



The Effect of the Application of Interprofessional Education (IPE) Simulation Using Role Model Method Towards the Knowledge and Attitude of Nursing Undergraduate Students in Universitas Islam Sultan Agung

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Abstract

The lack of knowledge and attitude of the students toward interprofessional education make the students have a hard time to communicate effectively because they come from different health program, need an approach and knowing the habit of the other students that they will communicate to and work with in increasing the health service. The aims of this study are (1) analyzing the effect of the application of interprofessional education simulation using role play towards the knowledge improvement about the interprofessional education for the nursing undergraduate students in Unissula, (2) analyzing the effect of the application of interprofessional education simulation using role play towards the attitude about interprofessional education for the nursing undergraduate students in Unissula. Quasi-experimental methods was used in this study. This quasi-experimental research design is pre-test and post-test without control group. The instruments used in this research were questionnaire. The type of the questionnaire was the closed questionnaire which was a questionnaire with provided answer. The data analysis used in this research was paired sample t-test analysis by doing analysis towards the pre-test and post-test. The result of validity test by using product moment correlation in the application of interprofessional education using role model method towards the knowledge about interprofessional education for nursing undergraduate students in Unissula was that from 28 items of question in the instrument, there were 3 invalid questions which were the question number 12, 14, and 21. The reliability result by using Alpha Cronbach in the application of interprofessional education using role model method towards the knowledge about interprofessional education for nursing undergraduate students in Unissula was 0.877 from 25 items of question. The validity test result by using product moment correlation in the application of interprofessional education using role model method towards the attitude about interprofessional education for nursing undergraduate students in Unissula was that from 12 items of question, all questions were valid with reliability point of 0.960. The research result show that the usage of interprofessional education using role play method towards the nursing students may improve the student's knowledge in the effort of increasing the health service that centered on the patient because there are (1) an improvement in the pre-test and post-test result as many as 16.55 for pre-test and 25.82 for post-test; (2) data distribution (standard deviation) in pre-test is 5.370 with the error standard of 0.767; and (3) data distribution in the post-test is 0.486 with error standard of 0.069. Besides, the application of interprofessional education using role play method may affect towards attitude because the average student's attitude shows the result of satisfying attitude category with 33 students (67.3%) and quite satisfying category with 16 students (32.7%).

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INTRODUCTION

According to WHO (2010), interprofessional education is a process performed by involving a group of students or health professions that have different profession background and learning together in specific period. The existence of interaction as the main goal in interprofessional education is to collaborate with the type of services including promotive, preventive, curative, and rehabilitative. Health systems around the world are very fragmented, so they cannot solve the health problems in their own country. It based on the health problems that actually involved many aspects in life and to solve those problems or to improve the health quality itself, the use of professional union system alone is not enough. Contribution from many disciplines proved to give a positive effect in solving health problems. The lack of communication between health workers in their teamwork along the process of giving health service became one of the factors that caused the health service to be less optimal (Sedyowinarso *et al*, 2011).

Health workers demanded to give a high quality health service in this global era. The quality service can be obtained through collaboration practice between the health workers. Health workers here are nurse, doctors, dentists, midwives, pharmacists, nutritionists, and public health (Sedyowinarso *et al*, 2011). Nurses that are the spearhead of every health service are also a part of the collaborative health workers. Nurses will communicate and working with other medic teams in order to cure the patient efficiently and effectively. Nurses come face-to-face and dealing with the patients the longest, so nurses' professionalism is highly needed. Nurses' professionalism can be made by learning interprofessional education collaboration technique since their educational period (Nursalam, 2014).

