Training nursing students' communication skills with online video peer assessment

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ABSTRACT

Communication is an important skill which nursing students must master in order to be effective in their career. One of the purposes of this study was to implement an online video peer assessment system to scaffold their communication skills. The other purpose was to examine the effects and validity of the peer assessment. Fifty nursing students enrolled in a psychiatric nursing course in Taiwan participated in the study. The experiment contained two rounds of peer assessments. In each round, the students had a therapeutic consultation with a simulated patient. It was recorded and uploaded on a YouTube platform which we designed to keep a log of viewing, rating and feedback from their peers. The peer assessment process was synchronized with the viewing of peers' communication videos so that feedback could be marked to the relevant point on the video. Expert evaluation scores showed that students' communication performance, when involved in peer assessments, significantly improved. In the first round, the scores determined by the peers were not correlated with those marked by the experts. However, in the second round, both scores were significantly correlated, indicating that the online peer assessment could be perceived as a valid assessment method for nursing communication skills training. Moreover, the analysis of peer feedback also revealed that their communication became more patient-centered gradually due to the peer assessments. On the whole, the students were satisfied with the peer assessment activities and appreciated the contribution to their communication skills.

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1. Introduction

Found in the constructivist and socio-constructivist paradigms for learning, peer assessment enables students to not only assess their understanding through explaining, simplifying, clarifying, summarizing, reorganizing and cognitive restructuring (Topping, 1998), but also to interact with their peers to construct knowledge and develop social skills (Tseng & Tsai, 2007). Thus, in recent decades, peer assessment has been identified in higher education as a valuable approach to student learning (Dochy, Segers, & Sluijsmans, 1999; Falchikov, 2003; Falchikov & Goldfinch, 2000). The method has been used extensively in various fields to promote student involvement in assessment with great achievements (e.g. Welsh, 2007; Davey, 2011; McGarr & Clifford, 2013; Asikainen, Virtanen, Postareff, & Heino, 2014). In nursing education, studies have shown that the peer

assessment process assists students to promote in-depth learning, the development of professional practice and self-appraisal skills (Morris, 2001; Patterson, 1996; Welsh, 2007).

Due to its effectiveness for student learning, peer assessment or evaluation is also a pedagogical strategy that has been utilized routinely in nursing communication training (Hammer, Fox, & Hampton, 2014). Wang, Chen-Sea, and Wu (2004)'s study designed as an interpersonal communication teaching module to train students clinical communication skills. They found that students' ranking toward the benefits of teaching activities from high to low was: 1: peer feedback (96.8%), 2: video recording and replay (90.3%), 3: instruction and explanation (90.3%), 4: role-play experience (80.7%) and 5: the handouts (58.1%). Yoo and Chae (2011) investigated the effects of video-based peer review on communication skills and learning motivation among nursing students. The experimental group used peer reviews to evaluate the videotaped performance, while the control group assessed themselves alone by watching their own videos. Their findings indicated that the experimental group showed significantly higher communication skills improvement and stronger learning motivation than the control group.

Videos facilitate the observation and comparison of effective and less effective communication, allow illustration of nonverbal communication and provide consistent teaching from year to year (Wang et al., 2004). In Losh et al. (2005)'s study, they used video scenarios in teaching sessions to help students identify effective communication techniques and to stimulate discussion about communication benchmarks. The majority of students (76%) felt the videotapes helped them to gain a better understanding of the written communication benchmarks. Noordman, van der Weijden, and van Dulmen (2014) adopted a video-feedback teaching strategy to improve generic communication and motivational interviewing skills for experienced practice nurses working in primary care. They found nurses who received video-feedback appeared to pay significantly more attention to patients' requests for help and their physical examination. They also provided significantly more understandable information. With respect to motivational interviewing, nurses who received video-feedback appeared to pay more attention to "agenda setting and permission seeking" during their consultations.

