

A New Accounting Teaching Method to Help Student Overcome Communication Apprehension: An Experimental Study

Kai-Tang Fan
Department of Business Administration, Lunghwa
University of Science and Technology, Taiwan

Fang-Chi Lin*
Department of Accounting, TamKang University, Taiwan

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ABSTRACT

Nowadays, effective communication skills are among key required competencies for accounting employees. Surprisingly, despite their importance toward accounting job performance, communication skills have not been given high consideration by accounting majors. Additionally, employers remain dissatisfied with freshmen's communication competences. Therefore, how to help accounting students overcome communication apprehension has become an emerging research topic. Despite previous research attempts in incorporating curriculum and methods for designing teaching solutions for eliminating students' communication apprehension, research missing is the optimal teaching method. This study applies integrating creative problem-solving process, case teaching, and the tool Web-based GDSS Team-Spirit and propose the Web-based CPS Case Teaching method with an attempt to reduce accounting students' communication apprehension. The results prove that the proposed method effectively eliminates students' communication apprehension and enhances creativity. The findings provide beneficial guidance for helping accounting students promote communication skills, creativity, and problem-solving capabilities for better satisfying career requirements.

Keywords: Communication Apprehension, Accounting Education, Creative Problem Solving Case Teaching, Team-Spirit.

1. INTRODUCTION

Nowadays, besides the academic knowledge, effective communication skills are among the key requirements of non-technical competencies for accounting graduates entering the workplace (Mitchell, Skinner, and White 2010; Byrne, Flood, and Shanahan 2012). Since accounting personnel in practice are also required to communicate with co-workers and customers as well as possess the capabilities of contributing ideas for company's development instead of solely dealing with corporate financial matters (James and Otsuka 2009; Simons and Riley 2014), communication skills have been well-documented to play a critical role to job performance and success (Hassall et al. 2005; Gray 2010; Simons and Riley 2014).

Noteworthy, in the field of accounting, it has been argued that the knowledge of accounting is of little use if an individual cannot be able to communicate effectively (Stanga and Ladd 1990). In addition, a survey of Australian Society of Certified

Practicing Accountants has revealed that starting salaries of new accounting officers vary greatly and communication skills act as a crucial factor determining these differences (James and Otsuka 2009). Due to its importance, accounting practitioners in the United States have put communication skills ahead of know-how, interpersonal relationship and accounting knowledge as well as believing communication skills to be the must-be factor of a professional accountant (Kullberg et al. 1989). In other words, the role of communication skills in accounting professions shall never be underestimated.

However, surprisingly, given the importance of communication skills, they have not been given high regard by accounting majors (Ameen, Bruns, and Jackson 2010). There has been a fact that accounting graduates tend to be deficient in these critical skills (Ulrich, Michenzi, and Blouch 2003) as they have been widely perceived to have a much higher level of communication apprehension in comparison with business major students (Aly and Islam 2003; Gardner et al. 2005; Joyce et al. 2006; Arquero et al. 2007; Meixner et al. 2009; Simons and Riley 2014). Due to working environment, accountants tend to be stereotype-considered as being reserved, timid, fastidious, not outgoing, communicative, and flexible (Mladenovic 2000). Noteworthy, as revealed by recent studies, communication apprehension which is commonly referred to as a person's psychological fear and worry in a real or anticipated communication scenario (McCroskey 1970, 1978) is among the key factors contributing to inadequate communication skills (Fordham and Gabbin 1996; Hassall et al. 2005). Therefore, how to help accounting professionals overcome communication apprehension right in the step of teaching in order to achieve better career achievements has become a crucial research topic that worth in-depth investigation.

On response, many institutions worldwide have recognized that the degree programs can only be successful once effectively equipping students with the communication skills desired by employers (Mitchell, Skinner, and White 2010; Byrne, Flood, and Shanahan 2012), hence great efforts have been made to implement courses into accounting curriculum for enhancing students' communication skills (Grace and Gilsdorf 2004; Lynn and Vermeer 2008; Ameen, Jackson, and Malgwi 2010; Graham, Hampton, and Willett 2010; Simons and Riley 2014). Nevertheless, despite efforts which strongly argue the relevance of communication apprehension and the necessity of conducting curriculum changes, there have been only few studies explicitly focusing on exploring interventions to eliminate accounting majors' communication apprehension (Simons and Riley 2014). Noteworthy, it has been suggested that improper curriculum design not only fails to alleviate accounting students' communication apprehension but also result in an opposite effect of students' worsening communication skills (Gardner et al. 2005). For these reasons, it is assumed that appropriate guidance and teaching approaches might be essential for helping students overcoming communication apprehension and improving communication skills.

