Theory of Learning, Methods Development, and Practice of Basic Concept Dental Care Associated with Students' Academic Achievement

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Abstract

This study aims to develop methods and teaching materials on learning theories and practices of the Basic Concepts of Dental and Oral Care Services. The influence of learning interventions using textbooks and practical guidebooks impacts the achievement of theoretical value and the value of students' practice in the clinic of Dental Nursing Department on Lebak Bulus III road number 1, South of Jakarta. This research design is quasi-experimental with a pre-test research design - post-test control group design. The sample in the research design consisted of two groups: the experimental group and the control group of 76 people. A pre-test is done to determine the initial state of the control and experiment group. The treatment effect was analyzed by statistical test, and if there was a significant difference between the experimental group and control, then the treatment group gave a significant influence. The result of the t-test is obtained p-value = 0,000 whose value is smaller than the error level α = 0.05 or with 95% significance then P <α, indicating a significant difference between the ability before compared after it. The basic concept and practice dental care guide has a very influential appeal that proves able to increase/motivate college students to recognize the concept, to sharpen the various domains that must be achieved to reach the target of competency, competency care process, and competency for the quality of service to the patient.

Keywords: *Development of Teaching Methods, Teaching Materials Basic Concept Dental Care, Achievement College Students.*

A. INTRODUCTION

The Health Polytechnic Educational Institution aims to produce skilled health experts and is responsive to various health problems facing the community, including dental health issues (Deb et al., 2019). Ministry of Health Polytechnic Jakarta I following the Decree of the Minister of Health and Social Welfare Number:1192/MENKES/PER/X/2004 on date 9 October 2004 on Education Provider License Diploma Nursing Health Dentistry. Clinical learning is the main factor supporting the process in Dental Education to produce the quality of competent graduates. The teaching-learning clinic of Dental Nursing aims to create a competent Dental Madya Dental Expert that can manage dental and oral care services. The basic skills and skills provided in the education are focused on limited promotive, preventive and curative efforts (Ministry of Health, 2004).

The matter practice learning Subject of the Basic Concept of Dental Nursing done by the simulation to achieve a level of competence shows how (Dent and

Harden, 2009) students can perform or demonstrate a skill in a controlled situation. Learning is the interaction between learners with educators and learning resources in a learning environment on National Education System. Learning is at the core of the educational process, and educators play a key role (Ghavifekr & Rosdy, 2015). In the clinical learning process, students are expected to develop professional responsibility, critical thinking, creativity, interpersonal relationships, understanding of the profession, and applying theory into clinical practice (MOH, 2009).

Education Diploma of Nursing Dental MoH generates candidates Expert Associate Nursing Dental implement a competency-based curriculum that is contained in the Standards of Competence Dental Nurses which includes qualification capabilities include attitudes, knowledge and skills that should be possessed by the Graduate Education Dental Nurses (MoH, 2010). The learning method used is certainly adapted to the subject matter (41 methods). The various types of methods above, in the process of learning the theory of the constitutional court the basic concept of appropriate care of dental care is using the Problem Based Introduction (PBI) method that is problem-based learning and materials that should be applied in the form of clinical practice activities should also be managed properly to be effective and efficient, among others, by using a guide book clinical practice so that students can be directed and skilled in the learning process (Kollars & Rosen, 2016).

Problem-based learning was pioned in the health sciences at McMaster University in Canada, inaugurated in 1968. (Neufeld and Barrows, 1974), because students cannot apply a large number of basic scientific knowledge to clinical situations. Shortly after that, three other medical schools - the University of Limburg in Maastricht (The Netherlands), the University of Newcastle (Australia), and the University of New Mexico (USA) took McMaster a problem-based learning model. (Adopted by other medical school programs (Barrows, 1996) and has also been adapted for undergraduate instruction (Boud and Feletti, 1997; Duch et al., 2001; Amador et al., 2006).

Relevant research was conducted by Jerome I. Rotgans et al., Professor of the US National Institutes of Health National Library of Medicine, with the title effect of worksheet scaffolds on student learning in problem-based learning. The research to know the influence of worksheets as a scaffolding tool on learners' achievement in a problem-based environment (Haruehansawasin & Kiattikomol, 2018).

Research conducted by Teguh Budi Santoso, a graduate student of Lampung State University, entitled Development of Student Worksheet Composition, Function and Inverse Class XI IPS at State Senior High School 15 Bandar Lampung. The results obtained by LKS product are effectively used in learning mathematics of SMA XI class, this is indicated by the average of learning achievement as measured by formative test on learning using LKS product of better development result compared with learning which does not use LKS product of development result (UZ, Haryono & Wardani, 2019).

This study aims to develop methods and teaching materials on the process of learning theories and practices of the Constitutional Court the Basic Concepts of Dental and Oral Care Services affect student achievement.

