

# Development of the 5 Minds for 21<sup>st</sup> Century in Nurse Students through Psychological Group Training

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## Abstract

The purposes of this study were to (1) study and develop the measurement of 5 minds for 21<sup>st</sup> century, (2) develop the 5 components of minds, (3) develop the 5 minds development program, (4) compare the scorings from the measurement of 5 minds for 21<sup>st</sup> century before and after participating in intervention, and (5) study the effectiveness of the mind developed program. Participants were 333 nurse students; of those, 32 students were included in the experiment group. Simple random sampling was used to assign students into two groups. Instruments were the 5 minds for 21<sup>st</sup> century scale, and psychological group training the 5 minds for 21<sup>st</sup> century program. Data was analyzed by using Confirmatory Factor Analysis, Wilcoxon Match Pair Signed Ranks Test, and Mann Whitney U Test, respectively. The measurement of 5 minds for 21<sup>st</sup> century included 70 items with the Likert scale ratings, and the Cronbach's Alpha was .935. The confirmatory factor analysis showed statistic significant difference in five components of minds, and these were integrated in to 12 activities of psychological group training-5 minds for 21<sup>st</sup> century program. The researcher found that psychological group training could be used to develop 5 minds because this program showed the effectiveness at an adequate level. Study showed statistically significant differences in the mean scores of minds in the experimental group between before and after participating in the program, except the Respectful mind component.

**Keywords:** 5 minds, psychological group training

## 1. Introduction

In the globalization era, information technology is important and affects human life styles in many parts, such as social, economic, political, cultural, medical, and public health. The advanced technology has many advantages, but it causes imbalance and some difficulties for management. The global changes are also affecting the nursing profession related to nursing development for both the present and the future.

Gardner (2008) recommended that living in the changing era that is affected by science and technology development requires the integration of 5 minds: Disciplined mind, Synthesizing mind, Creating mind, Respectful mind, and Ethical mind. Gardner (2008) believes that the 5 minds have been important for living well in 21<sup>st</sup> century because the five components support people dealing with life events. Nursing is a health profession that needs the 5 minds to support their work when they care for their patients. This concept will support nurses to give comprehensive and holistic caring to the patients. Moreover, nurses can use the 5 minds concept to develop innovation and knowledge for their careers. It is true that Respectful mind makes a good relationship between nurses and a multidisciplinary team, and decreases conflict when they work together. Ethical mind supports nurses to follow the nursing ethic, including caring with equality, sacrifice, and without exposing patients' personal information (Ibrahim, 2003).

Psychological training Program includes the theories and psychological techniques consistent with the Theory of Multiple Intelligences, Social Cognitive Theory, Six Thinking Hats, Client Centered Counseling Theory, Reality Theory, and Tree Moral Theory. The psychological training program includes 12 activities. This program

applies psychological techniques and adjusted suitable situations for nurse students. It is suitable for developing 5 minds in nurse students. Then, the researcher studied the components of 5 minds, developed the mind development program, and implemented this program in nurse students so that they could improve their skills and was ready for the nurse profession for 21<sup>st</sup> century.

This study was research and development, and it consisted of confirmatory factors of 5 minds for 21<sup>st</sup> century in nurse students and developed a psychological training program. The objectives of this study were to (1) study and develop the measurement of 5 minds for 21<sup>st</sup> century, (2) develop the 5 components of minds, (3) develop the 5 minds development program, (4) compare the scorings from the measurement of 5 minds for 21<sup>st</sup> century before and after participating in intervention, and (5) study the effectiveness of the mind developed program. Hypothesis in this study was nurse students who participated in the 5 minds development program reported the total scores and means scores of each component of the 5 minds for 21<sup>st</sup> century after finishing intervention and followed up higher than before participating in the program.

## 2. Method

### 2.1 Identify Subsections

This study was divided into four stages: the researcher developed and tested psychometric measurement in the first stage, reviewed and developed the 5 minds development program for the second stage, implemented this program for the third phase, and evaluated and analyzed the data for the final phase.

The scale that the researcher developed was a Likert scale and included 70 items, and the 5 minds developed program covered 12 activities. The research designed this program for a 2-hour intervention.

Psychological training Program for nurse students-the 5 minds for 21<sup>st</sup> century program-included the theories and psychological techniques: Theory of Multiple Intelligences, Social Cognitive Theory, Six Thinking Hats, Client Centered Counseling Theory, Reality Theory, and Tree Moral Theory.