In the extant literature, Knirk (1991) puts forward that case teaching approach is favorable for communication skill improvement throughout facilitating discussion and idea sharing among group members. Based on this approach, Fan and Lin (2011) propose the Creative Problem-Solving (CPS) Case Teaching in which selected teaching cases beneficially stimulate communication training circumstances through bringing students into various accounting scenarios, which in turn motivate them to express creative ideas, overcome communication apprehension and thus promote communication skills. In this research, with an attempt of developing an effective new

training method for solving accounting professionals' communication apprehension, this study through incorporating the abovementioned Creative Problem-Solving Case Teaching" (Fan and Lin 2011) and the discussion tool Web-based GDSS Team-Spirit. to establish an innovative method entitled Web-based CPS Case Teaching with an attempt of seeking an optimal teaching method for eliminating accounting students' communication apprehension through the teaching processes. As such, the achieved results hope to provide beneficial guidance for helping accounting professionals overcome communication apprehension and enhance creativity, problem-solving skills as well as communication skills in order to better satisfy career requirements.

2. RELATED LITERATURE

2.1 Communication Apprehension in Accounting Majors

In the extant literature, a statistics of approximately 20% of students suffering from high levels of communication apprehension has been reported (Shanahan 2011). Being the one of the most important research concept in the field of communication (Wrench et al. 2008), communication apprehension has been early referred to as fear of communicating or communication-bound anxiety (McCroskey 1970) and latter as an individual's extent of fear or anxiety associated with communication with other people (Shanahan 2011) or the hidden communication disorder that is frequently not recognized, acknowledged or discussed (Horwitz 2002). Hence, when confronted with communication activities, individuals with communication apprehension will express anxiety, tension, and physical symptoms or suffer in silence, which in turn negatively influence their communication capabilities (McCroskey and Daly 1984; Shanahan 2011). Individuals with higher degrees of communication apprehension have been additionally found to exert approach-avoidance conflictive state which worsens their behaviors, attitudes, and communication (Daly 1977; Faigley, Daly, and Witte 1981) or either less expectation for communicating (Shanahan 2011) that dramatically affects their ability to perform to the best as well as difficulties in making decisions, consequently lower their performance in compared with organizations' expectation (Richmond and McCroskey 1997; Meyer-Griffith, Reardon, and Hartley 2009).

In practice, individuals' communication apprehension varies depending on whether they are oral or in writing (Shanahan 2011). Specifically, oral communication apprehension is related to the fear of speaking or talking to other people no matter in one-to-one situation or in public while written communication apprehension is associated with the extent of fear or anxiety expressed when individuals are required for writing tasks (McCroskey 1977); Faigley, Daly, and Witte (1981). Previous researches have argued that factors such as reinforcement (e.g., rewards, punishments), skill acquisition and modeling (i.e., imitating parents' communication style), lack of communication willingness, pressured assessment activities in school, unfamiliar or formal situations, and occasions which were previously unsuccessful significantly contribute to the development of OCA (Richmond and McCroskey 1997; Shanahan 2011). Additionally, Heuett, Hsu, and Ayres (2003) advocate that the combination of thoughts, feelings and communication skills strongly affects individuals react in communication settings; hence, positive thinking that the oral communication task will

be successful can beneficially eliminate oral communication apprehension and vice versa (Thomas, Tymon, and Thomas 1994). Meanwhile, factors such as individuals' thoughts that the written work would lead to negative evaluation, previous writing experience, and fear of expressing thoughts through wordings can considerably trigger written communication apprehension (Faigley, Daly, and Witte 1981; Daly and Wilson 1983). In sum, no matter whether it is oral communication apprehension or written communication apprehension, communication apprehension significantly negatively influences individuals' communication capabilities and performance (McCroskey and Daly 1984; Allen and Bourhis 1996; Duh, Yen, and Lin 2002).

In recent decades, there has been an increasing demand for accounting professionals' communication skills due to requirements of the accounting work (Hassall et al. 2005). Unfortunately, compared with business students, accounting graduates' communication skills are found to be relatively insufficient as they have been widely perceived to have higher levels of communication apprehension (Ulrich, Michenzi, and Blouch 2003; Simons and Riley 2014). This can be partially explained by the mistaken belief that accounting major solely deals with numbers and documents, in which oral and writing communication is perceived to be less important (Ameen, Jackson, and Malgwi 2010) or unnecessary for accounting work (Meixner et al. 2009).