B. METHOD

This research is a quasi-experimental research with a pretest-posttest control group design. The sample in the research design consisted of two groups: the experimental group and the control group. A pre-test is done to determine the initial state of the Control and Experiment group. The treatment effect was analyzed by statistical test, and if there was a significant difference between the experimental group and control, then the treatment group had a significant effect. The population in this research is all students of Diploma III Department of Dentistry of Health Polytechnic Ministry of Health Jakarta I. The sample of research students of the first and second semester in 2016/2017, with inclusion criteria: Students who will or have followed the practice mattern of Basic Concept of Dental Nursing with exclusion criteria: undergo academic leave, resign, or be inactive during the study.

The instrument used in this study is a questionnaire. The data collected are primary for the independent variable and dependent variable. Data collection was collected through primary and secondary data, literature studies, focus group discussions during the drafting of developed instructional material of Basic Concept of Dental Nursing practice manual, filling out the Subject of Basic Concept of Dental Nursing theory and practice test form. Data analysis was done gradually is univariate analysis bivariate analysis with t-test.

C. RESULT AND DISCUSSION

1. Univariate Analysis

Below are the results of univariate analysis testing on various research variables. The test results are given in the tabular form, explained below. The following are the results from table 1.

Table I The Average Distribution of Test Scores of Subject of Basic Concept of Dental Nursing Theories of Students at First And Second Measurements

The average distribution of test scores Subject of Basic Concept of Dental Nursing student theory on First and second measurements	Mean	N	SD	SE
The value of the theory test	72.95	38	9.752	1.562
Measurement II	85.05	38	4.768	0.763

Table I shows descriptive statistics of the mean and standard deviation of theoretical test values on first and second measurements. The average first measurement value was 72.95, with a standard deviation of 9.752. The second measurement's average value was 85.05, with a standard deviation of 4.768.

Table II Average Distribution Practice Test value Mattern Subject of Basic Concept of Dental Nursing Practice According to the First and Second Measurements

Variable	Mean	SD	SE	*pValue*	N
Value of practice test Measurement I/ before	-49.710	21.549	3.870	.000	**31**
Measurement II / after	86.65	4.160	0.747		

Table II Average and standard deviation of pre-intervention assessment (pre-test) between the first and second measurements. The mean on the first measurement *(pre-*test) was 49.7 with a standard deviation of 21.5, while in the second measurement *(post-test),* the average test score of the practice test after the intervention was 87 with a standard deviation of 4.16.

A paired *T-test* was reported in the table that the mean value of the difference between first and second measurements was 0.369 with a standard deviation of 0.824. This difference was tested by paired *T-tests* resulting in p.values which can be seen in the "*Sig (2 tailed*)" column. The table obtained a *p-value = 0*.000; thus, it concluded a significant difference in the practice test between the first and second measurements.

A paired T-test was reported in the table that the mean difference between first and second measurements is 0.369 with a standard deviation of 0.824. This difference is tested by paired T-tests resulting in p values seen in the "*Sig (2 tailed)"* column. The table obtained a p-value = 0.000, thus concluding a significant difference in the practice test between the first and second measurements.

Table III The Average Distributiontest Score's Student Subject of Basic Concept of Dental Nursing Practice According To The First And Second Measurements

Variable	Mean	SD	SE	pValue	N
Value before and after treatment Measurement I/ before	76.58	8.611	1.397	0.000	**38**
Measurement II / after	84.37	3.737	0.606		

Table III shows the mean and standard deviation of assessment before the intervention (*pre-test)* between the first and second measurements. The mean on the first measurement *(pre-test*) was 76.58, with a standard deviation of 8.6. In the second measurement, the practice test (*post-test)* obtained the average assessment after the intervention was 84.37 with a deviation standard of 3.737.

2. Bivariate Analysis

Below are the results of bivariate analysis testing on various research variables. The test results are given in the tabular form, explained below. The following are the results from table IV.

Table 1 The Average Distribution Test Score's Student Practice of Basic Concept of Dental Nursing Practice According to the First And Second Measurements

Variable	Mean	SD	SE	p*Value*	N
Theory test value Measurements I Measurements II	-7,789	9,442	1,532	**0, 000**	**37**

The paired T-test was reported in table 6, showing the mean difference between the first measurements and the second is 0.77 with a standard deviation of 0.94. This difference was tested by paired *T-test.* Produces values that can be seen in the column "Sig (2- tailed)." In the table above, the value p =0.000 can be concluded that there is a significant difference in the practice test value between the first and second measurements.

The results showed that student achievement matter on Subject of Basic Concept of Dental Nursing on first-semester priority to intervention with after being treated learning method, given textbook, then get the result of the student group theory test scores the average value of obtaining numbers 85.5 (B).