Simulation is a decision-taking model by imitating or using a real picture of a real life system without having to experience the real situation. Imitating or duplicating the real condition made the decision-making to do an experiment towards a system and behavior prediction possible and the result is based on the input of many parameters and rules (Hasan, 2002). Simulation in nursing that consisted of the nurses themselves and nurses that act as the doctors by using role play method may improve the students' knowledge and attitude towards interprofessional education and simulation may also increase the need for medic professions to manage patients' problems efficiently and thoroughly. Role play is a ways of mastering imagination development materials and appreciation of the students. Role play strategy also organized according to heterogeneous students' groups. Each of them demonstrated a scenario provided by the lecturer. The students are given the freedom to improvise, but still in the boundaries of the scenario (Dirjen Dikti, 2014)

The learning method in interprofessional education is a role play/simulation to get a learning evaluation of interprofessional education which is competence achievement, communication/individual ability, team work ability (Saldi Yusuf, 2016). A research conducted by Simamora (2002) stated that competence is a personal quality or the ability to do the needed tasks. Interprofessional Education in higher education curriculum plays an important role in developing professional collaboration health services, interprofessional Education technology and profession guidance, because health education, especially nursing, as a way to achieve health service professionalism, thus the development of health service, especially in nursing, in the interprofessional education program is a starting point in the making of health or nursing education in Indonesia. A research conducted by Vrontos *et al* (2011) stated that providing interprofessional education to the health students will improve their knowledge and attitude, including their knowledge and attitude towards the role of the other professions. The result of the interview towards the students, lecturers or instructor teams of interprofessional education in Unissula shows that interprofessional education is very useful in improving the nursing undergraduate students' competence, so they can work together better and become communicative with the other health workers when they jump to the field later on. Some of the difficulties reported by the students are they have some difficulties in communicating effectively because they came from different programs

that they need an approach and understanding the habit of the other students that they will communicate to.

The aims of this research are (1) analyzing the effect of the application of interprofessional education using role play method simulation towards the knowledge improvement about interprofessional education for the nursing undergraduate students in Unissula (2) analyzing the effect of the application of interprofessional education using role play method simulation towards the attitude about interprofessional education of the nursing undergraduate students in Unissula.

METHOD

This research was a quasi-experiment with pre-test and post-test without control group design method. The treatment in this research were applying interprofessional education using role play method. Instrument used in this research is questionnaire. The used questionnaire was closed questionnaire which answers were provided. This research tested the effect of the application of interprofessional education using role play method treatment towards the improvement of knowledge competence and attitude about interprofessional education for the nursing undergraduate students of Unissula. So the appropriate data analysis was paired sample t-test by doing analysis towards the pre-test and the post-test.

The respondents were given a treatment about interprofessional education for 2 hours in 4 days. The material that was taught is interprofessional education in general including its definition, goals, competence, and collaboration. The simulation in nursing was the nurses themselves and the nurse that acted as the doctor by using role play method as a way of mastering the materials, imagination improvement and student's appreciation. Each displayed the scenarios prepared by the lecturer. The students were given the freedom to improvise, but still in the boundaries of the scenarios from the lecturer (Dirjen Dikti, 2014).

Each group consisted of 9 or 10 people that had been divided into 5 groups. In a group, 3 people are acted as the doctors, 3 people acted as the nurses and 3 or 4 people acted as the patients. Discussion was done between the doctors, nurses and patients then the nurses and doctors worked together to solve the patients' problems. The doctors-nurses interaction determined the collaboration practice quality by respecting and understanding each other, accepting their working environment and their shared or personal responsibilities, protecting each other's interests and the existence of shared goals that has been understood by both parties.

The knowledge instrument about interprofessional education that involved ethic and value, role and responsibilities, interprofessional communication and team work are the pre-test and post-test questionnaire. The attitude instrument about interprofessional education that involved the collaboration ability with the profession team, understanding their role and solving conflicts related to the patient's problem was the post-test questionnaire. The validity used product moment correlation in the application of interprofessional education using role play method towards the knowledge about interprofessional education for the nursing undergraduate students in Unissula which is from 28 items of question in the instrument there were 3 invalid questions, which are question number 12, 14, and 21. The reliability result by using Alpha Cronbach in the application of interprofessional education using role play method towards the knowledge about interprofessional education for the nursing undergraduate students in Unissula is 0,877 from 25 items of question. The validity test result by using product moment correlation in the application of interprofessional education using role play method about the attitude about interprofessional education for the nursing undergraduate students in Unissula was from 12 items of question there were no invalid question with the Alpha Cronbach reliability coefficient value of 0,960. The analysis which use to test the research hypothesis was dependent paired sample t test (Sugiyono, 2012) with the formula of:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

