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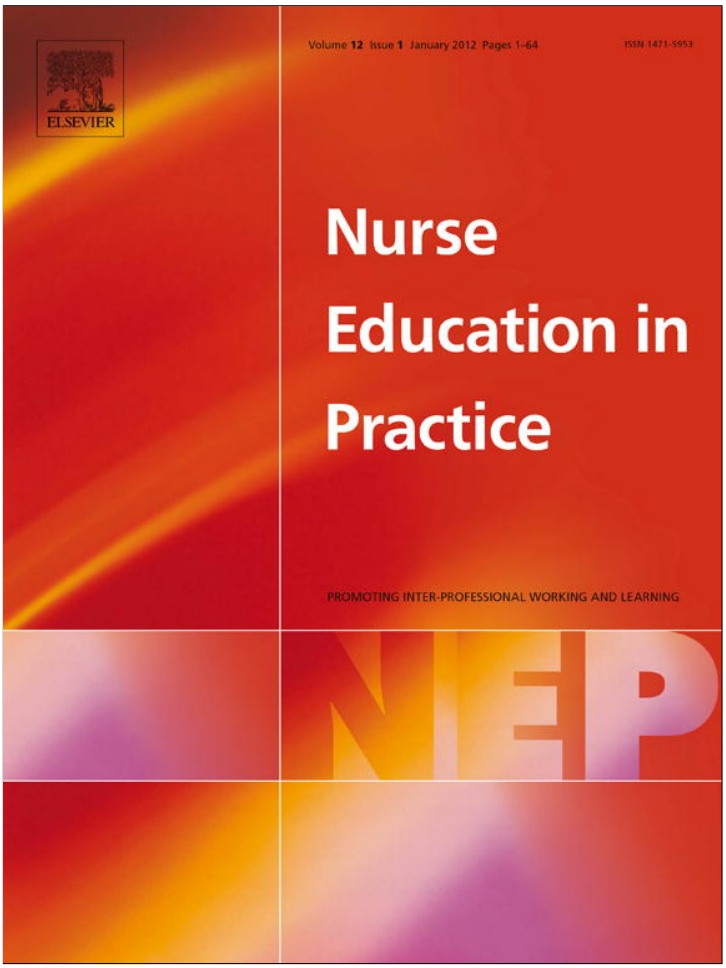

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Role-playing in the problem-based learning class

Zenobia C.Y. Chan*

School of Nursing, The Hong Kong Polytechnic University, Hong Kong

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ABSTRACT

Learning and teaching have been conceptualized and executed in many styles, such as self-learning, peer learning, and interaction between the learner and mentor. Today, openness to alternative ideas and embracing innovative approaches in nursing education are encouraged in order to meet students' learning interests and needs, and to address ever-changing healthcare requests. Problem-based learning has been widely adopted in nursing education, with various positive effects on students' learning, such as motivated learning, team work, problem-solving skills and critical thinking. Role-plays have been demonstrated as an effective learning strategy that includes an active and experiential feature that facilitates students' autonomy in their health-related learning. However, there is a lack of discussion of whether and how role-play can be used in problem-based learning (PBL). This paper shows the development of a classroom-based innovation using role-play in the PBL class for higher diploma year-one nurse students (a total of 20 students, five per group). This paper consists of five sections: a) the literature on PBL and nurse education, and role-plays as the innovation; b) the PBL case scenario with the illustration of the two role-play scripts, c) student evaluation on role-play in the PBL class; d) discussions on both achievements and limitations of this innovation, and e) the conclusion. It is hoped that this paper will be an example to other nurse educators who are keen on exploring interactive and student-driven learning and teaching strategies in the PBL class.

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Introduction

As a nurse educator, our ultimate concern is to enable our student nurses to become nurses who know how to address our patients and family members' needs in a timely and appropriate manner (Holland, 2002). How, then, can we offer more experiential learning opportunities and allow our students to better appreciate the patient's feelings? Innovative approaches to learning and teaching should be promoted in nursing education (Birchenall, 1995). With this in mind, I have adopted role-playing techniques for both undergraduates and postgraduates since 2002. In January 2010, I used role-play in the problem-based learning class for one higher diploma class with a total of 20 year-one students. The fundamental principle underlying problem-based learning (PBL) is that learning is based on experience that mirrors real-life situations (Chikotas, 2009, p.393). Students' participation in role-play is an experiential peer sharing process, and the role-plays performed by the students in the PBL class can shed some light on the real clinical situations.