In the second semester, the students can complete the implementation phase of dental patients at the clinic, and then the Lecturers previously held a *pre-test* first intended to obtain student's data ability to absorb the essence of the material process of care services dental health. Recognize each activity of the service effort correlates it into the stages of the work procedure, including practicing the skills of the entanglement care services process from assessment until implementation.

The pre-test results obtained data that the average value of students before the intervention (pre-test/first measurement) was 37 very striking difference after student group. Given treatment by developing methods, providing guidance on the clinical practice of the course, and measuring on the second measurement (post-test) obtained, the average level of assessment after intervention/test of practice was 87.

Thus the assessment form was commonly used in the clinic of Dental Nursing Department to assess student performance during the Basic Concept of Dental Nursing Constitutional Court process is also crucial. Considering the performance measurement was more emphasized on the achievement of student competence and continued. Increase the capacity of the essential enrichment of the material so that students are always ready if at any time. Time tested by a team of clinical counselors, or no less important to success. Thought that mature/ready from each student as a learner, will participate balancing the sphere of attitude so that the whole appearance of its work performance is one Unity of the concept of the Constitutional Court itself.

The results of research on the potential development of methods, teaching textbooks, and clinical guide of Basic Concept of Dental Nursing was teaching materials of clinical skills of care process with competency capacity of Dental Profession profession as a team of kesgilut developed by taking into account the

potential and condition of the course which has been done preliminary study analysis covering Literature studies and field studies.

The clinical learning method was significantly related to the performance of student work appearance, which in the clinical learning method as Azwar's research, there was an influence. Significant between learning methods and learning outcomes. The results show there was a relationship. Between clinical learning management (role and method of clinical learning) with student performance. On clinical dental care services (p = 0,000). This follows Larasati's (2004) research that there was a relationship between clinical learning and students' ability to plan dental health care clinic care. Conditions of Subject of Basic Concept of Dental Nursing clinical teaching practice that exist today, students do not have guide clinical practice as a guide in completing patient's requirements will be continued into the next semester on the process of care services comprehensive dental health.

Results of student performance with mean values after intervention/developed method, textbook, and clinical guidance obtained effectiveness from before *T-test* results obtained p-value = 0,000 whose value was smaller than the error rate $\alpha = 0.05$ or with 95% significance, then $P < \alpha$, indicating a significant difference between Ability before being compared afterward.

Basic Concept of Dental Nursing's textbook and guiding practice guide has tremendous appeal Influential that proved able to boost/increase student motivation to recognize the concept, honing the various aspects that must be achieved to achieve the target of the competency of the care process adequate compliance for the quality of service to the patient. Information bias may occur in this study from respondents when answering a researcher/interviewer question when completing the practice test before the Lecturers' intervention.

The purpose of this research was to produce instructional materials in the form of a handbook of Basic Concept of Dental Nursing and guide the practice as a guide to facilitate learning while working in the clinic and development material of the learning program. The teaching material attractiveness test questionnaire presented using a multilevel scale in individual and small group trials. This has been done before researchers.

In large group trials, performance rating sheets, questionnaires, and observation sheets were used. Data obtained from field trials are of two types: quantitative and qualitative data. The technique of data analysis uses descriptive, quantitative, and *t-tests.*

This study was still limited with quantitative data collection and has not been qualitative through interviews of students to dig up information if there was difficulty applying theory of teaching materials to clinical practice or obtain data description of the required effectiveness. The effectiveness of field results revealed that Basic Concept of Dental Nursing's method, textbook, and practice guide effectively improved the quality of student work performance in clinical practice lessons.

To measure the precondition variable that influences clinical learning management has been interviewed with a clinical coordinator. It turns out that clinical

learning management conducted by the clinical coordinator can be categorized well because the curriculum component consisting of GBPP, RPS, Practice SOP, Clinic Guidance and Evaluation Guidelines / Rubric is complete. The Semester Learning Plan was a detailed instruction meeting after meeting, the purpose of the scope of the material, the teaching and learning activities, the media and the evaluation that should be used to improve clinical learning management. The duties and responsibilities of the clinical coordinator are also well organized, arranging the schedule, accompanying the formation for the student practice group, overseeing the clinical learning activities, requesting tools/materials, evaluating clinical learning success, internal briefings of clinical instructors related to clinical learning, this should be maintained for The smoothness of the learning process to spur the spirit of students, competing in each other to leverage the target requirement which of course was very influential on the achievement of the value of practice Basic Concepts of Dental Health Care Services at the clinic of Dental Nursing Department.