Where:

\bar{x}_1 = The average of sample 1

\bar{x}_2 = The average of sample 2

s_1 = Standard deviation of sample 1

s_2 = Standard deviation of sample 2

s_1^2 = Variance of sample 1

s_2^2 = Variance of sample 2

r = Correlation between both samples

RESEARCH RESULT

The description of student's knowledge towards interprofessional education

Notoatmodjo (2010) stated that knowledge has six levels, which are: (1) knowing is an ability to remember a subject that has been learned before. Included in this level of knowledge is recalling a specific learned thing or accepted stimulation. The verb used to measure if someone understand what they are learning like stating, identifying, etc. (2) understanding is an ability to explain about known objects correctly and the ability to interpret the material correctly. Someone who already understands about an object or material must be able to explain, state, conclude, predicted the said object. (3) Application is an ability to use the learned material in the real situation or condition. Application here can be translated as the use of laws, formulas, method, principles, and so on in different context or situation. (4) Analysis is an ability to explain the material or an object into components, but still in an organization structure, and the relations between each other are still existed. (5) Synthesis, point at an ability to put or connect parts in a whole new shape. In other words, synthesis is an ability to create, plan, summarize, and serve the formula. (6) Evaluation is an ability to do justification or scoring towards a material or object. These scorings are based on criteria that has been determined or the already existed criteria. According to Abdullah (2008) in Sholikhati *et al* (2012), the types of knowledge are divided into some types, which are: (1) direct knowledge, (2) indirect knowledge, (3) sensory knowledge, (4) conceptual knowledge, (5) particular knowledge, (6) universal knowledge. The factors that affect the knowledge according to Sholikhati *et al* (2012) are: (1) education, (2) information/mass media, (3) social culture and economy, (4) environment, (5) experience, (6) age. Knowledge is a very important domain in order to form an attitude and behavior, so knowledge about nursing care for a nurse is very important in doing the nursing activity correctly (Agung, 2009).

After the application of interprofessional education, the collaboration function and health service quality are easier to be understood by the students. The students also feel the benefit of task distribution between each health professions in giving information according to the area of expertise. After going through those stages systematically, the students are given a post-test at the end of the learning to measure the students' knowledge after getting the treatment and to understand the effectiveness of the application of interprofessional education towards the knowledge of the students. The type of the instrument that was used is in the form of questionnaire. The type of the questionnaire used is close questionnaire which is a questionnaire with the answers provided already.

Pre-test was done to 49 nursing students of Unissula, pre-test to nursing students of Unissula is a test before the application of using role play method simulation with 3 used category, which are good, sufficient, and insufficient. The result is as follows:

Table 1. the result of knowledge pre-test

Knowledge category	Absolute frequency	Relative frequency (%)	Cumulative frequency (%)
Good	13	26.5	26.5
Sufficient	26	53.1	53.1
Insufficient	10	20.4	20.4
Total	49	100.0	100.0

The pre-test result on Table 3 shows that there are 13 students with good knowledge with the percentage of 26.5%, then there are 26 students with sufficient knowledge (53.1%) and there are 10 students (20.4%) with insufficient knowledge, so the total cumulative percent is 100%. For the total number of the students that followed the pre-test are 49 nursing students of Unissula.

Based on the early analysis result, there are some students that still in the insufficient category, so a certain method or treatment is needed in order to improve their knowledge. The comparison of the students with good, sufficient and insufficient knowledge category is 1 : 2 : 1.

The result of post-test analysis on the nursing students of Unissula is the test result after the application of interprofessional education using role play method simulation has been done to 49 nursing students, the test result shows the students' knowledge score as follows:

Table 2. the result of knowledge post-test

Knowledge category	Absolute frequency	Relative frequency (%)	Cumulative frequency (%)
Good	32	65.3	65.3
Sufficient	17	34.7	34.7
Insufficient	0	0	0
Total	49	100.0	100.0

Source: analysis of research data

The post-test result on Table 4 shows that there are 32 students (65.3 %) with good knowledge and 17 students (34.7%) with sufficient knowledge. There is no student in the insufficient knowledge category in this post-test, so the total number of the students that followed the post-test is 49 students.