This paper discusses how role-play can be adopted in PBL with the following four objectives:

To review the literature on PBL and nurse education, and the present innovation – role-play as a learning and teaching strategies in PBL.
To illustrate two of the role-plays performed by students.
To present the student evaluation on role-play.
To discuss both achievements and limitations of the innovation.

Literature review on PBL and nursing education

The adoption of problem-based learning (PBL) in education was first attempted in the late 1960s for medical training at McMaster University Medical School in Hamilton, Ontario, Canada (Jones, 2008). Since then, PBL has been implemented in diverse non-medical undergraduate and graduate programs to promote students' skills in self-directed learning, team problem-solving, analytical reasoning and communication (Jones, 2008). In general, PBL is understood as the "*many contextualized approaches to instruction that anchor much of learning and teaching in concrete problems*" (Gijbels et al., 2005, p.29), including "active learning" and "experiential learning". Further, in a broader sense, PBL is also a strategy to enhance student learning via their active participation in small groups to analyze, synthesize, and manipulate given problems (Chikotas, 2008).

* Tel.: +852 2766 6426; fax: +852 2364 9663.
E-mail address: hszchan@inet.polyu.edu.hk.

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In contrast to the traditional teaching approach, which relies mainly on a one-way approach to knowledge delivery, PBL is generally believed to be a teaching method that encourages students to use a self-directed approach to solve a problem that they have encountered (Albanese and Mitchell, 1993; Azer, 2001; Haith-Cooper, 2000; Martenson, 1993; Maudsley, 1999; Norman and Schmidt, 1992; Smits and Verbeek, 2002; Williams and Beattie, 2008). For this, an effective PBL learning process should generally consist of at least the following stages (Kilroy, 2004): (1) Clarify terms and decide the problems, (2) Analyze the problems, (3) Identify study priorities for the scenario, (4) Formulate learning objectives for the problems, (5) Engage in self-directed study, and (6) Identify areas for self-improvement. Normally, all these activities would take place in a group setting, and each individual member would contribute to the learning process at every single stage.

PBL is based on the ideology of information processing (Anderson, 1977), which states that in order to achieve effective acquisition of knowledge, learners first have to be enabled to restructure information and knowledge that have already been attained within a realistic context, then to gain new knowledge, and finally to elaborate on new information they have gained via peer discussion or in group settings (Kilroy, 2004). PBL can allow students to learn how to collect useful information from various sources, and to develop relevant critical thinking skills, which can be fostered through group discussion, for problem-solving in a specific situation. PBL has been extensively used in health education, with the aim of teaching prospective healthcare practitioners how to manage health problems in clinical settings and apply the knowledge to their future practices (Chikotas, 2009; Dehkordi and Heydarnejad, 2008; Siu et al., 2005).

Nowadays, PBL is a research topic receiving extensive interest in nursing education (Achike and Nain, 2005; Barrow et al., 2002; Chou and Chin, 2009; Dehkordi and Heydarnejad, 2008; Demiris and Zierler, 2010; Distler, 2008; Jones, 2008; Kocaman et al., 2009; Lyons, 2008; Yuan et al., 2008). A recent study evaluating the reiterative PBL approach in undergraduate nursing education revealed an overall positive student experience of PBL, though a number of students were found to perceive PBL to be initially stressful and the tutor role to be unclear (Barrow et al., 2002). Another study comparing the differences in perceptions of empowerment among nursing students enrolled in either PBL or a conventional lecture-learning program also demonstrated that students in the PBL program ($n = 41$) generally had higher perceptions of structural and psychological empowerment than students taught by the conventional teaching mode ($n = 67$) (Siu et al., 2005). The evidence presented above clearly shows that PBL is potentially an effective teaching method in the nursing field. On top of the positive outcomes of using PBL in nursing education (Baker et al., 2007; Choi, 2003; Ehrenberg and Häggblom, 2007; Hwang and Kim, 2006; Richardson and Trudeau, 2003), there is even evidence to suggest that interactive sessions (such as those potentially offered by PBL) might change professional practice. Holland (2001) suggested that PBL can be used to develop core skills and knowledge for nursing practice. However, there is unknown how the process and outcome of role-play can be used as learning and teaching strategies in nursing education. With this curiosity in mind, this article will introduce role-play and its application, and students' feedbacks. Meaning of these 2 sentences in relation to each other.

