



การคิดวิจารณ์ญาณและการคิดสร้างสรรค์ของนักศึกษาพยาบาล หลักสูตรพยาบาลศาสตรบัณฑิต: ระดับทักษะของนักศึกษาในแต่ละชั้นปี

Critical Thinking and Creativity of Undergraduate Nursing Students: Descriptive and Disposition in Academic Levels

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บทคัดย่อ

การคิดวิจารณ์ญาณและการคิดสร้างสรรค์เป็นสมรรถนะที่จำเป็นสำหรับพยาบาลในปัจจุบัน แต่ความสำเร็จในการพัฒนาสมรรถนะสองด้านนี้ยังไม่ชัดเจน วิทยาลัยพยาบาลในสังกัดสถาบันพระบรมราชชนกได้พยายามพัฒนาวิธีการเรียนการสอน และหลักสูตรเพื่อส่งเสริมให้นักศึกษามีสมรรถนะด้านการคิดวิจารณ์ญาณและการคิดสร้างสรรค์ในทุกชั้นปี การวิจัยเชิงพรรณานี้มีวัตถุประสงค์เพื่อศึกษาระดับการคิดวิจารณ์ญาณและการคิดสร้างสรรค์ของนักศึกษาพยาบาลในแต่ละชั้นปี โดยใช้การวิจัยแบบตัดขวาง (cross-sectional study) เก็บข้อมูลโดยใช้แบบสอบถามทักษะของทศวรรษที่ 21 ของนักศึกษาพยาบาล เฉพาะในส่วนของการคิดวิจารณ์ญาณและการคิดสร้างสรรค์กลุ่มตัวอย่างคือนักศึกษาพยาบาลวิทยาลัยพยาบาลบรมราชชนนีนชลบุรีชั้นปีที่ 1 ถึง 4 จำนวน 517 คน วิเคราะห์ข้อมูลโดยสถิติเชิงพรรณนา และการหาความสัมพันธ์โดย univariate general linear model analysis ผลการวิจัยพบว่าคะแนนการคิดวิจารณ์ญาณอยู่ในระดับดี และเพิ่มขึ้นตามระดับชั้นปี จากปีที่ 1 ไปชั้นปีที่ 4 ด้านการคิดวิจารณ์ญาณคะแนนอยู่ในระดับปานกลางและค่อนข้างจะคงที่จากปีที่ 1 ไปชั้นปีที่สูงขึ้นโดยมีชั้นปีที่ 4

ที่ระดับคะแนนสูงคือ ชั้นปีอื่นเพียงเล็กน้อย การคิดวิจารณ์ญาณและการคิดสร้างสรรค์ของนักศึกษาพยาบาลมีความสัมพันธ์ทางบวกอย่างมีนัยสำคัญทางสถิติ นักศึกษาชั้นปีที่ 4 มีคะแนนการคิดวิจารณ์ญาณสูงที่สุดกว่าชั้นปีอื่น ๆ จากผลการวิจัยครั้งนี้มีข้อเสนอแนะให้สถาบันการศึกษาพยาบาลพัฒนาทั้งหลักสูตรและกลวิธีในการจัดการเรียนการสอนเพื่อเพิ่มสมรรถนะทั้งสองด้านนี้

Abstract

Critical thinking and creativity are desirable competencies for contemporary nurses but there are growing concerns supporting a disturbing paucity in its achievement. Nursing colleges in Thailand have developed teaching strategies and curricula that nurture critical thinking and creativity dispositions across academic levels. This descriptive study identified critical thinking and creativity dispositions of Thai nursing students according to academic levels. A cross-sectional questionnaire survey was conducted among 517 nursing students



from four academic levels. All students were studying at Boromrajonani College of Nursing Chon Buri, Thailand. Descriptive and univariate general linear model analysis were

applied to analyse the data. The scores on critical thinking disposition gradually increased with academic level, rising from the junior year through to the senior year. Scores on creativity skill were at a moderate level and constant through the four academic years. The fourth grade students had slightly higher scores on creativity when compared to others. A significant relationship between critical thinking and creativity was also found. The scores on critical thinking disposition gradually improved, with a large increase in the senior year. The findings suggest the importance of targeting the development of curriculum and teaching strategies for all grades of nursing students to increase their critical thinking and creativity skills.