The early analysis result from the students' post-test score shows no students in insufficient knowledge category after the application of interprofessional education. All students have a good and sufficient knowledge category with the comparison of 2 : 1, it shows that students' knowledge has been improved if seen from the pre-test and post-test score that experience an improvement. That fact supports the application of interprofessional education to the nursing students may improve their knowledge towards the other professions' role.

The description of student's attitude towards interprofessional education

Attitude is said as an evaluative response. A response may occur only if the individual is face with a stimulus that demanded an individual reaction. Evaluative response means that a form of reaction that stated as an attitude appears based on the evaluation process inside the said individual that give a conclusion towards the stimulus in the form of good-bad, positive-negative, happy or sad that crystalized as a reaction potential towards the attitude object. An attitude that obtained from experiences will create a direct effect to the next behavior (Pongki, 2016). According to Notoatmodjo (2012), attitude is a reaction or response of someone who is still closed towards a stimulus or object. Attitude that lies in the individual will give a color or behavior pattern or the act of the said individual (Raharjo, 2014). Attitude is a factor that existed inside someone to behave. Attitude is connected with individual or group motivation in doing something. So, the better the attitude or the view of someone towards something, then the behavior will also be better (Istiqomah, 2017). According to Aritonang (2015), the creation and the change of an attitude is determined by two factors, which are: 1) internal factor (the individual itself) is the way of an individual to react the world outside selectively so not

everything that come to them will be accepted or rejected and 2) external factor is conditions outside the individual that are stimulus to create and change the attitude.

According to Sugiyono (2014), likert scale is used to measure the attitude, opinion and perception of an individual or a group of people about a social phenomenon. The answer for each instrument that used likert scale has a positive gradation. In this research, the attitude research observation was done only once. Analysis of the attitude of nursing undergraduate students towards the application of interprofessional education using role play method simulation by using 3 categories which are satisfying, quite satisfying and not satisfying. The result is shown on Table 5 below:

Table 3. Attitude analysis towards interprofessional education

Knowledge category	Absolut frequency	Relative frequency (%)	Cumulative frequency (%)
Satisfying	33	67.3	67.3
Quite satisfying	16	32.7	32.7
Total	49	100.0	100.0

Source: analysis of research data

The result of the analysis output on table 5 shows a satisfying attitude with 33 students (67.3%) and quite satisfying with 16 students (32.7%), so the total is 49 students. There is no “not satisfying” category because the result of the analysis only shows satisfying and quite satisfying.

The attitude result shows that by providing interprofessional education to the nursing students, it may improve the students’ positive attitude towards the role of other health professions. The students have more confidence in communicating and speaking their opinion and there is a good and effective collaboration between health professions in taking decision towards the service to the patient.

The effect of the application of interprofessional education simulation using role play towards the knowledge of nursing undergraduate students of Unissula

The analysis result of the effect of the application of interprofessional education using role play method simulation towards the knowledge improvement of nursing undergraduate students in Unissula is as follow:

Table 4. the effect of the application of interprofessional education simulation using role play towards the knowledge of nursing undergraduate students of Unissula

Test	Average	n	Standard Deviation	t point	p	Explanation
Pre-test	16.55	49	5.370	7.716	0.000	Significant
Post-test	25.82	49	0.486			
Total		49				

Source: analysis of research data

It can be seen from the output result of the pre-test and post-test analysis that generally, the average answer before and after the interprofessional education simulation was done is 16.55 for pre-test and 25.82 for post-test, then the data distribution (standard deviation) on the pre-test is 5.370 with error standard of 0.767, while the data distribution on the post-test is 0.486 with error standard of 0.069. this shows that the post-test score is higher than the pre-test and the data distribution range is also tightened with smaller error standard.