In general, based on the above literature, it can be assumed that communication apprehension extremely affects accounting students' and personnel's work performance as well as their creative thinking capabilities. Therefore, there is a great need for a state-of-the-art teaching method that can effectively eliminate accounting students' communication apprehension right in the stage of learning at university or in training courses in the workplace, which is also the main purpose of this research.

2.2 Communication Apprehension in Accounting Education: Paradigm shift

Existing literature has suggested that accounting students in the traditional educational environment experiencing high level of communication apprehension (Gardner et al. 2005). On response, Simons and Riley (2014) and Ameen, Jackson, and Malgwi (2010) have put forward using pedagogical interventions to reduce accounting students' communication apprehension and stimulate their creativity through designing courses with communication requirements as priority. For instance, the "more-is-better" approach to oral and writing courses and instructors' proactive roles in addressing students' negative attitudes can beneficially decrease students' written communication apprehension; subsequently motivate their opinion expressions (Popovich and Massé 2005; Marshall and Varnon 2009). In addition, students' communication apprehension should be viewed as normal and teaching techniques should help them handle these feelings (Grace and Gilsdorf 2004). In other words, once being applied systematically by trained practitioners in a supportive atmosphere, appropriate guidance and teaching approaches as well as proactive curriculum changes might help students overcome communication apprehension, improving communication skills, and promoting creativity (Arquero et al. 2007; Miller and Stone 2009; Simons and Riley 2014).

On elaborating how to help eliminating accounting students' communication apprehension and stimulate creativity, prior studies have compromised that it is essential to incorporate accounting curriculum and teaching methods which encourage students to expose their thoughts more in various communication scenarios (Hurt 2007; Lynn and Vermeer 2008; Shanahan 2011; Simons and Riley 2014). Nonetheless, since

Smith and Frymier (2006) find that most students do not prefer practice despite its positive correlation with communication performance, Hassall et al. (2005) and Popovich and Massé (2005) strongly suggest that students' underlying fears of communicating need to be appropriately addressed before actions are taken once instructors attempt to eliminate their communication apprehension. Fordham and Gabbin (1996) additionally point out educators should take the factor influencing students' communication apprehension into account and let them not be afraid of communication. Further elaborating, Ruchala and Hill (1994) through pre- and post-testing experiments and the applications of three training methods (e.g., systematic desensitization, cognitive restructuring, and assertiveness training methods) confirm great potentials for reducing accounting students' oral communication apprehension embedded in teaching curriculum. Importantly, Blue et al. (1998) through employing the problem-based learning (PBL) approach (i.e., a proactive teaching method which requires students to exercise a high level of interaction and communication skills throughout discussing cases, answering questions, and giving comments) find out that students with higher communication apprehension express lower communication performance at the end of the semester.

A review of related studies in Taiwan shows that Yen and Duh (2008) incorporate accounting education and communication apprehension. By successfully proposing the Modified Controversial-issues Approach (Cottell Jr and Millis 1992, 1993; Martin 1994), the research has exerted a marvelous effect on alleviating accounting students' communication apprehension; however, remains insufficient in explorations of other important society-demand skills (e.g., problem-solving skills) that enhance students' creativity and reinforce logical thinking ability (Firestien and McCowan 1988). Nonetheless, it can be assumed that appropriate teaching methods can beneficially stimulate communication skills throughout various accounting scenarios that motivate them to express creative ideas and overcome communication apprehension.

Finally, with efforts to create an effective method for reducing students' communication apprehension, Fan and Lin (2011) have proposed the Creative Problem-Solving (CPS) Case Teaching approach which beneficially simulated students' creativity capability through motivating them to express their own opinions and applying learnt knowledge into solving the given problems in creative ways. This approach has been established with an attempt to eliminate students' communication apprehension, which would be deeply explored in this study with the assistance of the discussion tool Web-based Team-Spirit..

2.3 Innovative Web-based CPS Case Teaching method

Previous researches have shown ample evidences that students gain little new knowledge from traditional lectures since instructors primarily transmit knowledge through lectures and textbooks that are dominated by concepts, principles, and evidence-based ways of thinking (DeHaan 2009). Traditional teaching and training methods have been well documented to engender passive learning rather than active engagement and linear thinking rather than cognitive flexibility (Nelson 2008). Hence, there has been a great need for a teaching method that enables students or trainees to produce sufficient knowledge of the field, effectively retrieve relevant knowledge from memory, and apply such knowledge creatively to novel solutions to encountered problems (Fan and Lin 2011).