Keywords : Critical thinking, creativity, undergraduate nursing students, nursing education.

INTRODUCTION

There is wide and global acknowledgement that critical thinking should be incorporated into education (Tang, 2009). In the context of higher education, critical thinking is highly valued (Tang, 2009). It is considered as a necessary learning outcome for undergraduate students and essential for academic and career success (Ralson & Bay, 2015). By observation, not only critical thinking but also

creativity has been merged into nursing education agenda for more than a decade. Critical thinking and creativity are the foundations of nursing and are important competencies for nursing students (Chan, 2012).

Many scholars have explained the link of critical thinking to a higher level of thinking. This level of thinking describes “how” or “why” rather than attempt to explain “what” (Chan, 2012). Nursing students need to develop and use critical thinking skills in both the classroom and clinical settings (Ku, 2009). In providing high quality nursing care, nurses should have high ability in critical thinking and creativity. Currently, the health needs from patients are complex and create high demands on nurses. Nurses have to have critical thinking and use evidence based practice to meet the needs of patients (Chan, 2013). Thus, teaching critical thinking and creativity are very significant for building capacity for nursing students.

As mentioned above, critical thinking and creativity are very important. However, there is a need to explore critical thinking and creativity among nursing students of Boromrajonani College of Nursing, Chon Buri. Thus, the aim of this study was Such information is very useful for academic committees that develop relevant curricula and teaching strategies that can be used to develop the basic skills of students. This article is part of the study entitled ‘Development of a teaching/learning model to promote 21st century skills of the nursing



students at Boromarajonani College of Nursing Chon Buri'. The presentation and discussion will illustrate critical thinking and creativity skills in detail.

OBJECTIVES

The objectives of this study were to elucidate the level of critical thinking and creativity among nursing students and to determine the relationship between critical thinking and creativity among nursing students

METHOD

This study was a descriptive study. The aims were to identify critical thinking and creativity dispositions of Thai nursing students across academic levels.

A. Participants

This study employed purposive sampling. A total of 517 nursing students from four academic levels studying at Boromarajonani College of Nursing, Chon Buri, Thailand were invited to participate in this study.

B. Instruments

Each respondent was asked to complete a demographic information sheet that included sex, academic level, and grade point average. Critical thinking and creativity were measured by 21st Century Skills Scale which was developed by Turner, Leungwatanamart, Niranrat, Jarnarerux, Wattanakull, and Reunreang (Turner, et al, 2015). Critical thinking scales were composed of 8 items and creativity was composed of 6

items. Content validity of 21st Century Skills Scale was approved by 5 experts and Cronbach's alpha for reliability were determined. Cronbach's alpha for 21st Century Skills Scale was 0.95, critical thinking was 0.94 and creativity was 0.81, respectively (Turner, et al, 2015).

C. Procedure

This study was approved by the Institutional Review Board (IRB) of the Boromarajonani College of Nursing, Chon Buri. Nursing students were invited to participate in this study. They were informed of the overall purpose of the study and the time required for participation before seeking their written consent to participate.

To protect confidentiality and anonymity, participants were not asked to identify themselves by putting their name on the questionnaires. Moreover, participants were informed that findings would be presented as group data with no personal respondent information being reported.

D. Data analysis

All data were entered into an Excel spreadsheet. The data were verified by a second individual to minimize error. The research utilized descriptive statistics to present the demographic information about participants. This included frequency counts, percentages, and means. Tables were provided accordingly. To investigate the relationship between critical skills and creativity among four academic levels, univariate general linear model (GLM) analysis was applied. The assumptions of GLM



including linearity, normality of the residuals and equality of residual variances, were tested and satisfied.

RESULTS

Overall mean scores of critical thinking were at a good level for the second-year through the fourth-year students (Table I). However, for the first-year students the mean scores of critical thinking was at a moderate level. There were eight items on critical thinking scales. Considering each item of critical thinking, it was found that the first-year students showed the highest mean score on the item of “use various and trusted sources of information for problem solving” while the lowest mean score was on “use various processes or techniques including knowledge of nursing and relevant sciences for problem solving”. The levels of mean score of each item for the second-year students were similar to those of the first-year students. The third-year and fourth-year students showed the highest mean scores on the item of “use various and trusted sources of information for problem solving” while the lowest mean scores was on the item of “perform decision making or problem solving based on data analysis and evidence. The overall mean scores on critical thinking increased as academic level advanced from the junior year throughout the senior year (Fig. 1).