D. CONCLUSION

The results showed that facilities and infrastructure in the clinic were sufficient categories, that is, 60 - 80% of the tools available and functioning. The results showed no clinical learning method that included the category less, and the clinical learning method is satisfactory. The research shows that student achievement in that mattern Subject of Basic Concept of Dental Nursing in the first semester before intervention with learning method, given textbook, then got the result of the student group theory test score average score 85,5 (B). In the second semester, the students were able to complete the implementation phase of dental patients in the clinic, so the previous Lecturers pre-test was intended to obtain the student's capability data to absorb the essence of the content of the ensemble care process, recognizing each activity of the service effort, Correlates to the working procedure stage, including training in the skills of the entanglement care process from assessment to implementation. There was a significant difference when compared to the result of the assessment after the group of students was given treatment starting from the teaching and learning process with the developed method, giving guidance on the clinical practice of the course, and measuring the skill with the competency instrument. Thus, the assessment form was commonly used in the clinic of the Dental Nursing Department to assess students' performance during that mattern Subject of Basic.

The results of research on the potential development of methods, teaching textbooks, and clinical guide of Subject of Basic Concept of Dental Nursing are the teaching materials of clinical skills of the care process with the capacity of professional competence of Dental Nurses as an esoteric team developed by taking into account the potentials and conditions of the courses which have been carried out a preliminary study analysis covering Literature studies and field studies.

The clinical learning method was significantly related to the performance of student work appearance, which in the clinical learning method as Azwar's research there was a significant influence between the learning method and the learning

outcomes. The results showed a correlation between clinical learning management (role and method of clinical learning) with student performance on clinical dental care service. The subject of Basic Concept of Dental Nursing's teaching and practice guide has a very influential appeal that proves able to increase/motivate students to recognize the concept, to sharpen the various domains that must be achieved to reach the target of competency care process competency for the quality of service to the patient.

REFERENCES

1. Arikunto, S. (2001). *Prosedur Penilaian Pendekatan Praktek*. Jakarta: Rineka Cipta.
2. Arini, N. W. (2002). *Meningkatkan Keterampilan Guru Sekolah Dasar Kelas IV dalam Menyusun Rencana.*
3. Atwi, W. (2005). *Garis Besar Program Acara Mengajar dan Mengajar (GBPP & SAP)*. Pusat Antar Universitas untuk Peningkatan dan Pengembangan Aktivitas Instruksional, Direktorat Jenderal Pendidikan Tinggi.
4. Deb, T., Lempp, H., Bakolis, I., Vince, T., Waugh, W., & Henderson, C. (2019). Responding to experienced and anticipated discrimination (READ): anti-stigma training for medical students towards patients with mental illness–study protocol for an international multisite non-randomised controlled study. *BMC medical education*, *19*(1), 1-9.
5. Diknas. (2005). *Tanya Jawab tentang Kurikulum Berbasis Kompetensi (KBK) di Perguruan Tinggi*. Jakarta: Depdiknas.
6. Diknas. (2005). *Tanya Jawab Umum Pengembangan Unit dan Proses Pembelajaran di Perguruan Tinggi*. Jakarta: Depdiknas.
7. Djamarah, S. B. (2002). *Psikologi Pembelajaran*. Jakarta: Asdi Mahasatya.
8. Ghavifekr, S., & Rosdy, W. A. W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science*, *1*(2), 175-191.
9. Gomes, F. C. (2000). *Manajemen Sumber Daya Manusia*. Jakarta: Andi Offset.
10. Haruehansawasin, S., & Kiattikomol, P. (2018). Scaffolding in problem-based learning for low-achieving learners. *The Journal of Educational Research*, *111*(3), 363-370.
11. Hastomo S. P. (2001). *Analisis Data, Modul*. Jakarta: FKM UI.
12. Ibrahim, N. (2003). Pemanfaatan Tutorial Audio Interaktif. *Jurnal Pendidikan dan Kebudayaan*, (044).
13. Ilyas, Y. (2001). *Teori dan Riset Penilaian Kinerja*. Jakarta: FKM UI.
14. Irawan, P. (2001). *Evaluasi Proses Belajar Mengajar*. Jakarta: Diknas Kementerian Pendidikan.
15. Tilaar, H. A. R. (2000). *Paradigma Baru Pendidikan Nasional*. Jakarta: Rineka Cipta.
16. Kollars, N., & Rosen, A. (2016). Bootstrapping and portability in simulation design. *International Studies Perspectives*, *17*(2), 202-213.
17. Mulyasa, E. (2002). *Manajemen Berbasis Sekolah*. Bandung: Remaja Rosda Karya.
18. Notoadmodjo, S. (2002). *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.

19. Ridwan. (2002). *Skala Pengukuran Variabel Penelitian*. Bandung: Alfabeta.
20. Sudjana, N. (2002). *Asesmen Hasil Proses Belajar Mengajar*. Bandung: Remaja Rosdakarya
21. Uz, L. Z., Haryono, H., & Wardani, S. (2019). The development of chemical e-module based on problem of learning to improve the concept of student understanding. *Innovative Journal of Curriculum and Educational Technology*, *8*(2), 59-66.