

Effect of Learning Strategies and Independence of Student Learning Outcomes Learning Science Skin Disease and Sex

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ABSTRACT

The objective of this research is to study the effect of instructional strategy and learning independency toward learning outcome in Dermatology studies. The research was conducted at the Christian University of Indonesia, with 58 university students as samples, selected randomly. And using experiment method with 2 x 2 factorial design. Finding of the research are as followed: (1) learning outcomes of the students with cooperative strategy are higher than those who received expository strategy; (2) there is interaction between instructional strategy and learning independency of the students; (3) learning outcomes of the students with high learning independence are higher when cooperative strategy is used than when they learn with expository strategy (4) learning outcomes of the students with low learning independence are higher when cooperative strategy is used than when they learned with expository strategy. Result of the research showed that students' learning outcomes on Dermatology studies could be improved by applying appropriate instructional strategy with considering university students' capability.

Keywords: learning strategies, independence learning, learning outcomes

INTRODUCTION

Education is a conscious and deliberate effort to create an atmosphere of learning and the learning process so that learners are actively developing the potential for him to have the spiritual strength of religious, self-control, personality, intelligence, noble character, and skills needed him, society, nation and state. Implementation of education is mandated by the Constitution of the Republic of Indonesia, the nation's intellectual life. The perceived importance of education today. In the current era of globalization, the Indonesian nation faced a high level of competition with other nations, which is determined by the quality of Human Resources. To improve the quality of human resources needed quality education. So that the implementation of education is not just an implementation of the mandate of the Constitution, but also a serious need that determines the fate of the nation. The higher the education level reached the higher expectations of the quality of human resources are generated. Higher education plays a vital role in creating a Human Resources quality Indonesian. Experts in their fields created through higher education. Reciprocation of the nation depends on the experts, who work in their respective fields. Both in the field of education, medicine, law, engineering, economics and others.

The field of medicine is one of the most crucial areas of national life. Needs experts in the field of medicine is a very important thing. Each year the need for experts in the field of medicine are increasing rapidly due to the increasing population of Indonesia. When compared to its population, the number of doctors in Indonesia are very few. According to data from IDI in March 2007, there are 70 thousand doctors, comprising 50 thousand general practitioners, specialist doctors and 20 thousand. The ratio of physicians and patients in Indonesia is still far short of the ideal, because the uneven placement of physicians in each region, which is still much needed doctors in remote places.

To overcome the shortage of doctors, the last few years to bloom up new medical faculties in various regions in Indonesia. In addition, there is additional capacity in college students. Given the medical field is a field that contains a high risk and this field concerns the lives of others then need to consider not only the quantity but also quality.

Universities should be able to maintain the quality of the resulting doctor. Do not let a decline in the quality of graduate medical education in Indonesia.

Higher education in the field of medicine is required to educate students to be qualified doctors. Given the high responsibility held by doctors, it should greater responsibilities carried by the college to educate students or medical students. This responsibility must be demonstrated by efforts to implement quality education and earnest.

The quality of graduate medical education under the general standards would cause a decrease in the quality of services and the increasing number of malpractice doctors. In everyday life we often see a senior surgeon should perform surgery, but done by a junior surgeon or physician acts in violation of medical ethics. Further impact will cause increased rates of illness and Indonesian doctors will be unable to compete with foreign doctors into Indonesia. Therefore, educational institutions should run education programs with full responsibility.

Because of its crucial role in the formation of qualified human resources, higher education medicine should be able to overcome all the obstacles that arise (hard to get the maximum learning despite normal learning over time) so as to facilitate student learning resulting in preservation of the quality of quality of graduates. Improvements in the educational process is a must, the aim is to better the learning process, such acceptance must be in the selection of medical students well, and the professors who teach must be of good quality.

Learning is very wide, so several theories that attempt to explain what was learned. One theory about learning that medical education is closely linked to the constructivist learning theory. Constructivist learning theory understands learning as a process of formation or construction of knowledge by the study itself. This construction should be done by the students themselves. He must actively engaged, active thinking, construct and give meaning to the concept of the things that must be learned, but the most decisive realization of symptoms is the intention of studying student learning itself. While the role of the teacher in constructivist learning role to help make the process the constructed knowledge by students running smoothly. Lecturers are not transferable knowledge he already has, but to help students to form their own knowledge and are required to better understand the mindset or perspective students in learning.

According to the theory that the main problem of the study that has been described above is the student learning process itself involves his own interest or his own independence. Learning and teaching in the field of medicine itself is in accordance with the above theory, in which students are required to self-learn high in Medical Science. Students are required to use available facilities to improve their knowledge such as libraries and computer labs and internet. So the issue of independence is the main learning problems in medicine. If students have problems in independent learning is the task of higher medical education to resolve the issue. Universities need to make efforts to support students so that students have a solution if have trouble getting a good value in the study, for example, the counseling, the supervisor in the academic field.

One of the efforts that must be made by the higher education of medical students' interest is fishing so that the resulting independence of learning, one of which is to make effective learning strategy. Learning strategies can be defined as an approach that contains a series of structured learning component for teaching materials can be delivered and achieved educational goals. Learning strategies that can be implemented through the use of learning methods.

