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The Development of Work-Based Learning and Group Investigation Learning Models in Vocational Education Diploma III Nursing

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Abstract: This research aims to improve writing skills and learning activities in elementary school students, the victims of the Mount Sinabung disaster in Siosar Relocation, North Sumatra, Indonesia. The fact that happened, students' writing ability was in a low category. The average value of students' writing skills during pre-action was 60.25. The obstacles that occur are that learning tends to be conventional, teachers are considered the main source of knowledge, and teachers have not used media of learning in class. One of the appropriate learning media that can be used to upgrade children's writing skills is audio-visual learning media, media that can display sounds, images, graphics, diagrams, and stories so that learning that is absorbed through sight, as well as hearing, can accelerate students' absorption in understanding subject matter delivered. This research method is Action Research, which refers to the theory of Jean McNiff. The place of research was conducted at the State Elementary School No. 047175 Simacem, Naman Teran District, Karo Regency, North Sumatra Province. The research subjects were 20 grade II elementary school students. The techniques and instruments of data collection are some tests, the observations, part and field notes. The research procedures are planning, implementation, observation, and reflection. The results have shown an average of 89 with classical completeness of 95%, an increase of 35% for Formative II, showing improvement and completion by the Minimum Completeness.

Keywords: writing ability, learning activities, audio-visual media, elementary school students, Mount Sinabung.

应用视听媒体提高印度尼西亚北苏门答腊锡纳朋山灾难中小学生的写作技巧和学习活动

摘要: 本发展研究旨在确定学习条件、和小组调查学习模型的应用, 以及这些模型在提高护理文凭职业教育学生能力方面的有效性水平。这种类型的研究是开发研究, 使用杉代野开发的研究模型。数据收集技术是通过观察学习进行的, 然后是这个研究和开发程序包括潜在和问题的识别、数据收集、产品设计、设计验证、产品设计修改、产品测试、产品修改、使用试验、产品修订和限量生产。定量和定性描述性研究中的数据分析。该研发程序包括识别潜力和问题、数据收集、产品设计、设计验证、产品设计修订、产品测试、产品修订、使用试验、产品修订和限量生产。使用推理统计分析进行定量数据分析, 包括有效性检验、可靠性检验、正态性检验、同质性检验和 t 检验。基于访谈、观察、专家验证、模型可行性测试、前测和后测以及学生护理实践能力测试结果的定性分析经过数据分析、观察和访谈后, 研究结果表明应用基于工作的学习和小组调查模式与实施护理职业教育非常相关, 对学生的胜任能力有积极的影响。这一发现将对提高学生在职业教育中的能力产生影响。基于小组调查的工作学习模式营造职业教育学习氛围。

关键词: 写作能力、学习活动、视听媒体、小学生、锡纳朋山。

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1. Introduction

In the 21st century, we live in an interconnected world where globalization, Information Communication Technology, and knowledge explosion have shrunk the world into a global village [1]. Education can develop a country in economy and society; therefore, that is the milestone of a nation's development [2]. Education is the foundation of nation-building. Education helps the individual develop physically, mentally, morally, spiritually, and emotionally by providing a suitable environment, teaching him new knowledge, attitudes, and skills that will enable him to be useful to himself and his society [3]. Many developing countries have average levels of education in the 21st century that were achieved in many Western countries by the early decades of the 20th century [4]. Since 1972, UNESCO has emphasized that education has a key function to pave the way for building and improving the country [5]. One of a nation's education level successes can be seen through the Human Development Index (HDI) (IPM). The position and success rate of Indonesian education based on data from the United Nations for Development Program shows that Indonesia is in position 108 out of 110 countries in the world and is far behind neighboring countries in ASEAN. This shows the success rate of Indonesian education at the ASEAN level [6].