The innovation – role-play

Role-play can be examined by Fleming and Mills' learning framework, which reflects the preferred physical sense involved in learning (Nilson, 2003). The acronym VARK is used to refer to the four categories of visual, auditory, reading/writing, and kinesthetic preferences. The visual learner relies on sight to take in information and organize information or ideas in spatial interrelationships. Visual learners prefer presentation of information in the form of diagrams, pictures, and symbols; they use color and layout to enhance knowledge. Students with an auditory learning style prefer having information explained to them. These learners benefit from hearing information in various types of verbal presentation, including lecture, discussion, or debate (Nilson, 2003). Auditory learners do well with the traditional teaching methods most commonly used in college classrooms (Arthurs, 2007, p.4).

Participating in role-plays, students can fully utilize the above four senses. With such sensory functions involved in role-play, the PBL has the potential to adopt role-play as an innovative learning activity, which makes the class more dynamic through various verbal and non-verbal acts of students on one hand. On the other, their cognitive process is required to understand, interpret and analyze, and make meanings of the role-play. During the preparation of the role-play scripts, their reading and writing skills had been involved and practiced as well. Finally, they performed their role-play reflected their kinesthetic preferences. A discussion on what role-play is and how it works can be found below.

Both medical education and nurse education have influenced each other's development. Therefore, a literature review on medical education can shed some light for our nurse education as well. Role-playing has been stressed as an effective teaching method in medical education (Chan et al., 2003; Green et al., 2003; Kim et al., 2003; Lau et al., 2001; Torke et al., 2004). Listening to students' voices can enhance the outcome of medical teaching (Alford and Currie, 2004). Educators should seek to motivate their students to actively participate in any learning scenario, whether inside or outside the classroom (Pitts, 2004). Putting patients' concerns uppermost during medical intervention is the hallmark of the patient-driven approach to medical care (Brown et al., 2004). Through role-playing, students can practice interviewing patients to obtain relevant past and current illness history (Korenstein et al., 2003). Role-playing in medical classrooms is also an effective means for students to exercise their communication skills when facing a patient (Roter et al., 2004). It improves students' critical thinking ability (Simonneaux, 2001). Additionally, the learning needs of students should be given the highest priority in formulating courses, rather than being based on the lecturer's preferences (Bernstein et al., 2004). Teaching and learning are socio-culturally relevant (Wiskin et al., 2004), meaning that examination of one's own teaching and learning assumptions can provide a true guide to the best way to develop and conduct courses. Therefore, given the above features of using role-playing in learning-teaching, the following will present a case scenario in PBL used last semester (Jan–April, 2010) and two role-plays done by the year-one nurse students. The students had the freedom to play either the role of the patient or the nurse of the following case scenario based on their group consensus that promoted the autonomy during their learning process.

PBL case scenario

The following case scenario was designed by our School of Nursing and according to Kilroy's (2004) suggestion. For example, in order to facilitate the PBL process, a minimum of the following three areas should be provided whenever PBL is applied: (1) A neutral description of a realistic and fairly common scenario that has a degree of complexity appropriate to the participants and

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requires explanation in terms of underlying principles or processes; (2) A scope for problem-solving activity; and (3) A clear and concrete problem.

Ah Hung, aged 30, is a factory worker who works in a district with lots of air pollutants in the city. One afternoon he had a sudden onset of chest discomfort and difficulty in breathing, with an associated wheeze. His face turned terribly bluish. His colleagues immediately called for an ambulance and he was sent to a nearby hospital. On arrival, oxygen was administrated to Ah Hung via a mask and he was positioned sitting upright on the stretcher. He was accompanied by a nurse from the Accident & Emergency Department, and was admitted to the medical unit. He is now assigned to your cubicle. What measures are you going to take? The doctor's examination reveals that Ah Hung is suffering from asthma. He is worried and frightened because of the feeling of suffocation during the attack, and does not know what to do. Ah Hung looks anxious and upset. He approaches you and asks you not to tell his wife and parents about his medical condition. As a nurse in-charge of Ah Hung, what are the issues that emerge in your mind related to this scenario?

Discussions

The discussion will be organized into three themes: a) the process and outcome of students' learning through role-plays, b) student evaluation on role-play in the PBL class with the discussion on its achievements, and c) limitations of this innovation.