TABLE 1 : Mean Scores and Standard Deviation of Critical Thinking among Nursing Students (n=517)

Critical Thinking and Problem Solving	Year 1		Year 2		Year 3		Year 4	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Identify problems based on knowledge and rational with evidence of analysis process	3.56	0.59	3.57	0.64	3.66	0.58	3.99	0.57
Use various and trusted sources of information for problem solving	3.66	0.61	3.89	0.69	3.84	0.59	4.05	0.57
Collect and analyze information for a work plan, problem solving, or decision making	3.65	0.60	3.73	0.64	3.76	0.61	3.99	0.62
Identify a whole interaction including causes and consequences of study matters and overall complex impacts or outcomes	3.43	0.60	3.43	0.68	3.58	0.60	3.84	0.60
Identify and ask significant questions that clarify various points of view and lead to better solutions	3.43	0.63	3.44	0.68	3.58	0.60	3.84	0.64
Perform decision making or problem solving based on data analysis and evidence	3.36	0.60	3.36	0.69	3.54	0.60	3.72	0.67
Use various processes or techniques including knowledge of nursing and relevant sciences for problem solving	3.26	0.60	3.2	0.62	3.61	0.59	3.88	0.61
Make learning conclusion from experience or explain learning outcome of their own or group	3.55	0.61	3.65	0.65	3.68	0.56	3.97	0.59
Overall average	3.48	0.44	3.54	0.49	3.65	0.44	3.91	0.47

Note: 1-1.50 = very low, 1.51 - 2.50 = low, 2.51-3.50 = moderate, 3.51-4.50 = good, 4.51-5.00 = very good

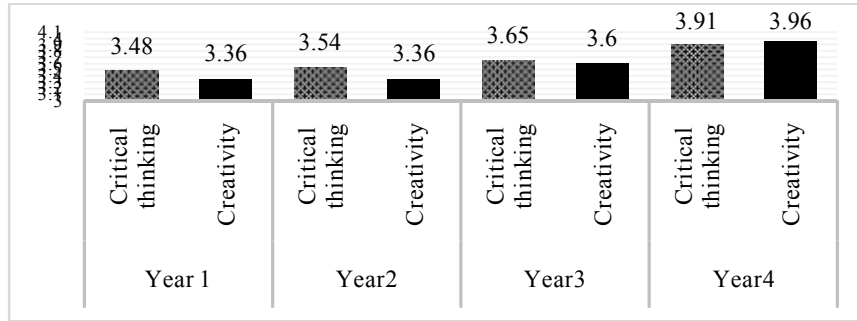


Fig. 1 Mean scores of critical thinking and creativity compared among four academic level

The overall mean scores of creativity skills were at the moderate level for first-year and second-year students, while the overall mean scores of third-year and fourth-year were at the good level (Table II). Considering the mean score of each item, all four academic levels showed the highest mean scores on “demonstrate belief in the success of group work and collaboration” and the lowest mean scores were on “develop inventions, new techniques or new processes for nursing care”. The mean scores on creativity were the same for first-year and second-year and slightly increased in third-year with the highest mean score found in fourth-year (Fig.1).

There was also a statistically significant positive relationship between critical thinking and creativity at $p < .005$. This means that when critical thinking skills increase, creativity skills will increase.

TABLE II MEAN SCORES AND STANDARD DEVIATION OF CREATIVITY AMONG NURSING STUDENTS (N=517)

Creativity and Innovation	Year 1		Year 2		Year 3		Year 4	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Demonstrate new ideas or ideas for better nursing care	3.26	0.65	3.2	0.75	3.48	0.66	3.56	0.62
Develop inventions, new techniques or new processes for nursing care	2.94	0.75	2.92	0.73	3.33	0.70	3.51	0.65
Use new knowledge, research results, and innovations in nursing for classroom learning and clinical practice	3.13	0.67	3.17	0.95	3.45	0.70	3.65	0.57
Be positive and demonstrate readiness in learning for better outcomes in problem solving or dealing with difficulties	3.74	0.72	3.76	0.65	3.85	0.56	3.94	0.63
Be able to modify things for learning and/or nursing development	3.28	0.70	3.21	0.66	3.51	0.61	3.80	0.62
Demonstrate belief in the success of group work and collaboration	3.83	0.73	3.96	0.66	3.90	0.72	4.11	0.64
Overall average	3.36	.49	3.36	.48	3.60	.49	3.76	.45