Vocational education is a specific educational design formulated to prepare students to work in a particular field. Vocational education prepares students to master certain skills or skills as provisions for work (Law Number 20 of 2003 concerning the National Education System of the Ministry of National Education, 2003: 3)[7]. Vocational education is all forms of education that are technical and vocational and organized by various educational institutions, both by the government and the community, informal and non-formal forms, to help people receive education and training based on lifelong learning. From a socio-economic perspective, vocational/vocational education is economic education because it is derived from the needs of the labor market, giving a derivative to economic strength. It seems that the typical entry barriers to becoming a member of a guild also hindered access to vocational education, work, and social life [8]. Thus, the definition of vocational/vocational education is education to prepare students to enter the workforce. [9] also support this statement, who stated, "Vocational education cannot be removed from existing workforce development". Vocational education must always adapt to the needs of society, especially industrial needs. Vocational schools (vocational) must cooperate with the industrial world and the business world as

graduates. Vocational education must be designed so that graduates have skills, abilities, knowledge, attitudes, and work habits by the needs of the world of work. Including in the world of work in the health sector.

The problem that occurs in Indonesia in nursing education is that the regulation on the establishment and implementation of nursing education is still not firm and clear so that there are many nursing education institutions whose quality is still in doubt. In addition, there is no standardization in the implementation of competency tests, so the results achieved are of varying quality [10, 11]. At the same time, nursing education is an important process that every nurse must pass. Steps are needed to improve nursing professionalism in Indonesia. As the first and most important step in nursing professionalism in Indonesia, it is to organize nursing education as a professional education so that students get education and learning experiences following the demands of the nursing profession. Therefore, the nature of nursing education must also emphasize an understanding of the professional performing palliative care skills [12].

Related to the competence of nursing students, there are three parts, including the ability (nursing skills), knowledge (knowledge), and attitudes possessed by these students [13]. Student competence regarding patient safety is very important to avoid patient safety incidents in hospitals. Based on the results carried out by Iswati shows that students have less knowledge about patient safety, including the process of identifying patients by 32%, effective communication by 61%, increasing drugs correctly by 59%, certainty of exact locations, procedures, and patients by 74%, lowering the risk of infection by 86% and lowering the risk of falling by 43% [14]. Another study conducted by Dyah Wiji showed that students' knowledge of patient safety was far from 100% [15].

The impact of students' lack of competence regarding patient safety will lead to patient safety incidents, such as giving medication to the wrong patient, patients falling out of bed, taking actions that are not following procedures, etc. During practice implementation in the room, clinical supervisors and nurses closely monitor and guide practicing students. Nurses work with an extraordinary variety of people: physicians, respiratory therapists, physical therapists, social workers, psychologists, technicians, aides, unit managers, housekeepers, clients, and clients' families [16]. This problem also occurs in the nursing vocational education program students of the Institute of Health and Science Technology (ITS) PKU Muhammadiyah Surakarta. Students' lack of competency achievement is in the Indonesian Nurses Competency Examination (UKNI). The average UKNI

graduation rate is still very low. In 2019 the DIII Nursing Study Program (Prodi) of the PKU Muhammadiyah Surakarta Institute of Science and Technology (ITS) graduated 246 graduates, but only 117 graduates of the DIII Nursing study program had a certificate of work internship experience at the Hospital [17].

Based on data from observations made by researchers on DIII nursing students of ITS PKU Muhammadiyah Surakarta while practicing at PKU Muhammadiyah Surakarta Hospital, PKU Muhammadiyah Delanggu Hospital, and at Nirmalasuri Sukoharjo Hospital, it was found that about 53% experienced difficulties in practice. Difficulties experienced by students include: weakness in the ability of nurses to handle complaints or disease responses, nurse explanations for perceived complaints, nurses are less professional in handling care problems, and lack of communication between nurses and patients causes dissatisfaction with services and care. Students still focus on physical problems, even though the patients being treated have other problems. For example, treated patients are conscious and have problems related to verbal communication disorders [11].

Difficulties experienced by students include: weakness in the ability of nurses to handle complaints or disease responses, nurse explanations for perceived complaints, nurses are less professional in handling care problems, and lack of communication between nurses and patients causes dissatisfaction with services and care. Students still focus on physical problems, even though the patients being treated have other problems. For example, patients who are treated are conscious and have problems related to verbal communication disorders. The clinical supervisor also stated that the achievement of student competencies was still not optimal.

In addition, there are also problems in the form of the lack of competency achievement by students, one of which is the Indonesian Nurses Competency Examination (UKNI). The average UKNI graduation rate is still very low. Out of 36 nurses who graduated from STIKES Widyagama Husada who took part in the UKNI, only 20 nurses were declared competent or 55.56% [18]. Various efforts have been carried out, so that nurse graduates are competent, one of which is by providing item development training to nursing lecturers, but the results have not been maximized. Developing the Integrated Work-Based Learning Rolling (WBL RoTer) model and Group Investigation is hoped to improve the competence of Diploma III nursing vocational education students. From the above explanation, this study's purpose and focus are to determine the conditions of learning in vocational education Diploma III and the influence of the Group Investigation-based Work-Based Learning model on vocational education diploma III nursing.

