77.5	4	80	78.5	1.5
*							V	V	V									

*: Frequency of re-assessment in case of total score exceeding 2 points

Data source: this research

TABLE 11: The average and standard deviation of consultants and review committees in each region

Region of trainees	North region				South region				Central region			
	Consultant		Review committee		Consultant		Review committee		Consultant		Review committee	
Object	Ave	SD	Ave	SD	Ave	SD	Ave	SD	Ave	SD	Ave	SD
1	3.72	0.541	3.81	0.384	3.84	0.424	3.77	0.335	3.77	0.428	3.97	0.349
2	3.75	0.484	3.83	0.389	3.93	0.437	3.62	0.325	3.88	0.326	3.94	0.302
3	3.83	0.453	3.90	0.304	3.91	0.402	3.69	0.373	3.88	0.370	3.90	0.337
4	3.77	0.476	3.87	0.328	3.93	0.394	3.77	0.305	3.82	0.386	3.82	0.425
5	3.72	0.548	3.76	0.369	3.86	0.375	3.62	0.368	3.65	0.452	3.94	0.328
6	3.85	0.489	3.99	0.321	3.93	0.371	3.80	0.316	3.82	0.490	4.03	0.312
7	3.63	0.549	3.74	0.466	3.70	0.45	3.62	0.485	3.67	0.546	3.80	0.377
8	3.60	0.561	3.63	0.451	3.55	0.43	3.49	0.339	3.45	0.433	3.66	0.381
9	3.84	0.427	3.91	0.392	3.82	0.383	3.79	0.348	3.82	0.405	3.90	0.349
10	3.81	0.439	3.72	0.415	3.75	0.366	3.62	0.293	3.68	0.441	3.71	0.344
11	3.69	0.496	3.82	0.383	3.79	0.364	3.58	0.322	3.58	0.494	3.80	0.408
12	4.01	0.473	3.92	0.389	4.00	0.378	3.79	0.333	3.82	0.344	3.92	0.341
13	4.04	0.476	3.96	0.381	3.91	0.300	3.85	0.377	3.92	0.479	3.92	0.364
14	3.87	0.417	3.88	0.302	3.86	0.323	3.65	0.320	3.79	0.302	3.83	0.312
15	3.69	0.439	3.75	0.433	3.77	0.340	3.60	0.300	3.68	0.366	3.74	0.358
16	3.81	0.481	3.76	0.388	3.84	0.355	3.69	0.373	3.76	0.524	3.79	0.332
17a	2.49	0.539	2.15	0.456	2.41	0.518	2.22	0.438	2.39	0.519	2.26	0.380
17b	2.33	0.508	2.15	0.438	2.34	0.464	2.05	0.492	2.35	0.515	2.16	0.420
17c	2.27	0.521	2.17	0.526	2.30	0.450	2.09	0.487	2.27	0.428	2.15	0.473
17d	2.22	0.506	2.16	0.457	2.16	0.355	2.07	0.566	2.41	0.468	2.14	0.435
18	3.08	0.564	2.90	0.544	3.02	0.590	2.79	0.633	3.00	0.59	2.85	0.473
19	2.99	0.522	2.96	0.52	3.05	0.556	2.76	0.512	2.94	0.587	2.88	0.431

Data source: this research

TABLE 12: The average and standard deviation of consultants and review committees

Object	Consultant		Review committee	
	Average (Ave)	Standard Deviation (SD)	Average (Ave)	Standard Deviation (SD)
1	3.76	0.484	3.85	0.378
2	3.82	0.430	3.82	0.365
3	3.83	0.423	3.84	0.365
4	3.80	0.436	3.81	0.362
5	3.71	0.486	3.78	0.386
6	3.86	0.467	3.94	0.336
7	3.65	0.539	3.71	0.435
8	3.55	0.511	3.60	0.392
9	3.82	0.410	3.85	0.367
10	3.76	0.419	3.69	0.345
11	3.67	0.484	3.73	0.396
12	3.97	0.436	3.87	0.361
13	3.98	0.437	3.90	0.383
14	3.84	0.372	3.78	0.328
15	3.69	0.39	3.69	0.367
16	3.79	0.455	3.72	0.360
17a	2.45	0.546	2.21	0.413
17b	2.32	0.511	2.11	0.428
17c	2.29	0.506	2.13	0.498
17d	2.25	0.488	2.12	0.488
18	3.05	0.563	2.84	0.558
19	3.00	0.544	2.85	0.494