The use of video-based pedagogy and peer-assessment in nursing communication training are well documented; however, integrating networking technology into both approaches has received limited attention in this field. Therefore, this study explored the possibility of implementing online peer assessment activities in nursing communication training. In addition, the effects of online peer assessment on facilitating students' communication skills and its validity were examined. Finally, how nursing students perceived the activities was also investigated.

2. Literature review

2.1. The state of nursing communication training

It is widely accepted that a nurse's ability to communicate is an important factor for good clinical practice. However, clinical nursing staff thought the communication training was insufficient when they were attending school (Fallowfield, Saul, & Gilligan, 2001; Wilkinson, Gambles, & Roberts, 2002). The outcomes of many communication training courses were even more limited (Kruijver, Kerkstra, Francke, Bensing, & van de Wiel, 2000). In some counties, communication skill training has been somewhat neglected (Liu, Mok, Wong, Xue, & Xu, 2007). The reasons for these difficulties, and barriers to learning, included limited class time and large classes, meaning it was difficult for students to have the opportunity to practice their communication skills in the classroom (Chant, Jenkinson, Randle, Russell, & Webb, 2002). Furthermore, while reviewing the state of communication skills training to pre-licensure registered nursing students, Chant et al. (2002) indicated there was a lack of formal research design which limited the ability to provide an indication of the kinds of communication skills training that would be the most effective. In a recent study, Grant and Jenkins (2014) updated this review and found that the evidence to support specific communication interventions continues to be low. They recommended that future communication education research should more consistently use theoretical frameworks, tools tested for evidence of reliability and validity and their accompanying outcome measures.

Recognizing the importance and deficiencies of nursing communication training, some studies have implemented innovative training courses. Kluge and Glick (2006) used computer-based interactive training where the students dialogued with a pre-recorded patient and a camera recorded their conversations and non-verbal communication. Crawford et al. (2009) designed a recorded scenario which allowed students to watch it at a time convenient to them. There was a series of assessment questions which invited students to consider communicative and care delivery aspects of the events depicted. Emmanuel, Collins, and Carey (2010) asked students to design a wearable mask for interpreting therapeutic communication skills. They suggested that future research should further explore efficient ways of conducting training programs and guide students into a deeper learning of communication skills. However, despite the above studies being designed with innovative ways for different communication training courses, and students generally being satisfied with the teaching activities, they did not actually measure students' learning outcomes. And, although these studies used innovative strategy, they did not adopt any web-based technology to help students learn effective communication.

For these reasons, this study implemented an online peer assessment system so its effects on facilitating students' communication skills could be evaluated. As a result, it would be able to verify the validity of this communication training method, echoing the views of Grant and Jenkins (2014)'s review in nursing communication skills training programs.

2.2. The usage of web-based peer assessment

The use of computers and network technology could facilitate the peer assessment process. It could include randomly assigned peer assessors, using anonymous marks and feedback by peers, allowing the freedom of time and space for peers to express their thoughts and integrating/calculating peer assessed marks/feedback (Tsai, Liu, Lin, & Yuan, 2001; Wen & Tsai, 2006; Wu & Kao, 2008; Shiu, Chan, Lam, Lee, & Kwong, 2012). Additionally, the online peer assessment allows teachers to monitor students' progress and decrease the cost of photocopying their work for their peer assessors (Lin, Liu, & Yuan, 2001).

Web-based or online peer assessment has been used increasingly in many different educational fields. For example, Kwok and Ma (1999) developed Group Support Systems (GSS) to support collaborative activities and peer assessment in their Distributed Information Systems course. Tsai, Lin, and Yuan (2002) used a networked peer assessment system to help a group of pre-service teachers to develop their instructional activities. Rada and Hu (2002) conducted online peer assessment and analyzed student-student commenting patterns in three different computer science classes. Wu and Kao (2008) implemented a web-based peer assessment system to support the training of pre-service teachers. Xiao and Lucking (2008) used Wiki interactive software to provide an online collaborative learning environment to facilitate university students' academic writing performance. Liang and Tsai (2010) used an online peer assessment activity to help college students learn biology through writing. Hulsman and van der Vloodt (2015) used a web-based video annotation system to allow medical students to review their communication video and to mark and annotate positive and negative events. However, even though online peer assessments have been used extensively in a variety of educational fields, few studies have been conducted in nursing education. Moreover, these studies seldom adopted effective ways to guide students in providing better feedback to their peers in the online peer assessment environment. Consequently, this study endeavored to address this issue by implementing web-based peer assessment activities in a nursing communication training course. In particular, this study designed functional buttons and the feature of marking a video (described below) in order to allow students to provide relevant and specific feedback.