Table 5. The effect of the application of interprofessional education simulation using role play towards the attitude of nursing undergraduate students of Unissula

Test	Average	n	Standard Deviation	t point	p	Explanation
Test	34.2	49	3.247	12.205	0.00	Significant
Total		49				

Source: The result of data analysis

The output result of the post-test analysis is that independent variable (post-test result) affect 64.9% of the dependent variable (students' attitude), while 35.1% ($100\% - 64.9\% = 35.1\%$) affected by other factors that are not discussed in this research. The t value is 12.205 with the significant value of $0.000 < 0.005$ which means there is a difference between the knowledge and attitude.

DISCUSSION

A research conducted by Eriyono et al (2017) entitled "Pengembangan Pasien Virtual untuk Peningkatan Pendekatan Interprofessional education dalam Dunia Pendidikan Keperawatan di Indonesia" stated that nursing collaboration process through skill simulation can be achieved by involving technologies like virtual patient to improve the communication between nursing professions.

On the attitude of the students towards interprofessional education, there are 33 students (67.3%) that fall into satisfying category and 16 students (32.7%) that fall in quite satisfying category. This fact shows that the application of interprofessional education to the nursing students may improve the students' attitude towards the role of other health professions. This research is in accordance to the research result conducted by A'la (2012) that generally, the students' perception and the readiness of the academic stage students in Medical Faculty of UGM towards interprofessional education is mostly in good category. This is because most respondents assumed that the application of interprofessional education may improve the knowledge, attitude and basic skills of medical worker like doctors, nurses and midwives. It may also improve the teamwork in doing maximum health services.

This research involved nursing students and some other students like medical students so they can collaborate in taking care of the patient. The accuracy and speed of giving health service are needed in the field practice. The health services will not be maximum if every role works alone individually and a good collaboration between each role must be honed and learned. This is in accordance to the research result that was done by Miller *et al* (2013) that states interprofessional education become a collaborative learning that focused on teamwork that involved clinic, service, and practical integration system and relationship development between each role but the achievement of the goals is still depended on the individual commitment and the support of related institution. The planning stage of interprofessional education program before the learning activity becomes an important part in synchronizing the relation between interprofessional teamwork concept and collaboration (Rosenfeld *et al*, 2011).

The data result analysis of this research investigate the effect of the application of interprofessional education towards the knowledge and also investigate the relation between knowledge and communication skill level and also the respondents' collaboration through the application of IPE so the effectiveness of using the treatment can be seen. The data analysis result shows that there is a positive effect between the application of interprofessional education with the students' knowledge and it affect their communication and collaboration between each role skill. The research conducted by Hollweg *et al* (2015) explained the ability survey result of the students of Alice Salomon University in Berlin related to the ability to apply interprofessional team work on university students are much better than the service in health clinic, thus a learning innovation and team work between workers are needed so working and learning as a self-competence development means can be balanced. Another research by Chan *et al* (2017) that did a learning experiment shows that team based learning (TBL) is a pedagogy skill that must be used in the application of interprofessional education to achieve the goal of the learning.

The importance of the application of interprofessional education for health education to prepare the health workers with the knowledge, practice, communication, and collaboration in giving health services for the patients. The self-developing activity for each individual must be developed constantly so their knowledge may improve and balanced with professional attitude. The students need to

understand the importance of the application of interprofessional education deeper so they may have a high motivation to develop their self-competence and collaboration between professions.

CONCLUSION

The effect of the application of interprofessional education simulation using role play method towards the knowledge improvement can be seen from the average score of the pre-test and post-test; which experiencing an improvement in health service that centered on the patient that include the ethic and value, role and responsibility, interprofessional communication and team work. This shows that there is a huge effect when using the application of interprofessional education simulation using role play method towards the improvement of student's knowledge towards interprofessional education.

Student's attitude towards the process of the application of interprofessional education using role play method is tend to be satisfied with the simulation process. The satisfaction can be seen by the student's attitude that can collaborate with the profession team (nurses and doctors) where the profession team understand their own role; besides, the students are able to solve their problems by collaborating and understanding each other between each professions (nurses and doctors).

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