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Development of a nursing education program for improving Chinese undergraduates' self-directed learning: A mixed-method study

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SUMMARY

Objective: This paper demonstrates the establishment of an extra-curricular education program in Chinese context and evaluates its effectiveness on undergraduate nursing students' self-directed learning.
Methods: Zimmerman's self-directed learning model was used as the theoretical framework for the development of an education program. Mixed-method was applied in this research study. 165 undergraduate students from a nursing college were divided into experimental group ($n = 32$) and control group ($n = 133$). Pre- and post-tests were implemented to evaluate the effectiveness of this education program using the self-directed learning scale of nursing undergraduates. Qualitative interview was undertaken within participants from the experimental group to obtain their insights into the influence of this program.
Results: Both quantitative and qualitative analyses showed that the program contributed to nursing students' self-directed learning ability. In the experimental group, the post-test score showed an increase compared with pretest score ($p < 0.05$). The score of experimental group was higher than control group ($p < 0.05$) after 18 months training, while there was no difference between them before this program. Qualitative results from 9 students' experience were formulated as three main thematic categories: influence on awareness, influence on learning activities and influence on learning environment. It can be found in the qualitative analysis that learners benefited from this program.
Conclusion: The education program contributes to the improvement of nursing undergraduates' self-directed learning. Various pedagogic methods could be applied for self-directed learning.

Introduction

Given the development in health care and education, there has been a growing emphasis on lifelong learning. Self-directed learning (SDL) which is applicable for lifelong learning has been advocated as an appropriate pedagogical method in nursing education (Simon and Aschenbrener, 2005; Kocaman et al., 2009). Students' SDL ability can be improved in undergraduate education to prepare them for staying up-to-date with contemporary nursing development (Muir Gray, 2001). The origin of SDL can be traced back to John Dewey who defined education as the agency for the individual's growth and suggested that the educator should be the one who guides, but does not control the process of learning (Dewey, 1918, 1938). Based on this understanding, Knowles(1975) defined SDL as a process in which learners take the initiative, with or without the help of others, in diagnosing their learning needs, formulating objectives, identifying available resources for learning, choosing and implementing appropriate strategies, and evaluating achievement which is widely accepted.

In this study, researchers developed an education program that consists of a series of extra-curricular activities with an overall aim of promoting students' self-directed learning. The efficacy of this education program in improving SDL was evaluated accordingly.

Background

Undergraduate nursing education includes both professional knowledge and learning skills. Professional knowledge prepares them to be qualified health professionals, while learning skills enable them to be prominent learners. SDL is believed to be useful in improving students' confidence and self-management in their lifelong learning (O'Shea, 2003). For nursing students, SDL increases their independent learning competence and enhance their sense of responsibility in study (Slevin and Lavery, 1991). In China, undergraduate nursing students do not perform well in SDL (Zhang and Wang, 2011). So educators place emphasis on the facilitation of SDL in nursing education nowadays.

Educators from worldwide have tried many teaching methods to promote students' self-directed learning in undergraduate education;

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there are some advises from them. Team-based learning is suggested to improve learning behavior of nursing students in SDL by fostering interactions and encouraging class engagement, especially for weaker students (Cheng et al., 2014). Al-Kloub reports that problem-based learning develops undergraduates' independent learning in a clinical pediatric nursing course (Al-Kloub et al., 2014). The innovative teaching strategies which are characterized as interactive, team focused, structured, objective, and experiential are also proved to be beneficial to *self-directed learning* (Liou et al., 2013). Though Internet-based teaching method is quite popular for its flexibility and convenience, it has no direct impact on self-directed learning in a nursing research introduction course (Gagnon et al., 2013). Students enrolled in Internet-based course require for more faculty feedback and interaction (Seckman, 2014). In conclusion, SDL is usually studied in one course, but its influence on extra-curricular nursing education is rarely reported. This study represented an innovative extra-curricular education program which is incorporated with key components of SDL.

Lots of experience can be drawn from previous studies for the facilitation of SDL. According to Mohammad, effects of SDL increase when learners were involved in identifying learning resources (Murad et al., 2010). So Knowles (Knowles, 1975) advised learners to consult with teachers and choose the proper strategy that fits them best when taking SDL. Lucia suggested that teamwork and appropriate strategies can increase an individual's motivation to become self-directed (Cadorin et al., 2013). However, several implications need to be considered in SDL facilitation. SDL method should be applied in certain settings, for example, for advanced learners, for the students with limited teachers and academic resources, or implemented as a supplemental learning method when studying content is large (Murad and Varkey, 2008). As teaching skills would influence the efficiency and effectiveness of SDL (Chen et al., 2012), teachers and learners should possess competencies and skills required to implement SDL (Levett-Jones, 2005).