2.3. The validity of peer assessment

While reviewing the application of peer assessment in various subjects of higher education from 1980 to 1996, Topping (1998) found 25 of the 31 reviewed papers saw a high correlation between peer assessment grading and teacher assessment. Therefore, Topping (1998) concluded that peer assessment is reliable, accurate and valid. Falchikov and Goldfinch (2000) also reviewed 48 quantitative peer assessment studies and found that peer assessment scores related more closely to teacher assessment scores when the focus was placed on academic products and processes, rather than professional practice. With regard to the validity of online peer assessment, some studies have dealt with this issue. For example, Tseng and Tsai (2007) carried out a study on the validity of peer assessment in a computer course involving 184 students. They claimed that the marks awarded by the peers mostly correlated to those awarded by the experts. Cho, Schunn, and Wilson (2006), carried out an experiment which involved 708 students across 16 courses, over three years in a web-based peer assessment environment. Their results indicated that having at least four peer raters on a piece of writing made the peer ratings as valid as instructor ratings. Bouzidi and Jaillet (2009) conducted an experiment of online peer assessment in which 242 students were enrolled in three different courses. Their results showed that peer assessments were equivalent to the assessments carried out by the teacher in cases of exams requiring simple calculations, some mathematical reasoning, short algorithms and short texts referring to the exact scientific field.

As a whole, some of the studies above found that the scores of peer assessments and teacher assessments were consistent. However, not all results were the same. Falchikov and Goldfinch (2000) pointed out how peers and teachers had different views on the items of professional practice. Bouzidi and Jaillet (2009) found only examples of simple or short tasks were valid. In this study, the target of peer assessment was care communication, which is still categorized as professional practice. Therefore, it was expected to be a challenge to gain consistent results from both peers and teachers.

2.4. The effects of peer feedback

Smith, Cooper, and Lancaster (2002) found that peer feedback, in addition to scoring, could increase the transparency of the peer review process and student confidence and therefore enhance learning outcomes. Topping (1998) noted that in the process of peer assessment, such feedback could be more timely and individualized when compared with feedback from their instructors. Hammer, Ronen, and Kohen-Vacs (2012) found that peer learners could provide candid, rich and multi-perspective feedback as opposed to instructors' feedback. Moreover, researchers indicated that the type and quality of peer feedback was critical for the success of peer assessment. For example, Lin et al. (2001) found that students receiving "specific" feedback significantly outperformed those receiving "holistic" feedback. Tseng and Tsai (2007) indicated that reinforcing peer feedback was more useful in helping the development of student projects than didactic feedback and corrective feedback. They also found that suggestive feedback may be more helpful in the beginning of peer assessment activities rather than in the later parts of peer assessment. In Gibbs and Simpson (2004)'s study, they proposed the feedback which has a positive influence on students' learning should have some conditions, including being sufficient, focused, timely, appropriate, attended and acted.

3. Methodology

3.1. Participants

The participants of this study were fifty nursing students in a nursing college in Taiwan. Every student, who was enrolled in the course of "psychiatric nursing" in this study, was required to speak with a trained simulation patient twice: once in the mid-term exam week and the other in the final exam week. So, although two rounds of peer assessments were conducted in this study, the communication scenarios were different. The students were divided into 12 groups, with each group consisting of four to five students. While one student was doing a recorded interview with a simulated patient, the rest of the students in the same group were allowed to be present to observe and learn from this interview. It is the so-called live peer evaluation being used in conjunction with traditional teaching methods.