Data source: this research

Table 13: Frequency of difference in mode and average of assessment between consultants and review committees in each seminar

Indicator	Frequency of difference in assessment between consultants and review committees	Total score graded by consultants in six seminars	Total score graded by review committees in six seminars	Difference in assessment (average) between consultants and review committees	Mode graded by consultants in six seminars	Mode graded by review committees in six seminars	Difference in assessment (mode) between consultants and review committees
1	0	24	24	0	4	4	0
2	2	24	23	1	4	4	0
3	2	23.5	23.5	0	4	4	0
4	0	24	24	0	4	4	0
5	5	23	22.5	0.5	4	3.5	0.5
6	1	24	23.5	0.5	4	4	0
7	3	22.5	22.5	0	4	4	0
8	5	21.5	21.5	0	4	3.5	0.5
9	2	23.5	23.5	0	4	4	0
10	3	24	22.5	1.5	4	3.5	0.5
11	3	22.5	23.5	1	4	4	0
12	1	24	23.5	0.5	4	4	0
13	1	24	23.5	0.5	4	4	0
14	3	23.5	23	0.5	4	4	0
15	3	22.5	22	0.5	3.5	3.5	0
16	4	23.5	22.5	1	4	3.5	0.5
17a	3	15	12.5	2.5	3	2	1
17b	1	13	12.5	0.5	2	2	0
17c	1	13	12	1	2	2	0
17d	1	12.5	12	0.5	2	2	0
18	0	18	18	0	3	3	0
19	0	18	18	0	3	3	0

Data source: this research

The priority and indicators corresponding to PDDRO are shown in Table 14. According to Table 14, the frequency of difference in the average of indicators between consultants and review committees could be found through six seminars based on the same case; this would influence the priority of consensus-based assessment. If the frequency of difference in the score of assessment is high, the consensus-based assessment should be conducted first, when it is low, the priority of consensus-based assessment is low.

Table 14: Statistics on the frequency of difference in indicators in six seminars

Priority	Frequency	Corresponding indicator of TTQS				
		Plan	Design	Do	Review	Outcome
1	5	5	8			
2	4				16	
3	3		7, 10, 11	14	15	17a
4	2	2, 3	9			
5	1	6		12, 13		17b, 17c, 17d

Data source: this research

According to the result of the research, if the frequency of difference in the average of assessment between consultants and review committees was higher through six seminars based on the same case, priority should be, with the weighted score from 5 to 1, Design (16 points), Plan (10 points), Review (7 points), Outcome (6 points) and Do (5 points), as shown in Table 15. According to Table 15, the number of indicators with differences in the mode of assessment between consultants and review committees could be produced through six seminars based on the same case. These indicators are recommended to be improved first by consultants and review committees. According to the results of the research, for the same case in six seminars, five indicators with differences (less than 1.0 point) in the mode of assessment between consultants and review committees were found: Indicator 5 (0.5 point), 8 (0.5 point), 10 (0.5 point), 16 (0.5 point) and 17 (1 point). In addition, these indicators were included in the 9 indicators that had difference in the average of assessment between consultants and review committees. It is recommended that these five indicators be prioritized in creating the consensus-based assessment by consultants and review committees. Then, due to the results of the research, the gap of mode and average in the response evaluation of Indicator 17 was the biggest: 1.0 point and 2.5 points, separately. The approach to the response evaluation and evaluation of effect achievement should be clarified first.

able 15: Priority of consensus-based assessment in PDDRO

Priority	Weight	Weighted score of difference																					
		P					D					D		R		O							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17a	17b	17c	17d	18	19
1	5					5			5														
2	4																4						
3	3							3		3	3			3	3		3						
4	2		2	2						2													
5	1						1						1	1					1	1	1		
Weighted score of indicator		0	2	2	0	5	1	3	5	2	3	3	1	1	3	3	4	3	1	1	1	0	0
Weighted score		10					16					5		7		6							

Data source: this research

6. Conclusion and Future Research

The findings of our study, the research recommendations and future research directions are described as follows.