There is a growing zeitgeist for explaining students' self-directed learning in recent years. A number of theoretical views are used to explain the phenomena of SDL. Zimmerman's SDL model is taken as the framework for this education program. This model is based on the social cognitive view (Zimmerman, 1989). According to Bandura's social cognitive theory, SDL would be influenced by personal, environmental, and behavioral determinants. There is a triadic reciprocity among these three influences, which can be affected by individual's efforts to self-regulate, changes in environmental context, and outcomes of behavioral performance (Bandura, 1977, 1986). Among these three determinants, self-efficacy is considered to be the key influence in the personal dimension; self-observation, self-judgment and self-reaction are proposed to be the major influence in the behavioral dimension; physical context and social experience are depicted as the environment-related influence (Zimmerman, 1989). In this study, the relationship of three determinants was fully considered in the activity design to keep balance of the triadic reciprocity. Students were encourage to follow learning phases when they carry out SDL activities, which includes planning phase, behavior phase, and self-reflection phase. (Zimmerman, 2000; Pang, 2002).

Methods

Study Design

This study was mixed-method designed. Students volunteered to participate in the education program. This program was applied in a series of extra-curricular activities continued for 3 semesters (48 weeks from October, 2012 to April, 2014), which aimed at enhancing the undergraduate nursing students' self-directed learning ability. Learners' SDL ability was assessed two weeks before commencement of the study, and reassessed immediately after the completion of the study; their feelings about the program were also investigated in the end of the study.

Participants

In total, 165 undergraduate nursing students from a medical university in China were recruited. All the participants were full-time students in grade 1, grade 2 and grade 3. The fourth year undergraduate nursing students were excluded, because they are absent from the university-based education for their full-time clinical placement.

Among those participants, 32 nursing students submitted applications for participating in the education program, which was the experimental group. The remaining 133 students were classified as the control group.

Intervention

Experimental Group

Three types of activities were designed by researchers in this education program, which included learning by imitation, learning by communication and learning by exploration. The first two components were parallel for earlier training, and the third one was operated for further development.

Initially, students from the same year level were grouped together and facilitated by a senior academic nursing staff. Each group had 6 to 7 students and there were five groups in total. All of the facilitators had more than 5-year experience in nursing education and clinical practice.

Considering the students' different learning background which is the personal influence in SDL, three learning objectives were integrated into each type of activities for students from different grades. They were "Promote interests of nursing" for grade 1, "Deepen comprehension of nursing" for grade 2 and "Practice in clinical nursing" for grade 3. For grade 1 students, conditioned by their past pedagogical learning experience, the preceptors would take more teacher-centered module to get them to be familiar with nursing occupation and arouse their interests in nursing. For grade 2 students, it was important to help learners acquire more knowledge in depth which is relevant to their professional learning in classroom. For grade 3 students, they were encouraged to apply knowledge in clinical practice. When the students enrolled to the higher grade, preceptors adjusted teaching strategy and learning activities according to the changed objectives. Students from grade 3 took the same objective when they moved to graded 4, and they quitted this program as soon as they finished exploration study on nursing topic.

In the module of imitation, the preceptors invited students to participate in their research programs, which conformed to each objective. For example, one of the research programs for grade 1 was "development of nursing occupation in Shanghai Province", "influence of Chinese traditional culture on postnatal care" for one group of grade 2 and "Psychological nursing for patients with chronic pain" for grade 3. Students took one semester to practice research activities under preceptors' direction. During this period, seminars and workshops were organized alternately per month to help learners get familiar with SDL; some of the themes were "how to manage your time", "methods for information searching" etc. The students got awareness of identifying learning interests and strategies.

In the module of communication, an Academic Salon was held once a month by each group for sharing study feelings and adjusting learning strategies with their preceptors. All the groups gave representation on their own study topics twice a month. Students learned from each other by representing knowledge and exchanging ideas. This component was designed to give learners a wider perspective and strengthen their interpersonal skills by establishing an interactive academic environment.

In the module of exploration, students integrated interests into learning behaviors. Each SDL group was divided into two learning groups. Then, each learning group chose nursing topics that interested them and made a proposal to explore these areas. Preceptors guide learners to choose topics in accordance with their grade-