In this study, four or five students were assigned to a peer assessment group to evaluate their peers' communication scenarios through a web-based assessment system. To avoid "reciprocity effects", the online grouping was not the same as the one for the live peer evaluation. All videos of communication scenarios were recorded and uploaded to YouTube. Each student used their own account to log into the system, then post the URL of an individual video to "peer assessment module" in the system in preparation for the peer assessment. A training session, demonstrating how to follow these procedures and conduct the peer assessment online, was carried out prior to the first round of assessment. To avoid any possible bias and unfairness, nursing students were informed that peer-assessed scores would not be included in their final course grades.

3.2. Web-based peer assessments and peer assessment scales

Each student's communication performance was quantitatively evaluated by their peer reviewers according to the Interpersonal Communication Assessment Scale (ICAS) which was proposed by Klakovich and Dela Cruz (2006). A study (Lopes, Azeredo, & Rodrigues, 2013) which adopted the ICAS Portuguese version, found that ICAS has shown a high internal consistency in reliability analysis and excellent temporal stability. Thus they recommended ICAS as an appropriate tool for assessing interpersonal communication skills. Initially, this scale was designed to assess the communication competencies of students in undergraduate or graduate nursing programs. The ICAS has 23 items (see Table 1) and were divided into three dimensions (subscales).

1. *Advocacy* (10 items): clearly conveying diagnostic and other relevant information in a way that supports patient/family wishes and decisions. This section is to evaluate the effectiveness of students' behavior such as: "Invites patient to explore discrepancies," "Questions treatment decision" and "Explain treatment options."
2. *Therapeutic use of self* (9 items): demonstrating interpersonal behavior that assists clients in achieving healthy emotional and behavioral outcomes by being genuine, empathetic, and respectful to the client. The ICAS evaluates this skill by rating: "Maintains comfortable distance," "Allows patient to express reaction", and "Watches body language for inconsistency."

Table 1
Interpersonal communication assessment scale (ICAS).

Subscale	Item
Advocacy	1. Invites patient/family to explore discrepancies
	2. Uses behavioral descriptions for feedback
	3. Gives clear instructions
	4. Provides referral when necessary
	5. Questions treatment decisions
	6. Requests consultation when needed
	7. States discrepancies in information
	8. Teaches and promotes preventive care
	9. Prepares patient/family for procedures
	10. Explains treatment options
Therapeutic use of self	11. Maintains comfortable distance
	12. Matches facial expressions
	13. Makes eye contact
	14. Allows patient/family to express reactions
	15. Acknowledges concerns
	16. Watches body language for inconsistency
	17. Spends time with patient/family on concerns
	18. Converses with silent patient/family
	19. Observes for needed emotional support
Validation	20. Asks for clarification
	21. Uses specific questions
	22. Asks for confirmation of perceptions
	23. Gives descriptive feedback

3. *Validation* (4 items): listening carefully and verifying the intention of the messages is accurately interpreted. The items include "Asks for clarification" and "Uses specific questions."

For every point, the peer assessors were asked to rate their perception of the effectiveness of every peer's communication behavior on a Likert scale (1 = *seldom*; 2 = *often*; 3 = *usually*; 4 = *always*). As described above, each student's communication behavior was evaluated by three or four learning peers. For each item of each peer assessment round, the average score of the three or four peers for the student's communication behavior was calculated to represent their performance. The alpha coefficients of this study for Advocacy, Therapeutic use of self, Validation were 0.87, 0.77 and 0.82, respectively for the first round and 0.80, 0.90 and 0.80 for the second round. These results suggested that the peer assessment scores in this study were consistent.