On response, the emergence of the Creative Problem-Solving technique, which was initially developed by Osborn (1963) and later modified (Torrance et al. 1979; Isaksen, Dorval, and Treffinger 2000), has been perceived as an innovative teaching and training approach due to its benefits in stimulating trainees to sufficiently understand and flexibly apply their own knowledge into proposing incentives or creative solutions to problems (DeHaan 2009). With Creative Problem-Solving technique, problems were not described as negative obstacles or something wrong but opportunities and challenges for successful change and constructive action (Treffinger and Isaksen 2005). Therefore, when being integrated with case teaching and included as part of college curricula, Creative Problem-Solving approach has been proven to display positive effects on enabling students' communication capabilities and the abilities to apply ideas creatively (Hunsaker 2005).

Simultaneously, the case teaching approach (Knirk 1991) is favorable for communication skill and thinking skill improvement among group members, which reaches a consensus swiftly. As such, selected teaching cases can beneficially stimulate communication training circumstances through bringing students into various accounting scenarios, which in turn motivate them to express creative ideas, overcome communication apprehension and thus promote communication skills.

In accordance with the main purposes of this study of investigating the state-of-the-art accounting teaching training methods, this study employed Creative Problem-Solving case teaching approach due to its benefits in helping people understand and use their creativity more effectively through three core steps of idea generation, consolidation, and evaluation, in which the divergent and convergent thinking were supported by group tools such as electronic brainstorming, consolidating, and rating tools (Lin and Cho 2011). As such, Creative Problem-Solving method was utilized for requiring groups to solve problems in the instructed direction within the same amount of time. Accordingly, each team would be assigned to complete the same project. Team members had to follow leader's directions to join in online meeting activities and submit 5-10 page reports after experiment. As a result, the achieved outcomes were expected to be more creative and productive (DeHaan 2009). Similarly, in order to seek the optimal teaching and training approach for the accounting field, the Web-based GDSS Team-Spirit. tool was adopted since it motivated team-work and group decision-making process in a creative manner.

In sum, with the abovementioned benefits and an attempt of developing an effective method for solving accounting students' communication apprehension, the Creative Problem-Solving Case Teaching method and Team-Spirit. approach were integrated to establish an innovative method entitled Web-based CPS Case Teaching with an expectation to effectively assist eliminating communication apprehension and contribute state-of-the-art accounting teaching methods.

3. RESEARCH METHODOLOGY

3.1 Experimental Participants

In order to explore the effects of different teaching approaches on communication apprehension of accounting professionals, simultaneously following the idea of

Amabile (1996) that situational contexts may affect students' creativity motivation, this study aimed to take fourth-year accounting students to be main experimental participants. This choice was expected to be suitable with this study's research scope since fourth-year students' demand and motives for communication skills required for the workplace would exceed that of students of other grades. As such, three classes of fourth-year students enrolling in the Management Accounting course at a private university in central Taiwan were targeted, resulting in a total of 204 returned questionnaires. Concerning the control group, after removing 35 invalid questionnaires out of 74 collected ones, 39 valid answers were gained. Regarding experimental groups E1 and E2, after removing 43 invalid questionnaires out of 131 obtained ones, 88 valid answers were collected. In sum, 127 valid questionnaires were collected for data analysis.

3.2 Experimental Design and Procedures

A pretest-posttest experimental design was adopted to examine whether communication apprehension of students under different teaching approaches varied. Students in the experimental group E1 (Web-based CPS Case Teaching), experimental group E2 (solely Creative Problem-Solving case teaching), and the control group (CG - traditional teaching and do nothing) were under instructions of different teachers. With an attempt to create a similar basis for comparing these groups, the same traditional teaching approach was applied to all groups in the first half of the experimental semester. Also, the same questionnaire about students' communication apprehension which was administered at the time of students' mid-term examination was used as a basis for comparison to minimize influences from different teachers and ensure that the experimental results would not be affected.