2. Materials and Methods

This research was quantitative and qualitative. The type of research is development research and uses the Borg & Gall research model developed by Sugiyono. The data collection technique was carried out by observing learning. This research and development procedure includes identifying potentials and problems, data collection, product design, design validation, product design revision, product testing, product revision, usage trials, product revisions, and limited production. Data analysis in quantitative and qualitative descriptive research. This research and development procedure includes identifying potentials and problems, data collection, product design, design validation, product design revision, product testing, product revision, usage trials, product revisions, and limited production—quantitative data analysis using inferential statistical analysis. Qualitative analysis is based on interviews, observations, expert validation, model feasibility test, pre-test and post-test, and student nursing practice competency test. This research describes an actual problem, and from these results, it can be concluded or generalized. This research approach is a descriptive approach, which is an approach that aims to make systematic, accurate, and factual descriptions of populations and certain objects. Researchers usually already have a concept and a framework [19].

This research aims to apply the Group Investigation-based Work-Based Learning (WBL) model. The population of this study was students of nursing Diploma III vocational education. Several data collection methods are used in qualitative research, participatory observation, in-depth interviews, life history investigations, and document analysis [9].

The data collection technique is carried out by observing learning, then completing it with the interview results to describe which views are the same and which views are different, then conclusions can be drawn in this study. Regarding the validity of the data, the researcher's steps were formulated to obtain reliable data. The validity of the research data was carried out using data triangulation. Researchers use triangulation as a technique to check the validity of data. In that sense, triangulation is a technique of checking the validity of data that utilizes something else in comparing the results of interviews with the object of research [20]. In this study, of the four-triangulation types, researchers only used inspection techniques by utilizing sources. Triangulation with sources means comparing and crosschecking the degree of confidence of information obtained through different time and qualitative research tools. In triangulation of sources, the researcher compared the results of observations, interviews, and document analysis.

Data analysis in qualitative descriptive research is gradual, assigning informants to writing reports [20].

The process of qualitative data analysis began with making field notes in the form of short reports. The next step is to conduct in-depth interviews with participants and make transcripts of the interviews' results. Furthermore, the researchers carefully read the interview transcripts for data reduction. Researchers reduce data by making abstractions, taking, and recording useful information following the research context. The abstracts that are made are grouped based on the taxonomy of the research domain. Research acquires this domain by doing big questions and small questions that can deepen the big questions. This domain is important for researchers because it is a basis for further research.

3. Results and Discussion

The learning conditions in nursing diploma III vocational education, especially in implementing Diploma III higher education in a workplace-based learning approach, have many variations and models. In Surakarta, there are nursing vocational education institutions, one of which is ITS PKU Muhammadiyah Surakarta University. ITS PKU Muhammadiyah Surakarta University applies a method or model called Production Based Education and Training in the real world of health, emphasizing market-oriented products. Students study and participate in working directly in hospitals, polyclinics. A continuous flow of market demand captured through hospital units and polyclinics and translated into teaching and training will ensure continuity of vocational education. Proof that the applied education system is successful or not is given back to the market. If the nursing staff educated by the ITS PKU Muhammadiyah Surakarta University answers the needs, these workers can automatically be absorbed and are always asked by the health industry.

ITS PKU Muhammadiyah Surakarta University is developing a health activity unit collaborating with clinics and hospitals around the Surakarta area. The Nursing Study Program at the ITS PKU Muhammadiyah Surakarta University implements a Work-Based Learning (WBL) Approach in collaboration with public and private hospitals (RS) in the Surakarta area and health clinics. Students of the Nursing Study Program (Prodi) at the ITS PKU Muhammadiyah Surakarta University can carry out nursing practice activities at these hospitals and clinics to get direct experience in the world of work. Since 2003, the D III Nursing Study Program at ITS PKU Muhammadiyah Surakarta University has implemented a special class program where one excellent class from the results of the selection of non-regular students is placed in health work partners (in clinics, polyclinics, joint clinic, hospitals) for 1 (one) semester fully to carry out the Nursing Vocational Education to carry out the health practice program (medical attachment/fieldwork practice) and also lectures with instructors from professional health practitioners. Curriculum planning,

learning process, mentoring, mentoring, provision of field instructors, training methodologies, learning evaluations are arranged jointly between the two parties. The field supervisor/instructor has also been trained in the learning process, training methods and evaluation, industry experience, and evaluation methods.