### 2.2 Participants

The participants were 1,234 nurse students who studied at the year 1-4 in 2013 academic year. They were in a bachelor of nursing science program at five private universities and colleges in north-eastern Thailand.

The research divided this study into two groups. The first group was asked to study components of mind. They were 333 nurse students. The researcher used cluster sampling for this part. For the second stage, the researcher wanted to develop and experiment with the 5 minds development program. The researcher used simple random sampling, and they were 32 nurse students for this phase.

### 2.3 Research Design

Data was analyzed and reported by using Confirmatory Factor Analysis, Wilcoxon Matched Pairs Signed Ranks Test, and Mann-Whitney U Test. The researcher used Confirmatory factor analysis to generate factor loading and test quality of the measurement, and this analysis included 333 nurse students to be the sample. After that, the researcher used 5 minds for psychological training program development. The Wilcoxon matched pairs signed ranks test was used to compare mean scores from the 5 minds scale in different periods: before intervention, after intervention, and follow-up time. Researcher used this statistic technique to compare scores among 16 nurse students in intervention group in three different times: before intervention, after intervention, and follow-up for 4 weeks. Finally, the Mann-Whitney U Test was used to compare mean scores from the 5 minds scales between experimental and control groups in cases of before and after intervention.

## 3. Results

### 3.1 Research Findings

1) Components of minds for nurse students included five components with 12 subcomponents. The goodness of fit ( $\chi^2$ ) of the program was 78.78 with a statistically significant level at 0.00025. The goodness of fit index (GFI) was 0.97, and adjusted goodness of fit index (AGFI) was 0.94. The component factor analysis (CFI) was 0.99. The Creating mind was 1.04, and it was the highest loading factor. Loading factors were 0.95 for Synthesizing mind, 0.82 for Respectful mind, 0.71 for Disciplined mind, and 0.70 for Ethical mind (Table 1).

2) The researcher found that the "total mean score" of the 5 components of mind in the experimental group after participating in intervention was higher than the mean score before participating in intervention ( $p < 0.05$ ). In the same way, the "mean scores of each component" of the 5 minds in the experimental group after participating intervention were higher than the mean scores before participating in intervention ( $p < 0.05$ ) except the component of Respectful mind.

3) The result of Development mind Program confirmed that this psychological training program was very effective and specific with the nurse student group. Data showed that students reported significantly higher mean scores after participating in the program at the level of .05 except the respectful mind. The researcher integrated the program that was appropriate for nurse studying and teaching style, such as diseases' differentiation, nursing diagnosis, using mind maps for disease explanations, nursing situations, and innovations and procedures. Integrating many activities and methods supported nurse students to pay attention to this program and learn it better.

Table 1. Factor loading for the 5minds components

Component	b	SE	t-value	R <sup>2</sup>
Disciplined mind	0.71	0.06	11.27	0.50
Synthesizing mind	0.95	0.07	13.63	0.90
Creating mind	1.04	0.07	15.06	0.08
Respectful mind	0.82	0.24	3.42	0.68
Ethical mind	0.70	0.05	14.83	0.49

4) The Mann-Whitney U Test showed that mean scores of participants before participating in intervention between experimental and control group did not show statistic significant difference. However, the mean scores between the intervention and control groups after the participants finished intervention were significantly different ( $p < .05$ ) (Table 2).

Table 2. Compared difference result mean score between control group and experimental group

Participating	Mean Rank Control gr.	Mean Rank Experimental gr.	$\bar{x}$	Z	U	p
Before	3.00	3.00	3.69	-.52	9.00	0.61
After	4.00	1.50	3.79	-1.99	0.00	0.04

#### 4. Discussion

The researcher developed scale of 5 minds for 21<sup>st</sup> century which is very important for surviving in 21<sup>st</sup> century. The development processes were studied and confirmed by experts. The first is the scale development. The researcher comprehensively interviewed five experts, and analyzed and developed the scale based on the findings. Finally, researcher created the questionnaire (70 items), and it was proved and confirmed by five other experts.