The process and outcome of students' learning through role-plays

In PBL activities, participants are assigned to work in small groups and to analyze assigned tasks based on the learning objectives as identified both by individuals in a group and by the group as a whole. They will meet with a tutor, discuss assigned problems, and help each other to mentally bridge newly acquired knowledge and new ideas together in order to create new meanings for the PBL. In fact, PBL is a process-oriented learning approach. It enables students to cooperate in small groups and explore solutions to assigned questions. In PBL activities, the development of problem-solving skills and the close ties built among participants through the process are much more important than correct answers to the assigned questions (Rounds and Rappaort, 2008). As the theological

Role-play one

Nurse A:	Are you feeling better now?
Ah Hung:	Oh my God. Where am I? What's happening to me?
Nurse A:	You are in hospital. Do you know why?
Ah Hung:	I remember having chest pain, dizziness and difficulty breathing.
Nurse B:	Yes. The doctor diagnosed you with asthma. Has it happened before and have you ever been administered any drugs?
Ah Hung:	(Shocked) ASTHMA!!!! How come?!! I haven't been sick at all this year. This is the first onset. Is the medication expensive? Is it fatal? Am I going to die?
Nurses A + B:	Calm down.
Nurse A:	You are alright. You don't have to worry about the fee; if you are unable to afford it, you can ask the government for funds.
Nurse B:	Yes, your problem is not that bad. There are many medications that can relieve the symptoms of asthma.
Nurse A:	So would you mind if I contact your family members?
Ah Hung:	(Begging) No! Please! Don't tell them, I don't want them to worry about me! Can I leave now? I still have to work!
Nurse A:	I'm sorry, you can't. You have to stay in the hospital for several days for observation. I have to call your family members, so that they can pack and bring your belongings.
Ah Hung:	(Helpless) Okay then… 23172417.
Wife + Mother:	Darling, are you alright?
Ah Hung:	I'm fine, don't worry.
(To the counseling room) Nurse B:	May I tell you what asthma is?
Ah Hung + wife + mother:	Sure!
Nurse B:	Asthma is an attack of breathlessness with wheezy noises coming from the chest. The spasms of bronchial tube muscles narrow the airways and obstruct the flow of air. Therefore, the ventilation of air cannot be performed efficiently.
Nurse A:	As there are lots of pollutants in the factory, so Ah Hung's bronchial tube is easily stimulated and his chance of suffering from asthma is higher.
Wife:	Darling, quit the factory, find another job, please.
Mother:	Yes, quit the job please. I don't want to lose a son.
Ah Hung:	I only have a low education level, how can I find another job?
Nurse B:	Actually, I don't think either of you need to worry about it. If Ah Hung implements the medication together with the precaution, his situation will stabilize.
Nurse A:	Now I am going to teach you how to use the bronchodilator, which can help your breathing. First, press the button. Then inhale the powder slowly and exhale slowly for 4 puffs a time whenever necessary.
Nurse B:	Apart from the bronchodilator, you also have to take the oral medicines on time. There are two types of oral medicine, a bronchodilator and an anti-inflammatory agent. Bronchodilators are drugs used to facilitate respiration by dilating the airways. The side-effects are tachycardia, headache, insomnia, etc.
Nurse A:	The anti-inflammatory agents, which come in three types, are used to manage respiratory disorders. The side-effects are sore throat, coughing, dry mouth, etc.
Nurse B:	Although they have side-effects, taking the medicine on time is one of the main actions that can alleviate your condition. Take one orange tablet 4 times a day. And take two blue tablets 3 times a day.
Ah Hung:	Oh! So troublesome! How can I take them when I am working?
Nurse A:	But if you follow this medication regime, your condition will improve.
Nurse B:	Ah Hung, do you wear a mask when you are working in the factory?
Ah Hung:	Of course not! I hate masks because they make it difficult for me to breathe.
Nurse B:	But there are many pollutants, such as NO_2 and dust, that will trigger the onset of asthma. Therefore, we advise you to wear a mask when you are working.
Nurse A:	Also, from your health assessment, we see that you smoke 10 cigarettes per day and have been a smoker for 10 years. This will worsen your condition, you know? We advise you to quit smoking as soon as possible.
Mother:	If my baby starts to suffocate again, what can I do to help him?
Nurse B:	You can perform CPR to save him. Don't worry! I will teach you how to do this later.
Nurse A:	You seem so tired, let's take a rest first.