Various applications of models and good practices of learning and implementing vocational education Diploma III in Nursing with the Work-Based Learning (WBL) approach have not been satisfactory. Apart from being very casuistic, the DIII health administrators (nurses). Limited access to health jobs, human resources, funding sources, facilities, quality of industry advisors, location, etc. Suppose these limitations are resolved, and implementing a health experience program can be carried out jointly and integrated by utilizing both parties' capabilities. In that case, the quality of the health experience (Nursing) of 30 students will be better, and then the quality of Diploma III Nursing graduates can improve. It is necessary to develop strategies and teaching methods that encourage students to be more active in mastering the material and have nursing skills.

ITS PKU Muhammadiyah Surakarta University has developed a health activity unit collaborating with clinics and hospitals around the Surakarta area to create a real health industry situation. The Nursing Study Program (Prodi) of ITS PKU Muhammadiyah Surakarta University implements a Work-Based Learning (WBL) Approach in collaboration with public and private hospitals (RS) in the Surakarta area as well as with health clinics. Students of the Nursing Study Program (Prodi) of the ITS PKU Muhammadiyah Surakarta University can carry out nursing practice activities at these hospitals and clinics to get direct experience in the world of work. Nursing graduates can work and have careers as nursing experts, health experts, nursing/health researchers, nursing/health educators or extension agents, or health service administrators in government or private agencies (hospitals, health centers, polyclinics, departments/central health services, or Region, etc.). Students participate in integrated education and training, including basic mental medicine, basic medicine, and advanced technology regarding general health care and special health care combined with the On-the-Job Training program at polyclinics and clinics, both public and private Surakarta area.

Students for three years of education, besides getting theoretical and practical training on campus, are also placed in polyclinics, hospitals, and work partners to carry out regular on-the-job training (OJT) at levels I, II, III with a certain duration for a total the accumulated duration of OJT is up to 9-12 months. With this OJT, students will gain competence as intermediate experts in nurses who are complete in the realities of the health services business in nursing. More or less, the same

model is applied to trainees at the Community health facilities, hospitals, and other health facilities. They are engaged in distributing health services to nurses at ITS PKU Muhammadiyah Surakarta University. Since 2003, the D III nursing vocational education Program at ITS PKU Muhammadiyah Surakarta University has implemented a special class program where one excellent class from the results of the selection of non-regular students is placed in health work partners (in clinics, polyclinics, joint clinic, hospitals) for 1 (one) semester fully to carry out the Nursing Vocational Education to carry out the health practice program (medical attachment/fieldwork practice) and also lectures with instructors from professional health practitioners. Curriculum planning, learning process, mentoring, mentoring, provision of field instructors, training methodologies, learning evaluations are arranged jointly between the two parties. The field supervisor/instructor has also been trained on the learning process, training methods and evaluation, industry experience, and evaluation methods.

Various applications of models and good practices of learning and implementing the Vocational Nursing Diploma III with the Work-Based Learning (WBL) approach have not been satisfactory overall. It is necessary to develop strategies and teaching methods that encourage students to be more active in mastering the material and have nursing skills. The curriculum in vocational education and training programs begins by providing vocational basics to learners [14]. Then they will take a combined program of "work-based learning" and "school-based learning". Education and training programs that contain a greater proportion of nursing work will provide more intensive work experience and mastery of higher levels of competence. Management does not always correctly perceive what customers want. Hospital administrators may think patients want better food, but patients may be more concerned with nurse responsiveness [21]. Training competency mastery is an apprenticeship program as it applies in many countries. It can also be training activities outside the environment and working hours (off-the-job training) and training activities at the workplace (on-the-job training). Thus it can be concluded, vocational education with Workplace-Based Learning (PBTK) or Work-Based Learning (WBL) approaches is a necessity.