The results of the study could confirm that the mind of nurse students included five components: Disciplined mind, Synthesizing mind, Creating mind, Respectful mind, and Ethical mind. The results of this study were consistent with Gardner's 5 minds for the 21<sup>st</sup> century (2008). Gardner claimed that the essential component of mind for the 21<sup>st</sup> century had to include five components. The most essential component was creating mind. This result was consistent with the nurse profession role that nurses have to deal with many situations in their work places by integrating knowledge and experience during critical situations. The results of the study are consistent with Derbono (1972). He explained that dealing with the problem, especially in emergency situations, needed the varieties of thinking and many strategies to deal with it. Moreover, a person had to think a little bit differently from the routine to deal with some problems or need to think out of the box sometimes. This might make a new concept, and it was very important for surviving in the 21<sup>st</sup> century.

The development of 5 minds for a 21<sup>st</sup> century program included three stages: the initial stage, the working stage, and the ending stage. Psychological theories and techniques were applied to this program. This program supported the participants to learn by themselves and learn with each other. Moreover, this program promoted relationship development, appropriate listening skills, and effective communication (Karnjana Chaipan, 1996). Based on the integrating theory and the strategies that the researcher included in this program, it could support mind development.

The research findings showed that the 5 minds development for the 21<sup>st</sup> century program could promote the mind development after nurse students participated in the program, because the "mean score of the total component" after students participated in the program was higher than before they participated in the program. Moreover, the "mean scores of mind in each component" after participating in the program were higher than before participating in the program except the Respectful mind component. The different results were due to contrast concepts between western and eastern culture. In Thailand, Thai are taught to give respect to seniors. Although

nurse students did not participate in the program, they still reported the same score for Respectful mind. The results of this study were consistent with Sumitra Swangtook (2001). She studied the thinking potential development in nurse students by using the model of a thinking potential development base on Gardner's five minds. She concluded that nurse students showed a high score of respectful mind because they were taught to give respect to senior nurses and health care providers.

This research showed that nurse students had many chances to learn how to improve their mind, and could improve the five components of mind. The nurse students paid attention to the program, and had a good relationship with other students and the program developer. Students participated in discussions, questions, answers, and sharing their ideas and experiences every time they participated in this program. The effective program of development of 5 minds for the 21<sup>st</sup> century program depended on a program developer (group leader), members, a relationship between leader and members, and other factors. The group leader had to have knowledge, good personality, credibility, and understanding of the stage development. Chartsupakul (1992) pointed out that the leader of program training took the most significant role to meet the program goal. The group leader had to have not only good communication and effectiveness, but also he had to have a good personality and credibility.

Correspondingly, members in the group training had to have homogeneity in cases of age, education level, and background. Moreover, they should know each other before participating in the group training. These factors could increase the program effectiveness and meet the program's goal. Chartsupakul (1992) explained that to flow and create effective group processes, members of group training have to have both heterogeneity and homogeneity. The homogeneity of nurse students supported a good process of group training because they got along very well, which decreased conflict within the group.

Relationship between group leader and members was also important. For this program, the group leader was concerned about the relationship between leader and members, so the leader got to know nurse students before starting this intervention. Moreover, the leader provided activities to promote the relationship between leader and member, and participants every time before starting the program. Finally, the leader was concerned about exposing personal information, so the leader and members set a commitment together to keep personal information for all nurse students.

Other factors, such as the fact that the program was woven with nursing courses, and that learning was based on real experience, supported this program to meet program goals. Moreover, all of nurse students were preparing themselves for the nursing practicum, and this program included mind skills to support their practice, so they paid more attention to the program.

## 5. Implications

The scale of 5 minds for 21<sup>st</sup> century could measure whether the nurse students were ready to be a registered nurse for the 21<sup>st</sup> century. Moreover, this scale could be used to screen nurse students before practicing in the hospital for the nursing practicum course.

The development of 5 minds for the 21<sup>st</sup> century program could be used for every level of nurse students because this program included several activities and these were suitable for nurse students.

Boards and directors could promote the 5 minds development for nurse students by integrating it into some nursing courses. Moreover, faculty members and students should attend the program every year. This activity could create 5 minds awareness for nurse students and faculty.

The component of Respectful mind should be adapted by adding some activities that are different from Thai culture. The program developer should add the activities that reflect other cultures such as western culture to open the different views about respect for nurse students.

Future study is needed to compare mean scores of 5 minds between nurse students and Registered nurses. Moreover, the long term effect of this intervention will be observed such as follow up the participants every 3 and 6 months.

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