6.1 The findings of our study

With the long-term experience in assisting SMEs in human resource management and acting as the TTQS consultant and instructor for the WDA, the researcher concluded that four key factors are related to the outstanding results of TTQS assessment:

- (1) Enterprises' attempt to execute TTQS.
- (2) Making and completing systemic documents accounted for a large proportion of score.
- (3) TTQS consultants' understanding of the industry, counseling skills, and intention.
- (4) TTQS's review committee's review criteria.

Due to different experiences in, and interpretation of, indicators held by TTQS professionals, the results of the TTQS were inconsistent, which damages the image of the TTQS team. Thus, consultants and review committees must have highly consistent and effective grading on TTQS, which is the key to making TTQS the most objective, impartial and representative assessment tool in domestic training.

The researcher personally undertook 6 TTQS consultant and review committee calibration seminars, totaling 307 man-times, held by the TTQS Project Office in November and December 2015. The number of respondents accounted for 69% of the consultants and review committees. The researcher took the case of the training institution, which was assessed the silver medal, and made the presentation of the TTQS 19 indicators into a 30-minute video to help the consultants and review committees reduce the gaps in 19 indicators, create a consensus on the TTQS and reduce the trainees' negative impression of their own inconsistent opinions. The researcher further proposed competency training (the training institution version) for consultants and review committees every year, or the direction of calibration for the other three versions, as the reference for the future revision of the assessment indicators of the TTQS.

According to the procedures and analysis of the study, and the gap between consultants and review committees, the regional gap, and indicators with large deviation, this study concluded and recommended that the TTQS consultants and review committees should possess consistent assessment competency; that is, the gap of each of the 19 indicators should be within ± 0.5 point of mode, and the total score of 19 indicators should be within 2 points. The conclusion and recommendation were provided as reference for related research, as well as for improving the assessment competency of the consultants and review committees.

This study analyzed the gap of 19 indicators between the review committees and consultants, and further noted the indicator whose gap exceeded the total score by 2.0 points and the single indicator by 0.5 point, and proposed recommendations for improving the gaps in TTQS grading competency. The study proposed the following conclusions in relation to the hypotheses:

Hypothesis 1: The total score of indicators in the same version of the assessment Table as graded by the TTQS consultants and review committees will not exceed 2 points. Thus, there is no gap.

Conclusion:

- (1) In 19 indicators, only indicator 1 “Formulation of business direction and objectives of training institution”, indicator 4 “Systemic documents of TTQS”, indicator 18 “General function of training system - assessment of target client and trainee”, and indicator 19 “Market function of training

system-Value creation of target market and client” had no difference and reached a consistent consensus. Fifteen indicators required continuous calibration.

- (2) After the group calibration, the score of 19 indicators graded by individuals was loose and needed to be modified downward by 1.0 point. In indicator 1 “Formulation of business direction and objectives of training institution”, indicator 5 “Connectivity of training planning and business goal”, indicator 10 “Procurement procedures and screening standards for training products or service”, indicator 11 “Combination of training and goal demand”, and indicator 16 “Supervision and abnormality and correction handling”, the consistency between “speak, do, and write” and coherent procedures needed to be reviewed more strictly when carrying out the assessment. This showed that the score of assessment graded by individuals is easily 1.0 point higher than the score with consensus reached by more than two participants. Within a tolerant range of 2 points higher than the total score of the TTQS, it is necessary that two participants grade the score jointly.
- (3) According to the research divided by the Branch Service Center, 13 indicators were graded more loosely by consultants than review committees, and one indicator was graded more loosely by review committees than consultants.

Hypothesis 2: The TTQS consultants and review committees will not have a cognitive gap in 19 indicators due to different service regions.