In terms of experimental group students, the traditional teaching approach was adopted prior to mid-term examination and the case-based creative problem-solving teaching approach was incorporated after (see Table 1). Regarding the grouping of experimental participants, through random sampling, students were selected from each class to form a total of 32 groups of four to five students. All groups were then requested to receive instructions from teachers during the course of the experiment and use Team-Spirit., a web-based group decision support system, to solve given problems within the same amount of time during six-week experiment. In the sixth week, experimental participants were asked to find out solutions to their assigned tasks and submit a closure report upon completion.

Table 1 Experimental Process of Groups E1 (Web-based CPS Case Teaching) and E2 (solely Creative Problem-Solving case teaching)

Course week	1-8	9	10-13	14	15	16-17	18
Experimental week		(1)	(2-5)	(6)	(7)	(8-9)	

Traditional teaching approach	v					
CPS teaching approach (6 weeks)		v	v	v		
Case-based teaching (4 weeks)				v	v	v
Mid / Final-term examination.	v					v
Pre-test	v					
Post-test						v

Experimental group E1's students were instructed to submit their weekly solutions to the tasks to the web-based group decision support system platform which is confidential only to group members. By doing this, the posted entries would not be accessed by other groups' members. The purpose of this platform was to allow students to practice verbal expression skills through written expression. The case-based teaching approach commenced in the sixth week. The experimental group students were regrouped into eight groups of six to seven members who were different from previous members. Specifically, in the following four weeks, each group was made up of students from the same class, which was more convenient for group members to have face-to-face discussions for oral presentations. To carry out the case-based teaching approach, individual cases were allocated to group members randomly at the first teaching session (the ninth week) after the mid-term examination.

Heng-Kuang Technology Company, an industry-academia collaboration project involving the Ministry of Science and Technology of the Republic of China, was chosen as the experimental case. After discussions on the online meeting platform, Group E1's members were requested to share their discovered information with group members on the platform using their identity. Based on the content of the selected case, an advanced mode was used to guide students for questions and answer. Finally, the balanced scorecard was used to generate an analysis report based on performance evaluations of the chosen case company.

In terms of procedures of the Creative Problem-Solving teaching approach experiment, the experiment lasted for six weeks. The first week aimed to let Group E1's members become familiar with operations of the Team-Spirit. system. Each student was given an account, which means that the posted statements and questions would disclose their identity in the system. Teachers then explained the content of upcoming activities, how the activities would be carried out, and how the activities were related to the course and research purposes. Teachers also used three hours in one teaching session to guide students to use Team-Spirit. and the platform, post opinions, and search for necessary information. At the end of the teaching session, all group E1's experimental participants were requested to follow instructions (as shown in Table 2) to search for case-related information (i.e., relevant information of Heng-Kuang Company) and upload their answers to share with group members.

After all E1's participants were given one week to familiarize themselves with Team-Spirit. operations, groups E1 and E2 participants were asked to complete a questionnaire survey at the end of the teaching sessions. It was noted that there were a written communication apprehension scale and an oral communication apprehension scale. In addition, 10 minutes were allocated for them to complete the linear tasks at the Torrance Tests of Creative Thinking.

Table 2 Instructions of CPS and Team-Spirit. Teaching Approaches

Experimental week	Instructions
First week	Familiar with CPS and Team-Spirit. system & search case-related information
Second week	Discuss “pros/cons of introducing the balanced scorecard to Heng-Kuang Technology Company”.
Third week	Discuss “the problems of performance evaluation and reward system in Heng-Kuang Company”.
Fourth week	Discuss “how to use the balanced scorecard”.
Fifth – sixth week	Submit a closure report upon completion of the tasks.

In the second experimental week, teachers provided relevant knowledge and then solely instructed group E1’s participants to utilize learnt knowledge and discuss “pros/cons of introducing the balanced scorecard to the company”. Group E1’s participants were also guided to join weekly discussions and share their thoughts online. Finally, in order to explore the differences between Web-based CPS Case Teaching and solely Creative Problem-Solving methods, all participants of experimental groups E1 and E2 had to complete two questionnaires which were made up of a “locus of control scale” (Spector 1988) and an “emotional intelligence scale” (Wong and Law 2002) at the final 20 minutes of the ending teaching session.

In the third week, groups E1 and E2 were taught relevant knowledge and applications and were requested to discuss “the problems of the company’s performance evaluation and reward system” and continued with weekly online discussions in their spare time. In the fourth week, they were requested to utilize learnt knowledge to participate in weekly online discussions about “how to use the balanced scorecard”. In the fifth and sixth weeks, in addition to three weekly 50-minute teaching sessions, they were instructed to utilize information available in previous four weeks to picture themselves as management personnel at Heng-Kuang Technology Company and propose a problem analysis and solution report for the company. As such, in the fifth and six weeks, efforts were made to align the teaching progress for all experimental and control groups. Students in the control group continued to receive traditional teacher-centered teaching approach. Since receiving no creative problem-solving teaching approach, they nevertheless received no different regarding teaching progress and level.