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Role-play two

Scene 1

Ah Hung:	I am useless. Why me? I am still young. How can I have asthma? What can I do? I can't imagine when I will have an asthma attack. Just like Teresa Teng. She died of asthma because her medication was not provided in time! I can't live alone now. It's totally unbearable. Why is God punishing me?
MC:	Do you see that Ah Hung is now stressed? You can hear that Ah Hung's voice sometimes changes (becoming high-pitched). His hands are shaking as well. These are the symptoms of anxiety. Let's see what happens to Ah Hung next.

Scene 2

(Ah Hung suddenly starts to choke; Nurses 1 and 2 come into the ward.)

Nurse 1:	Ah Hung is suffocating. Put him in a semi-Fowler's or high Fowler's position now and lean him over his over-bed table.
Nurse 2:	OK! Please give him a pillow for support as well.

Scene 3

(After 5 min, Ah Hung feels better.)

Nurse 1:	Ah Hung, it would be good if you started on an inhaled corticosteroid. That's a medication prescribed by the doctor.
Ah Hung:	Corticosteroid? I've never heard of that before.
Nurse 1:	Actually, a corticosteroid is an oral anti-inflammatory agent for treating airflow obstruction.
Ah Hung:	How do I take it?
Nurse 1:	Don't worry, you will be given an inhaler containing the drug droplets. Hold the inhaler upright and remove the cap. Use the inhaler to breath slowly and deeply for 5–10 min. Just follow the prescription and you will be fine. But you should not take too much of this steroid, otherwise it may trigger side-effects.
Ah Hung:	err…It's complicated. I don't want to understand this. I just want you not to tell my family. I don't want to be the family trouble-maker.
Nurse 2:	Ah Hung, no matter how bad your situation is, they'll always stand by you. The family is a unit. They can share everything, not only happiness but also difficulties and worries. Can you imagine your wife not telling you anything when facing problems?
Ah Hung:	err… I know what you mean, but…
Nurse 2:	Don't think that you're the only problem in your family; they will eventually find out that you have asthma. Why don't you tell them and solve the problem with their help?
Ah Hung:	err… let me think a while.

basis of PBL stems from constructivism, which states that the attainment of new knowledge is built on learners' previous knowledge, the practice of PBL relies on a series of contexts and scenarios for promoting students' learning motivation and knowledge acquisition. Through the preparation and execution of the role-plays, the students co-constructed the knowledge via their group effort and demonstrated a high level of participation. Significantly, they experienced the different characters' concerns and responses during the role-play of their own group and also while observing other role-plays by other groups.

According to Barrow et al. (2002), in order to achieve true PBL, the following four objectives have to be met in professional education: a) structuring the knowledge for use in a specific context, b) developing students' reasoning processes, c) developing students' self-directed learning skills, and d) increasing students' motivation for future learning. Based on the abovementioned two role-play scripts and the students' perspectives on role-play in PBL, the students created a role-play that reflected the Chinese socio-cultural context. Through the group dynamics in the process of developing and acting out the role-play, they showed their commitment to self-initiated learning and their motivation for future learning. In brief, the two role-plays created by the students that demonstrate the peer learning as evidenced by showing the importance of both patient's and nurse's perspective which is equally pivotal for offering nursing care to the patient accordingly.

Based on the content of the role-plays, five main learning areas were found:

1. The relationship between emotional changes and asthma.
2. The effective communication skills when educating the patient and his/her family about the medical aspects of asthma.
3. The health assessments for asthma that can be performed when the patient is admitted to hospital.
4. The importance of the family's support in alleviating the patient's asthma.
5. The side-effects of the medications for treating asthma.

These five areas reflect the interests and priorities from the students' perspectives, and they included related ideas and concepts in the role-play. The above Role-play One illustration shows that the particular learning style of this group of students was shown as an interactive group dynamic and creative process. Learning style refers to a broader concept that includes cognitive functioning and indicates general preferences for methods and environments for learning. Learning styles encompass cognitive, affective, psychomotor, and physiological dimensions. An effective learning style is the way students begin to concentrate on, process, internalize, and remember new and difficult academic information. Holland (2002) posted a significant reflective question for all nurse educators: "How are we ensuring that facilitating the learning from this reflection is based on empathy for the contexts in which they (nurse students) are parctising (p.148)?" One of the possible means is through using role-plays in the PBL. PBL motivates student learning and team work (Chikotas, 2009). Peer learning is pivotal for student nurses (Roberts, 2009). Role-plays promote their team work and offer them more chances to work and communicate with each other.