In addition to these quantitative scores, all of the peer assessors were asked to provide some qualitative comments or feedback to help their peers to improve their communication skills. When a student wanted to comment on a particular screen image, they could "*Mark*" the video position and put in their comment. Consequently, when a student viewed the comment later, the associated video segment could then be played. This made the comment more relevant and to the point. In addition, to guide students to offer their peers more specific feedback, there were three functional buttons in the system which allowed students choices while offering comments. These included "strength," "weakness" and "question" (Fig. 1). This classification of comments is similar to Sluijsmans, Brand-Gruwel, and Van Merrienboer (2002)'s four types of feedback: "positive comments," "negative comments," "constructive comments" and "posed questions." Positive comments resemble "strength," negative comments resemble "weakness" and posed questions is "question." In this study, "constructive comments" was not used due to having similar characteristics to "weakness." Once students pressed one of the three buttons while giving feedback, the system would automatically create the timestamp links between the comments and the associated video.
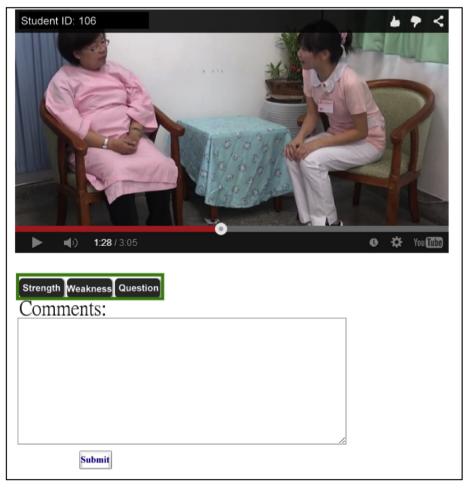

Fig. 1. Screenshot of the video peer assessment system.

3.3. Reflective opportunities

Reflection is a critical proficiency and it is essential to the development of nursing communication competences (Adams, Nestel, & Wolf, 2006). The aim of the reflective journal was to allow students to reflect on their performance and what they could improve in the future. In the reflective journal, nursing students were asked to write down their thoughts about their own communication instances, summarize peers' comments, analyze the causes of bad performance and make notes on how they could improve these. Therefore, the students did not submit their reflective journals to the system until each round of peer assessment activities was completed.

3.4. Expert scores

There were also two experts who evaluated students' communication performances. One, serving as the simulated patient in this study, was a senior nursing staff member with more than twenty years of psychiatric nursing practice experience in a mental hospital. The other one was a retired nurse who was in charge of the psychiatric nursing section in a mental hospital for more than ten years. They were invited to rate their perception of the effectiveness of students' communication behavior, exactly the same way it was being utilized by the students. The experts first evaluated thirty students' communication. The purpose was to examine the reliability of the scoring. They evaluated the students' communication in the two rounds and gave a score between 1 and 4 on each item of ICAS. The average of correlation coefficient between the two experts on each outcome variable was 0.75 ($p < 0.001$), indicating that the two experts' scores were significantly related. In other words, the scores given by the experts were perceived to provide adequate reliability in assessing the students' communications. In order to avoid the possibility of the experts' evaluations affecting the students' peer assessments, the expert scores were not revealed until two rounds of peer assessments were completed.

3.5. The analysis of peer feedback

To understand how the students focused attention on the three dimensions of communication skills, we used ICAS's 23 items to classify their comments. The data was coded by two senior nursing teachers at our school: one with a master degree in nursing education, the other one with a doctoral degree in nursing informatics. The coding scheme was decided upon in a coding meeting and revised after a preliminary data coding session. All the comments were coded independently by the two coders and then discussed to resolve any potential discrepancies. When categorizing the peer feedback, one feedback could be classified into more than one type as long as it involved multiple contents. In addition, in accordance with the design of the system, peers' comments were also collected into three categories: "strength," "weakness" and "question."

4. Results

4.1. The effect of peer assessment on student communication behavior

Students' communications were scored by their peers and the two experts between 1 and 4 points according to ICAS's 23 items. The scores were represented in three dimensions: advocacy, therapeutic use of self and validation. Table 2 shows that students' average scores in the first round of peer assessment as evaluated by their peers were found to be 2.44, 3.14 and 2.87 on the dimensions of advocacy, therapeutic use of self and validation respectively. The same communication performances rated by experts showed the average scores of 2.13, 2.49 and 2.28 on the above three dimensions respectively. The scores on the second round of peer assessment were 2.50, 2.89 and 2.69 for the three dimensions as assessed by peers, and 2.91, 2.96 and 2.97 as evaluated by experts. Obviously, the scores from peers and experts were very different.