Note: 1- 1.50= very low, 1.51 - 2.50= low, 2.51-3.50= moderate, 3.51-4.50= good, 4.51-5.00 = very good



Discussions

As shown on Table 1, overall mean scores of critical thinking were at the good level, except for first-year students where the mean score for critical thinking was at the moderate level. Unremarkably, first-year students stated that they would use various and trusted sources of information for problem solving but they use less varied processes or techniques, including knowledge of nursing and relevant sciences, for problem solving. These results were the same for second-year students. These imply that freshman and second-year students can search for the information but they cannot process that information critically. This may be because the processes and techniques needed for problem solving were promoted mostly during the third-year. In particular, third-year nursing students were having hands-on experiences on nursing care by doing practical work in health-care settings such as hospitals. They had to implement nursing processes in providing nursing care. Thus, they had opportunity to practice critical thinking in while performing patient cares. As shown on the mean item scores among third-year and fourth-year students, they can use various and trusted sources of information for problem solving. However, though the juniors and seniors perceived their performances on decision making or problem solving based on data analysis and evidence at the high level, this skill needs to be continually enhanced. Comparing mean scores on critical thinking between different academic levels, the

lowest mean scores were found in first-year and the highest mean scores were found at senior level. These findings were similar to the findings from other studies (Ralson, & Bay, 2015; O'Hare, & Mc Guinness, 2009; Renaud, & Murray, 2008). Researchers from those studies stated that the students in higher academic levels faced more complex situations and thus had to make more decisions than the students in lower levels.

As shown on Table 1, overall mean scores of creativity were at the moderate level for first-year and second-year students; while for third-year and fourth-year students, the overall mean scores were at the good level. There were six items on creativity scale and when each item was describes, the students from all four academic levels perceived their highest skill on the item 'demonstrate belief in the success of group work and collaboration'. However, the development of inventions, new techniques or new processes for nursing care should be taken into consideration. The overall mean scores on creativity were not different between first-year and second-year students, in which a slight increase was observed from first-year to third-year and from second-year to third-year. The greatest difference in overall mean scores on creativity was found between the first- and second-year students (3.36) and the fourth-year students (3.76). This may have resulted from the different teaching strategies and academic activities across different academic levels. Team work and learning how to live together in the



dormitory was a major concern among freshman students. For second-year students, the focus was on learning about the health care system and working with health care in real situations. Year three is marked by the commencement of hands-on experience in health care services by student nurses. The courses designed for year 3 comprised a large proportion of practicum compared with the theoretical component. The curriculum of year four also concentrated on practicum. This could be the reason that helps enhance creativity skill in the juniors and seniors.

A significant moderate positive relationship between critical thinking and creativity was also found. The highest mean scores on critical thinking also had the highest mean scores on creativity. The enhancement of critical thinking and creativity may be the result of in-class and out-of-class activities which included problem-based learning and project based-learning. A systematic review of the literature has shown that the most popular instruction method for the enhancement of higher order thinking in Thailand education includes exercise or activity packages, investigative methods of inquiry, computer aided learning, project approaches and problem based learning (Sukitdeen, & Yoonisil, 2015). Boromarajonani College of Nursing, Chon Buri have employed these instruction methods for the promotion of critical thinking and creativity in nursing students.

Suggestions for Future Research

Future research should determine the effect of various teaching strategies in cultivating critical thinking and creativity among nursing students. Research and development may be needed in order to develop curriculum and teaching strategies. Faculty development focusing on teaching skills for promoting critical thinking and creativity should be initiated.

Conclusion

Findings from this study provide robust evidence that scores on critical thinking increased steadily from first-year students to fourth-year students; however, only first-year students had mean scores at the moderate level. The higher academic levels had increasingly higher mean scores on creativity; however, first-year students and second-year students shown similar mean scores on creativity. The mean scores on critical thinking and creativity among third-year and fourth-year were at the good level. Moreover, the higher mean scores on critical thinking, the higher mean scores on creativity.

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