From Role-play Two, these students' motivation level has a direct influence on the course outcomes. The more motivated the students are, the more likely they are to learn and subsequently the more positive the course outcome will be. Motivation, characteristically, is from within or internally driven, but there are external factors that can influence one's motivational level (Benson-Soros, 2006). A positive tone in the class, maintaining positive levels of student interaction, course design, and learning activities can all influence learning motivation (Herington and Weaven, 2008). When a student participates more, an increase in performance outcomes is seen, which suggests that educators must constantly look for ways to involve students and make them active participants in learning (McCord and McCord, 2010). In brief, role-play as an activity in the PBL class has significantly increased their students' motivation and participation in learning.

Student evaluation

Learning style refers to a broader concept that includes cognitive functioning and general preferences for methods and environments for learning. Learning styles encompass cognitive, affective, psychomotor, and physiological dimensions (Knowles et al., 2005). Role-play provides opportunities for all the above various learning

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styles. At the heart of a student-centered and student-led approach, empowerment and autonomy should be promoted in nursing education. With the above considerations, the following excerpts were originally written in English and collected from my PBL class voluntarily after the subject grade was announced and a month before writing this paper.

> Student A: If working with nursing friends is possible, it would save a lot more time as there could be developing a role-play, teaching each other new knowledge, and having critical thinking and creativity in dealing with and sharing knowledge. It is our responsibility to self-learn, share, and ask for advice that hones our professional skills. For professional teachers, rather than solely teaching knowledge, teaching how to attain knowledge effectively is preferable. Teachers should actively facilitate enthusiastic students' learning progress, in the same way that role-play can be a learning strategy for us.
> Student B: I think the teaching of a student nurse should allow more room for students to develop their creativity. Meanwhile, it is important to give students more case studies, as these help students to learn in depth about specific diseases as well as helping them to put what they have learned in school into practice. A responsible student should seek more knowledge to broaden their horizons, rather than only focusing on the theory of lecture notes. Role-playing can undoubtedly be a means for facilitating case learning and enhancing our clinical reasoning, especially for development of our critical thinking through acting various characters.
> Student C: I think role-plays are an effective learning approach because they do not simply require that we memorize a pile of notes. Nursing students have to develop their communication and critical thinking skills, which are very important when dealing with clients' situations in hospital. Therefore, one of the advantages of using role-plays in PBL lessons is the training of communication skills.
> Student D: I think having role-plays in the current PBL is excellent. I think visual performance like role-plays helps us to understand better, stimulating our critical thinking and making us worry less than just reading from texts.

Role-plays promote critical thinking

Based on approximately four students' feedback on how role-play enhanced their learning, critical thinking in particular was believed to be nurtured in the PBL class. Critical thinking, as suggested by the School of Nursing at Fairfield University (Fairfield, Connecticut) in their Self-Study Report for NLNAC Accreditation (1997; DeYoung, 2003), is understood as the interaction between individuals and the reflective, open, and generative external world via the following attributes: engagement of ideas and people, curiosity, appreciation of contextual influences, and awareness of one's own value and the broadness of one's mind. It is a careful and deliberate process for determining whether a judgment about a claim should be accepted, rejected, or suspended, and the degree of confidence thereof. Critical thinking is an important attribute in the intellectual development of an individual (Moore and Parker, 1992). During our engagement in critical thinking, we will identify and contemplate the assumption underlying our conclusion (or judgments) with multiple perspectives, justify reasonably our beliefs and actions or even modify them whenever necessary, articulate our ideas and points of view, and most importantly, evaluate the decisions we made and the potential commitments thereof (DeYoung, 2003).

In practice, critical thinking not only helps students to process complex ideas and to interpret the validity of external information, but also grants us the capacity to distinguish the reasonable from the unreasonable. In our daily routine, critical thinking is heavily dependent on processes of decision making, problem solving and handling of controversial issues (Couger, 1995). Role-play allows students to critically reflect on their perceptions of the patient's needs and feelings through interaction with their group members as an active participant, as well as through observation of other groups' role-plays.

Role-plays encourage creativity

Washburn (2010) states that "Creative thinking is seeing new relationships among things, seeing surprising, useful relationships that other people haven't noticed (p.346)." Originality and usefulness are the core qualities of creativity (Washburn, 2010). The effect of creativity is to bring together different concepts or elements in a new context with the added value. Therefore, to be classified as creative, an improvement must be new or unique and have utility or value (Couger, 1995, p.16).