From the viewpoint of the experts, the mean of students' scores on each dimension revealed that these students had an increasing average score on each dimension. Paired t-tests were further used to compare student score changes as a result of

Table 2
Students' scores of communication both from peers and from experts ($n = 50$).

Variable	Peer scores			Expert scores		
	Mean	SD	t	Mean	SD	t
First round						
Advocacy	2.44	0.32	1.09	2.13	0.17	26.60[***]
Therapeutic use of self	3.14	0.25	−4.54[***]	2.49	0.35	7.34[***]
Validation	2.87	0.37	−2.60[*]	2.28	0.42	9.35[***]
Second round						
Advocacy	2.50	0.25		2.91	0.28	
Therapeutic use of self	2.89	0.31		2.96	0.36	
Validation	2.69	0.33		2.97	0.43	

[*]$p < 0.05$. [***]$p < 0.001$.

the web-based peer assessment. It was found that their scores for each dimension were statistically higher in the second round than those in the first round. Students' communication had improved significantly as they were involved in peer assessment activities. However, from the viewpoint of the peers, only the mean score of advocacy showed an increase in the second round. Furthermore, the mean scores of therapeutic use of self and validation in the second round were even lower than those in the first round. Our observations found that the scores evaluated by peers were higher than those of experts in the first round; however, in the second round, it was contrary. We speculated that this may have been related to students' cognition deficiencies in therapeutic communications. In the beginning, the students seemed to be unaware that they had a particular deficiency in the communication skills with psychiatric patients. Therefore, in the first round, the differences between students' scores and experts' scores were large. However, after students became involved in the peer assessment activities, they seemed to become more disciplined and gained a better understanding through rating their peers' performances. Consequently, the differences between peers' scores and experts' scores decreased in the second round.

Apart from the quantitative differences, there were qualitative differences between the two rounds of students' communication behavior. In an incidental talk with the simulated patient, she indicated that in the first round, most students were prone to talking too much and asked her many questions; however, in the second round, the students used more observation skills and paid better attention to her, e.g. moving around her body or head to look at her and did not ask her questions all the time. We believe that these were evidence of the students' substantial progress in communication behavior. That is, through being involved in the peer assessment activities, the students seemed to gradually engage in patient-centered communication. This cognition skill is one of the key components of nursing which can facilitate the development of a positive nurse-patient relationship (McCabe, 2004).

4.2. The agreement between the scores given by experts and those by peers

Table 3 displays the correlation coefficient between peer scores and expert scores based on three subscales for each round. On the whole, in the first round, there was no correlation between the scores. However, in the second round, the scores given by the peers were significantly more correlated with those given by the experts ($r = 0.36$, $p < 0.05$), indicating the students had improved their assessment skills in professional communication as a result of the networking peer assessment. The networking peer assessment, as shown in this study, could be perceived as a valid assessment method for nursing communication skill training. Furthermore, the inconsistency rating between the peers and the experts in the first round seemed to echo Falchikov and Goldfinch (2000)'s study. They found that when it came to evaluating professional practice, there was a difference between peers and experts.

4.3. The focus and type of peers' comments

Characteristics of the peers' comments toward the recorded students' communication skills were coded and analyzed. There were a total of 870 and 981comments posted for the first round and the second round respectively, which was an average of 17.4 and 19.6 comments per student received from their peers. These comments were categorized according to ICAS and reassembled into three dimensions. Table 4 shows the analysis of peers' comments. Since some comments can be categorized into more than one category, the total counts of two rounds were 1012 and 1062 respectively. In the first round, the analysis showed that "therapeutic use of self" (dimension 2) was the category that received the most comments (37% of the total comments), followed by "validation" (dimension 3, 24%), "advocacy" (dimension 1, 23%) and "others" (dimension 4, 17%). However, in the second round, "advocacy" (dimension 1) was the category that received the most comments (48%), which almost reached half the total of comment count. The changes of the percentage for each category might reflect the concerns of the students at different stages of training. It might also be that the students' development of communication skills switched the focus from themselves to the patient. This was consistent with the experts' observations.