Conclusion:

- (1) According to the research provided by the Branch Service Center, the scores of assessment graded by the consultants and review committees in the North region were consistent, while the gap in the second seminar in the South region exceeded 3.5 points. If the priority of calibration is determined by region and the score of assessment should not exceed the total score by 2.0 points, the top priority should be the South region, followed by the Central region. Improvement regarding the meaning of indicators of TTQS is recommended.

- (2) For the consultants and review committees in the second seminars in the South region, differences existed in indicators 2, 5, 7, 8, 14 and 15. These indicators should be prioritized for calibration. In the first seminar, differences existed in indicators 3, 6, 9, 12, 13 and 16. These indicators should be prioritized for calibration. If such differences could be reduced, the gap in the total score in the second seminar in the South region would also be reduced. The score graded by consultants was looser than that graded by the review committees by 3.5 points or 5.5 points. Consensus-based assessment in the region should be created.

6.2 The research recommendations

According to the demand for calibration of competency assessed in the TTQS (training institution version), three recommendations were proposed as follows:

- (1) According to the PDDRO cycle, the priority of consensus-based assessment conducted by the consultants and review committees after calibration is: Design, Plan, Review, Outcome, and Do.
- (2) The response evaluation in indicator 5 “Connectivity of training planning and business goal”, indicator 8 “System design related to training plan”, indicator 10 “Procurement procedures and screening standards for training products or service”, indicator 16 “Supervision and abnormality and correction handling”, and indicator 17a “Diversity and completeness of training outcome evaluation” is recommended as the top priority of consensus-based assessment conducted by consultants and review committees

During the 9-year promotion of the TTQS, this study adopted video assessment based on the same case for national consultants and review committees for the first time. With the consistent and known data, individuals first graded 19 indicators and put them into groups to reach consensus on 22 scores, and then calibrated the scores by holding up placards in the seminar to reach the final total scores after calibration. Based on the calibrated scores produced in six seminars, the analysis of difference was conducted to effectively produce indicators with differences in competency assessment between consultants and review committees. In addition, the National

Association of Small & Medium Enterprises, R.O.C., the organizer of the TTQS project, applied for certification of the competency-based training course, the “Newly-elected TTQS Consultant Training Course” with the iCAP Competency Platform of Workforce Development Agency, Ministry of Labor in November 2015. The Course was certified on December 8, 2015 with the course code. The expiration date of certification is December 7, 2017, which proves the validity and practicality of the methodology of the study. It is recommended that such calibration be applied to the versions of enterprises, training organization assessment Table, and external training.

6.3 Future Research

The methodology proposed in this study was only used to compare the differences in the scores of indicators graded by individuals and groups between consultants and review committees. In the future, comments on the score of indicators can be added in the methodology. Even the percentage of conception of indicators to the score of indicators can be explored via questionnaire or after-school evaluation. In another approach, the focus of consultants, review committees, instructors and trainees on the indicator assessment can be cross-examined and compared in the future.

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About the Author

Shu-Ching Wang

received the Ph.D. degree in Information Engineering from National Chiao-Tung University, Taiwan. Currently, she is a professor with the Department of Information Management, Chaoyang University of Technology, Taiwan. Her current research interests include Talent Quality-Management System and human resource development.

Email: scwang@cyut.edu.tw

Wei-Shu Hsiung

is a student in Doctoral Program of Department of Information Management, Chaoyang University of Technology, Taiwan. His current research interests include human resource development, foreign workers, national culture differences, cross-cultural training and overseas adoption.

Email: s10714902@cyut.edu.tw

Chin-Shan Peng

received the Ph.D. degree in Department of Information Management, Chaoyang University of Technology, Taiwan. His current research interests include Talent Quality-Management System, competency, HRD, quality management, PDDRO and human resource development.

Email: newken@tcts.seed.net.tw

Kuo-Qin Yan

received the Ph.D. degree in Computer Sciences from National Tsing-Hua University, Taiwan. Currently, he is a professor with the Department of Business Administration, Chaoyang University of Technology, Taiwan. His current research interests include Talent Quality-Management System and human resource development.

Email: kqyan@cyut.edu.tw