The implementation of nursing health education cannot be separated from work-place-based learning methods, including its implementation model and Group Investigation. Group Investigation steps in learning, forming groups and selecting topics, planning topic completion, conducting investigations, compiling reports, presenting reports, and evaluating [22]. The advantages of the group investigation learning method are that students tend to discuss and contribute certain ideas, learn more effectively, and increase their social interaction. Group Investigation can encourage students

to participate actively in learning with their friends with the help of lecturers as facilitators and motivators.

The quality of the nursing Diploma III vocational education results, both process, and product, is strongly influenced by the learning approach used in providing vocational education. The implementation of vocational education is less meaningful without cooperation with the business world and the industrial world. The application of the Work-Based Learning and Group Investigation models becomes very relevant in implementing nursing vocational education. Furthermore, it is necessary to develop a model for providing vocational education to improve learning outcomes, affecting the quality of learning outcomes and graduates' quality. The improvement of the learning model is pursued thoroughly regarding models (practical can be implemented by all DIII Nursing, systems (integrated), facilities (man, material, machine, management, money, methods can be provided by the service industry/nursing health users), capabilities (outsourcing from users services and can be accessed through the CSR program). In implementing WBL-based vocational education, strategy-tactics methods are needed, as suggested in their book *The Handbook Work-Based Learning* [23].

Similar research was also carried out, which shows that students who taught using the Work-Based Learning model have much higher achievement than students who taught using the TWI model [24]. The knowledge possessed by students has also increased considerably compared to before. The findings indicate that the WBL model can improve vocational education learning outcomes, especially in increasing student achievement motivation, compared to traditional learning using the TWI model. Further research shows a higher frequency of student participation during the teaching and learning process applying the Work-Based Learning method. WBL is a learning approach that utilizes the workplace to structure experiences gained, contributes to learners' social, academic, and career development, and becomes a supplement in learning activities [25]. Therefore, it can be concluded that the Work-Based Learning model positively affects student participation in the entrepreneurship class. Then, supporting research, which showed a positive effect [26]. This positive influence can occur because of the process skills that arise and the emergence of students' positive entrepreneurial values towards mathematics. The abilities possessed by students develop.

Some of the results positively affected the Work-Based Learning model's positive effect if applied to learning activities. However, this research update integrated with Group Investigation. Group investigation emphasizes the learning process, requiring students to participate actively in the learning process by digging/looking for information/material to be studied independently with available materials [27]. The advantages of this group investigation are that it can

train students to socialize, solve problems, be democratic in unifying understanding of the material, and practice constructing an understanding of material concepts [28]. So that if it is integrated with the work-based learning model, it will be carried out well because, in work-based learning, the ability to discuss and solve problems in a group is also very influential.

Developing a Group Investigation-based Work-Based Learning (WBL) model would improve nursing Diploma III vocational education students' competence. The role of the Nursing Diploma III program, which prepares executive personnel with graduate quality following the job market, is interesting to study with various models of learning implementation in the context of partnerships with industry. The WBL implementation model in vocational education Diploma III in nursing is studied to improve competence, learning outcomes, and graduates' quality with various factors. This finding will have implications for improving students' competence in vocational education. The Work-Based Learning model based on Group Investigation can create a learning atmosphere in vocational education. Research and evaluation studies at WBL show a correlation between the outcomes and impact of graduates and the learning structures that schools and industry provide in the workplace experience [29].

4. Conclusion

Applying the Work-Based Learning and Group Investigation models is very relevant in implementing nursing vocational education and positively influences student competency abilities. This finding will have implications for improving students' competence in vocational education. The Work-Based Learning model based on Group Investigation can create a learning atmosphere in vocational education. The Group Investigation-based Work-Based Learning (WBL) model's success is determined by several interrelated factors: students, supervisors, facilities, etc. The preparation of a Group Investigation-based Work-Based Learning (WBL) model manual is an effort to ensure that there is a standard reference in the implementation of Group Investigation-based Work-Based Learning (WBL) models with a defined approach (including strategy-method-tactics). Various WBL models for implementing WBL vocational education (Diploma III) are adjusted to the field's characteristics and substance. In this development research, we develop a WBL model book product based on Group Investigation, clinical practice guidelines for maternity nursing to help students improve nursing practice competencies through student nursing practice competency test sheets comprehensively.

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