With regard to the nature of the "others" category of comments, it was found that these comments were mostly about the tone of voice, manner of speaking, gesture, attitude, or psychological and physiological states such as nervousness and anxiety. Obviously, our students had provided more detailed comments to their peers beyond the items of ICAS. In addition, although the feedback was classified as "others", they were still focused on peers' performance and their learning under peers' control, rather than on the peers themselves or on personal characteristics. According to Gibbs and Simpson (2004)'s description, the feedback was defined as "focused" feedback. That is, the feedback was on "central" issues of communication behavior and thus had a positive influence on learning.

Table 3
The correlation between scores given by experts and peers on ICAS subscales and total scale ($n = 50$).

Round	Subscale			Total scale
	Advocacy	Therapeutic use of self	Validation	
First round	−0.17	−0.08	0.00	0.00
Second round	0.29[*]	0.37[**]	0.24	0.36[*]

[*] $p < 0.05$.
[**] $p < 0.01$.

Table 4
ICAS's categories of peers' comments.

Dimensions	First round	Second round
1. Advocacy (10 items)	233 (23%)	511 (48%)
2. Therapeutic use of self (9 items)	371 (37%)	265 (25%)
3. Validation (4 items)	238 (24%)	182 (17%)
4. Others	170 (17%)	104 (10%)
Total	1012 (100%)	1062 (100%)

To understand how students provided their feedback, peers' comments were also categorized into three categories: "strength," "weakness" and "question." Table 5 is a summary of the results. We observed that a similar frequency pattern existed in the two rounds of peer assessments: "strength" was the category that received the most comments, followed by "weakness" and "question." This situation may reflect that the students tended to appreciate their peers while, on the other hand, hesitating to criticize them. That is consistent with the results from other studies (e.g. Lin et al., 2001; Wu & Kao, 2008). However, the number and frequency of "weakness" increased in the second round, seemingly revealing that students were getting more courageous or confident as an assessor. Although the number and frequency of "weakness" were fewer than "strength," we observed that students' "weakness" feedback was more specific and to the point than "strength" feedback. In Lin et al. (2001)'s study, they observed that students receiving specific feedback significantly outperformed than those who received holistic feedback. Consequently, in this study, we believe that the "weakness" category of peer feedback played a role in students' learning and improved their communication performance.

4.4. Attitudes toward peer assessment activities

A questionnaire was designed to gather information about students' attitudes toward the peer assessment activities. It contained seven Likert-type questions and was conducted after the second peer assessment round. Table 6 summarizes the results of this survey. Students' rating on each Likert-type item was converted to scores ranging from 5 to 1 as follows: 5 for *strongly agree*, 4 for *agree*, 3 for *neural*, 2 for *disagree* and 1 for *strongly disagree*. Overall, the mean scores of each item were greater than 4 (*agree*) which means the students were satisfied with the peer assessment learning activities. On the whole, the students agreed that online peer assessment gave them more perspectives on communication learning (item 1) and increased their reflections on communication (item 2). The students also agreed that the scores given by their peers were fair (item 3) and that their peers' comments were objective (item 4). They would make an effort to read or respond to their peers' comments and improve their communication according to these comments (item 5 and 6). Therefore, most students admitted they had spent more time learning communication due to the involvement of online peer assessment (item 7).

5. Discussion and conclusion

This study implemented an online video peer assessment system to help nursing students to develop their professional communication skills with simulated psychiatric patients. In it, the peer assessment process consisted of two rounds. Each student received comments and feedback from three to four of their peers in each round. The analysis of peer feedback showed that students received numerous amounts of feedback from their peers (an average of 17.4 and 19.6 comments per student for the first round and the second round respectively). Such high interactions among learning peers were hardly likely to happen in traditional classroom settings, where class time is limited and the class size is large.