From the sixth to ninth week, experimental group students in both classes were regrouped randomly based on the total number of students in one class. The regrouping resulted in a total of eight six-to-seven-student groups in each class. Students were then requested to have group presentations about the assigned case study (Shank 2006). There were two group presentations each week and each case study presentation was limited to 30 minutes whereas the remaining 20 minutes in each teaching session were discussion time. Also, students were instructed to complete a post-test questionnaire in the ninth week.

3.3 Measurement scales

As abovementioned, due to the belief that accounting major constantly deal with the same work routine every day, accountants are perceived to have no need to contribute innovative ideas in work (Meixner et al. 2009; Ameen, Jackson, and Malgwi 2010). In addition, people with communication apprehension tend to have a lack of

communication competence (Jung 2011), which in turn prohibits them from freely express themselves and innovative ideas. For these reasons, this study proposed the Web-based CPS Case Teaching method with the hope to enable accounting students' capabilities to apply ideas creatively in new contexts and assist them to actively convert their thoughts and information into usable forms (Fan and Lin 2011) as well as eliminate their communication apprehension and enhance creativity capabilities.

This study aims to follow Torrance (1974), Anwar, Shamim-ur-Rasool, and Haq (2012), and Chu and Lin (2013) to identify four main operational components of creativity, namely fluency, flexibility, originality, and total creativity. Among these, fluency is referred as the capability of continuously generating ideas and a flow of associations based on the use of basic and universal knowledge. Due to the main purpose of exploring team members' creativity in the virtual environment, following Runco and Jaeger (2012), fluency is defined as the number of different responses participants can generate in each activity. Based on Kahai, Sosik, and Avolio (2003), flexibility is identified as the number of different categories of relevant responses as well as the level of practical contribution of each idea. In addition, since originality is characterized by the unique way of thinking and the unique products that is not the copy of any existing things in that domain (Leikin 2013), this study refers originality to the unique responses that are statistically infrequent. Finally, total creativity is the total score obtained from above four measures.

Concerning creativity measurements, this study used the Torrance Test of Creative Thinking (TTCT) by Torrance et al. (1979) to test team members' creative thinking ability. "The Circle Test" was used for the pre-test and "The Line Test" for the post-test under time limit of ten minutes. The Taiwanese version of these tests has been validated (Wang and Horng 2002) with test-retest reliability coefficients with Taiwanese sample ranged from 0.71 to 0.85. The inter-rater reliability for the present study ranged from 0.95 to 0.99. Four measures of creative thinking ability were obtained from both these tests, namely (1) fluency which was measured by the number of different ideas one can generate in ten minutes, (2) flexibility which was measured by the number of different conceptual categories into which the total responses can be classified, (3) originality which was measured by the rarity or uniqueness of an idea determined by its statistical infrequency, and total creativity which was measured by the summarization of total score obtained from above three measures.

The communication apprehension scale of this study was based on a questionnaire adopted by a study of Yen and Duh (2008). A written communication apprehension scale developed by Daly and Miller (1975) and an oral communication apprehension scale developed by McCroskey and Daly (1984) were employed to measure fourth-year accounting students' written communication apprehension and oral communication apprehension. The experimental participants were instructed to use a five-point scale to express the level of their agreement with each declarative sentence (from 1= "strongly agree" to 5= "strongly disagree"). Consisting of 24 declarative sentences, the oral communication apprehension scale is the most special for using four different situational contexts to examine sources of oral communication apprehension. The level of apprehension in each situational context was measured with six declarative sentences. The four situational contexts, which are "group", "meeting", "dyad", and "public speaking", correspond with four general situational contexts of communication apprehension proposed by McCroskey and Daly in 1984 are the center of this study.

The range of scores for each situational context of the oral communication

apprehension scale was between 6 (low communication apprehension) and 30 (high communication apprehension). As there were a total of 24 question items across four situational contexts of this scale, the range of each experimental participant's total score was between 24 (24×1) and 120 (24×5), and the expectation value was 72 (3×24). The written communication apprehension scale consisted of 26 descriptive sentences, which represented 36 multiple-choice questions. Therefore, the potential score of each experimental participant was between 26 (26×1) and 130 (26×5), and the expectation value was 78 (3×26).