Couger (1995) proposed the following conditions for creative thinking (p.368):

1. Psychological safety: This is the creative atmosphere, a flexible and receptive environment. It is entirely a matter of attitude.
2. Internal locus of evaluation. This refers to personal characteristics of self-confidence and independence, a tendency to make one's own judgments, and a willingness to accept responsibility for one's successes and failures.
3. A willingness to toy with ideas and to play with new possibilities.
4. Openness to experience. This includes receptiveness to new ideas and an attraction to new interests and experience in the external world. It also includes a willingness to acknowledge internal wants, needs, and habits, some of which may be of questionable social acceptability.

The role-play learning approach in the PBL classroom goes well with the above four conditions for creative thinking. For example, the groups of five students knew each other well and had established the necessary trust and support to ensure psychological safety. Participating in and observing their own and other students' role-play performance promoted the internal locus of evaluation. Writing the role-play scripts and acting the various characters of the role-play required a sense of openness and novel experience as well. The following are the students' feedback on their participation in the PBL class with the role-play approach and creativity.

> Student E: Universities should be places that encourage creativity because they are always filled with new ideas and concepts. The way to acquire existing knowledge, share it and present it can be in a manner that interests and inspires others. Therefore, creativity in knowledge creates new knowledge, and creativity in the conveying of knowledge stimulates conveying efficacy or further knowledge breakthroughs. In a practical situation, creativity can help patients by creating new knowledge. Divergent thinking is a kind of creativity that enables a creative alternative from a seemingly irrelevant guess. Creativity means the ability to think 'outside the box'. If we do not know much about skin disease and do not have much information to refer to, thinking a lot of new logic tracks out of one simple sign or symptom will become innovative, and new theory or knowledge can be attained. As a nurse, creativity helps patients in the second way: creativity in the conveying of knowledge increases conveying efficacy.
> Student F: Actually, I did not have many chances to express my creativity in high school because the curriculum mainly focused

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on knowledge acquisition. Thus, I reckon that creativity is a very unfamiliar aspect of learning, and not the most important to me. However, I admire those who are creative in planning the role-play because they can think of things that I never think about. Creativity can help us think out of the box, not just blindly following hospital rules.

Student G: Creativity means making something new. It is not only producing a brand new product. To express something with a new attitude, in a new format, is also a kind of creativity. In secondary school, for me, creativity was just a "beautiful" modification of "copying". For example, during visual art lessons, if you drew a square apple, the teacher would say "What's wrong? Draw it again!"; in contrast, you would surely get an "A" if you made a direct copy of the school model. Creativity is labeled as annoying and troublesome. It is useless in secondary school as we are used to following a set of rules and so-called "examples". No one wants different, because different means a mess. Having role-plays in PBL is a way to express creativity.

The students' views on creativity and using role-play in the PBL class further reinforce nurse educators' mission to cultivate our students to have the creative attributes that will enhance their adaptability and flexibility in clinical work in the light of rapidly changing healthcare technology and demanding clinical capability. It is also our educational commitment to ensure that our nursing graduates are able to discharge their nursing care in a manner that is contextually based with added value. This value produces graduates who can perceive and address a patient's needs with a creative-minded mentality, such as having the abilities of the internal locus of evaluation and openness to experience.

Limitations of role-plays

The approach of asking a group of students to perform a role-play has limitations, of course. First, students who are not interested in doing role-play and are shy might not be motivated by this activity. Therefore, teachers should assess the students' personalities and readiness to work with their classmates. This learning method would be best introduced later in a class, after the students have had a chance to get to know each other and the teacher. Second, there is no objective way to assess students' degree of understanding of a subject simply by watching role-plays at this moment. In the future, a systematic evaluation of the relevance and quality of the role-plays should be considered. Therefore, at the present time, role-play in the PBL class should be regarded as a learning activity rather than an evaluation method.

Conclusion

Having role-plays in PBL improves students' learning motivation creativity and understanding of the patient's and family's needs. This paper shows that both active and experiential learning were achieved through the role-playing. This learning activity put added values like creativity and a student-driven approach into traditional PBL, which emphasizes problem-solving skills. More importantly, the students had to experience the needs, feelings and roles of each character in the role-play, which made them more aware of multi-faceted considerations such as the potential dilemma between patient and professional, in turn enabling them to offer more holistic nursing care.

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