Furthermore, this study found that online peer assessment could enhance nursing students' communication performances significantly. It was inconsistent with Kruijver et al. (2000)'s finding: the outcomes of many communication training programs are very limited. We believe this situation was due to the fact that in the process of peer assessment, the students gained a variety of feedback which had a positive influence on their learning. As described above, Gibbs and Simpson (2004) indicated such feedback should have several conditions, including being sufficient, focused, timely, appropriate, attended and acted. As shown in Section 4.3, the feedback in the present study was not only sufficient in frequency and detail, but also focused on peers' performance and their learning. As described in Section 4.4, most students read the peers' feedback and tried to make some changes in order to improve their future performance. It indicated that students could accept their peers' suggestions and act upon them. This means that the feedback had a positive impact on students' learning. It also led students

Table 5
Three types of peers' comments.

Dimensions	First round	Second round
1. Strength	671 (66%)	634 (60%)
2. Weakness	289 (29%)	390 (37%)
3. Question	52 (5%)	38 (4%)
Total	1012 (100%)	1062 (100%)

Table 6
Students' attitudes toward peer assessment activities ($N = 50$).

Item	SA/A	D/SD	Neutral	M	SD
1. The online peer assessment gave me more multi-perspectives on communication learning (as opposed to the live peer learning).	86%	0%	14%	4.0	0.55
2. The online peer assessment increased my reflections on communication.	94%	2%	4%	4.3	0.74
3. The scores given by peers were fair.	92%	0%	8%	4.0	0.78
4. The comments (feedback) given by peers were objective.	86%	0%	14%	4.0	0.57
5. I made a great effort to read or respond to the peers' comments.	96%	0%	4%	4.3	0.54
6. I would improve my communication behavior according to peers' comments.	94%	0%	6%	4.2	0.56
7. I spent more time learning communication because of peer assessment (as opposed to the peer learning on the spot).	80%	4%	16%	4.0	0.81

Note: SA/A- Strongly Agree and Agree, D/SD- Disagree and Strongly Disagree.

to make changes when they went onto their next assignment or when tackling any future tasks. Apart from rating schemes (ICAS), peer feedback played an important role in improving students' communication skills in this study. This result is consistent with Xiao and Lucking (2008)'s finding. They compared the effects of two peer assessment methods on university students' academic writing performance and their satisfaction with peer assessment. Their results indicated that students in the experimental group (using rating-plus-qualitative-feedback) demonstrated greater improvement in their writing than those in the comparison group (using rating-feedback-only). Xiao and Lucking also found that students in the experimental group exhibited higher levels of satisfaction with the peer assessment method both in peer assessment structure and peer feedback than those in the comparison group.

Bransford, Brown, and Cocking (2000) indicated that the best outcomes occur as students build on their own assessment skills while working with their peers. Sluijsmans et al. (2002) also stated that the peer assessment tasks can be regarded as the learning exercises in which the assessment skills are practiced. In this study, it was found that the agreements between peer assessment scores and expert scores were not consistent in the first round. However, in the second round the correlations between these scores were significant, implying that networking peer assessment could be perceived as a valid assessment method for developing communication skills. We believe that our students had improved their assessment skills of communication with simulated psychiatric patients through the online peer assessment process. Such abilities of distinguishing good communication from bad are crucial in the training of nursing communication (Chant et al., 2002).

This study described an attempt to utilize an online video peer assessment system to help nursing students to develop their communication skills in a psychiatric nursing course. By making slight adjustments in the peer assessment scales, this training model could be transferred to medicine communication education, nursing staff communication training, or other wards of nursing communication such as obstetric nursing, pediatric nursing and community health nursing. It also could promote the learning of clinical nursing skills and techniques (e.g. injections, measurement of vital signs), which are areas in which evidence-based education and reflective practice are particularly stressed. However, a limitation of the study was that only one class participated in this experiment so the results cannot be generalized. Therefore, in order to better understand the effects of this online peer assessment model, more research and the incorporation of a control-group into the experimental design would be needed in the future studies.

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