Each experimental participant's score of apprehension was derived by adding up the experimental participant's score on each declarative sentence, and a higher score meant a higher degree of apprehension. As the two scales' adequate internal reliability and validity was found in previous studies (McCroskey and Daly 1984), which be used all of the accounting articles in communication apprehension in this literature review. In this study, we also used these two scales to examine the process of how accounting students' communication apprehension was influenced by the CPS teaching approach.

3.4 Measurement of manipulated testing variables

According to previous studies, the operations manual and relevant technical support tools for the parts of circular and linear tasks at the Torrance Tests of Creative Thinking (TTCT), which were adopted in this study, are more comprehensive than that of other tests of creativity (Torrance 1979; Fleith, Renzulli, and Westberg 2002). Reviewing test results of the Torrance Tests of Creative Thinking in 1966 and 1974, Kim (2006) found that the scores of test-retest reliability obtained by administering the same test in one week, two weeks, ten weeks, six months, and three years were between 0.5 and 0.93. In addition, advocating the complexity of individuals' creative thinking, Treffinger (1986) suggested that the preceding statistics could verify the stable reliability and validity of the graphic part of the Torrance Tests of Creative Thinking developed by Torrance (1974). Based on this, the Torrance Tests of Creative Thinking (Torrance 1974) was adopted as the measurement tool to measure students' fluency, flexibility, and originality and the sum scores of the three dimensions were the scores of creativity. A 10-minute Torrance Tests of Creative Thinking was administrated on students at the first and the last teaching sessions to test students' creativity. To substantiate the influence of the Creative Problem-solving Case teaching approach adopted in this study, the creativity scores were used for manipulation checks in this study. In terms of Torrance Tests of Creative Thinking scoring, two postgraduate students were commissioned to grade students' answers to make sure that there were no human factors-related biases. The achieved scores received from two postgraduate students were analyzed to produce reliability scores which were between 0.84 and 0.99, indicating that the reliability of test scorers of the Torrance Tests of Creative Thinking in this study was similar to that of previous studies and was within an adequate range. Therefore, using the Torrance Tests of Creative Thinking developed by Torrance (1974) to check the correctness of this study's manipulation of Creative Problem-solving training was of certain reliability.

4. RESULTS

In accordance with main research purposes, MANCOVA approach was first applied to test the impacts of three research groups (i.e., experimental group E1 and E2, and control group CG) on communication apprehension and creativity. Then, paired t-test was employed to explore effectiveness differences among various teaching methods in three groups.

Table 3 The effectiveness comparison of different teaching methods (E1: Web-based CPS Case teaching; E2: solely Creative Problem-solving case teaching; CG: Traditional teaching methods)

	(E1, n =44)		(E2, n= 44)		(CG, n= 39)		Main effects	Comparison
	Mean	SD	Mean	SD	Mean	SD		
Writing apprehension	61.80	13.83	69.04	11.58	82.60	2.86	55.15***	CG > E2 > E1
Comm. apprehension	55.49	10.68	69.22	7.08	85.22	2.88	199.83***	CG > E2 > E1
Personal apprehension	12.35	3.40	15.20	2.63	21.40	2.14	153.69***	CG > E2 > E1
Meeting apprehension	12.80	2.08	17.51	1.17	20.42	1.64	291.38***	CG > E2 > E1
Groups apprehension	12.98	3.09	15.91	2.44	18.95	3.30	55.55***	CG > E2 > E1
Speech apprehension	17.36	4.96	20.60	3.49	24.45	1.94	51.24***	CG > E2 > E1
Fluency	21.55	8.58	16.82	7.63	13.59	6.35	15.35***	E1 > E2 > CG
Flexibility	14.91	4.62	10.95	4.06	7.96	2.90	43.29***	E1 > E2 > CG
Originality	14.46	7.68	10.25	6.21	7.82	2.70	17.79***	E1 > E2 > CG
Total creativity	45.92	17.72	36.03	15.11	29.21	10.58	17.81***	E1 > E2 > CG

As being observed in the analysis results (Table 3), concerning communication apprehension reduction, group E1 (i.e., Web-based CPS Case teaching) achieved the best result, followed by group E2 (i.e., solely Creative Problem-solving case teaching), which in turn implies the effectiveness of the Web-based CPS Case teaching. Noteworthy, the control group CG with traditional teaching method expressed the highest level of communication apprehension, which is consistent with previous studies of Bourhis and Allen (1992) and Gardner et al. (2005) that students in the traditional educational environment tend to experience extremely high level of communication apprehension. These results could be explained through the fact that the Web-based CPS Case teaching approaches by stimulating students to use their creativity more effectively during teamwork and interactions as well as motivating them to freely contribute innovative ideas have significantly reduced their communication apprehension and promoted creativity capabilities.

5. CONCLUSIONS AND DISCUSSIONS

5.1 Conclusions

Taking into account the premises that solutions of using of teaching methods to reduce accounting students' communication apprehension have become an important issue in accounting education, this study has reached a consensus with the extant

literature in finding that case teaching can contribute to communication skill improvement and thinking skill development among group members (Knirk 1991). Since training on creative problem-solving (CPS) can contribute to smoother communication and interactions between group members (Firestien and McCowan 1988), this study incorporates Creative Problem-solving and Team-Spirit. processes with case teaching, and delves into the impact of this teaching method on accounting students' communication apprehension.

This study attempted to investigate the effect of traditional teaching modes along with the integration of Creative Problem-solving Case teaching (Fan and Lin 2011) and Team-Spirit. tool on accounting students' communication apprehension. The achieved results have shown that students who received Web-based CPS Case teaching display significant reduction in communication apprehension as well as considerably enhanced creativity. On the contrast, the control group students with traditional teaching show neither lessened communication apprehension nor considerable difference in creativity. The finding proves that the proposed Web-based CPS Case Teaching effectively eliminates students' communication apprehension and enhances their creativity. As such, this study hopes to provide beneficial guidance for helping accounting students enhance communication skills and creativity, and problem-solving capability in order to better adapt to the accounting field's constantly changing demands and more effectively satisfy career requirements.

5.2 Contributions and Implications

The Web-based CPS Case teaching method proposed in this study are merging of strengths of creative problem-solving processes and case teaching, hence they are conducive to enhancing students' decision-making skills and reinforcing analytical thinking skills. As suggested, case teaching can beneficially enhance students' systematic thinking, oral communication and writing skills (Noblitt, Vance, and Smith 2010). As such, the proposed teaching method can make up for the gap of businesses' expectation for accounting students' decision-making, management, analytical thinking, oral communication and writing skills. In addition to its orientation to meeting practical needs, the Web-based CPS Case Teaching method is also a practical teaching method performed by means of discussions and exchange between teachers and students. Thus, this teaching method can enable both teachers and students to have more intimate interactions and prompts students' motivation to learn. On the other hand, case scenarios not only contribute to students' long-term memory retention but also prepare students' to adapt to the society. Last but not least, the Web-based CPS Case teaching makes a teaching session more than teachers' monotonous talks and students' note taking. Versatile teaching approaches make students concentrate more effortlessly, prompt their interest in courses, train their mind and encourage them to express themselves, allow them to have free thinking and explorations, and ease anxiety in teacher-student relationship.

In terms of the practical applications of Web-based CPS Case teaching respectively, previous studies have pointed out that the situation of communication apprehension can be improved after treatments. What is worth mentioning is that teachers should restrain from showing authoritarian attitudes and behaviors since they may lead to opposite effects instead of easing students' communication apprehension. Further, in terms of creativity, which is more subject to individuals' personal traits and

aptitude, teachers can reinforce students' self-confidence in their own strengths and self-expectations. In the whole process, students would put theories into practices. In this way, they not only can better acquire knowledge through an understanding of differences between the two but also would be trained through utilizing knowledge from divergent thinking and convergent thinking in a problem-solving process. Therefore, the Web-based CPS Case teaching method has been assumed to be suitable for cultivating professional students' capacities of execution and putting knowledge into practice.

5.3 Limitations and Future research recommendations

Several limitations remain in this study. First, despite the rigorous study design, the application of true-experimental design to minimize such possibility's effect and efforts to keep research participants unaware of the ongoing research to preclude the possibility of restraining true behavior, unavoidable restriction was encountered during the experiment. For instance, given restricted teaching hours in nine-week courses, future studies are strongly recommended to extend teaching to a semester or an academic year to achieve better result generalization. Second, case teaching, which is suitable for teaching small classes, might result in different results in case large classes are selected for experiments. However, this was not listed as a control factor so there might be better results once future researchers choose small classes for conducting experiments.

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