Faculty of medicine at the Christian University of Indonesia (UKI), learning that do still have some drawbacks. Learning strategies used are lecture learning strategy where the learning material presented orally by the teacher and the students just listen to the material presented. Learning method CIU is very focused on the weight of the material to be conveyed, but less attention to the development of learning strategies, so that the weight or the weight of the material level, do not offset by improved way of delivering the material. Way of presenting the subject matter that tends oriented faculty, making students do not feel involved in the learning process and lead to boredom in students.

Instructional strategies teachers is forged directly, and adapted many of the senior instructors, so that material delivery problems or learning techniques have received less attention. With this strategy that has always been done by the teachers in FK UKI, especially those in this case in Dermatology and Venereal apparently obtained only twenty-five percent (25%) students with good grades and pass this course last 5 years. These conditions are very demanding independence from the students learn. Students who have a high learning independence has relatively little trouble, while students with low self-reliance would have difficulty in mastering the material.

To conclude, the results of student learning is strongly associated with distance learning strategies and self-reliance that is owned by the student. Therefore, in this moment I want to try to improve instructional strategies or delivery of materials at the Faculty of Medicine, Universitas Kristen Indonesia in particular of Science Pe, K, yakit Dermatology by comparing cooperative learning strategies and learning strategies expository.

Based on the above, the formulation of research problems are (1) Are there differences in learning outcomes Dermatology and Gender of the students who were taught using expository instructional strategies with students who are taught with cooperative learning strategies? (2) Is there an interaction effect between learning strategy and

learning independence? (3) Are there differences in learning outcomes Dermatology and Gender on students who have high academic self-taught with expository and instructional strategies that are taught with cooperative learning strategies? (4) Are there differences in learning outcomes Dermatology and Gender in students who have a low learning self-taught with expository and instructional strategies that are taught with cooperative learning strategies?

THEORETICAL DESCRIPTION

Learning Outcomes

Gronlund and Linn said that the learning outcomes are a product of learning. Learners are expected to do at the end of the lesson. If someone has done you will see a change in one aspect of behavior (Gronlund & Linn, 1990: 154).

Sujana suggests that there are four conditions that characterize the formation of behavior as a result of learning that is characterized by behavioral changes in self-learners in the form of:

1. Actual and potential capabilities
2. Ability that applies in a relatively long time and the potential need
3. Is the result of experience and training
4. New capabilities acquired through business

Gagne and Briggs said that the study results can be observed through the performance of students (learner's performance) as the learning capabilities can be classified into five categories, namely: (Gagne & Briggs, 1979: 47-55)

1. Intellectual skills (intellectual skills)
2. Cognitive strategies (cognitive strategy)
3. Verbal information (verbal information)
4. Attitudes (attitudes)
5. Motor skills (motor skills)

Bloom mengelompokkan there are three domains of learning outcomes:

1. Cognitive domain is concerned with the development capabilities and intellectual skills
2. Affective domain that is associated with the development of changes in attitudes, and values and emotions as a result of the learning process
3. Psychomotor domains is associated with manipulative activity or motor skill mastery

Furthermore Bloom classified cognitive into 6 components: knowledge (knowledge), understanding (comprehension), application (application), analysis (analysis), synthesis (synthesis), and assessment (evaluation). (Bloom, 1979: 7-9) In other words, the cognitive areas focusing on the ability to think, remember, and problem solving, in the area of affective-related interests, attitudes values, and appreciation for, while the region psychomotor related to the ability associated with motor and stringing.

Evaluation on the region with other regions differ from each other. In the field of cognitive can be done in the form of written or oral, whereas the affective field can be made through the student achievement test afektid dimension (the realm of taste), while the psychomotor done by observation.

LEARNING OUTCOMES DERMATOLOGY AND VENEREAL

Dermatology and Venereal

Dermatology and Venereal are given courses in semester VIII and weighs 2 credits, students of the Faculty of Medicine at the Christian University of Indonesia. Medicine Dermatology is the science that covers the physiology and diseases contained in the skin and genitals. Science is given to students so that students can learn the physiology of the skin, skin adnexal and sex. This science is also studied in skin and venereal diseases caused by bacteria, fungi, parasites, viruses, allergies, or skin diseases caused by immunological disorders and beauty. Additionally, skin and venereal diseases Sciences also learn about hair and nails. (Arnold et al., 1990: 5-10)

Healthy hair is the desire of all people both men and women. Some even say that the hair is our crown, good hair is so important from the aspect of biological and aesthetic terms. Nails is one of the dermal appendages containing layers of horns found on the ends of the fingers and toes, in addition to helping point the fingers to hold

the mirror is also used as a beauty. Dermatology and venereal useful to have students be able to provide adequate treatment and is able to diagnose the etiology according disorders that have similar clinical symptoms.

From the above description, it can be concluded that the results of studying the science of skin and venereal diseases are mastering the cognitive dimension covers ranging from skin to skin abnormal physiology. After receiving lessons within a certain time, and the result is expressed by value or number that can be measured by studying the results of tests of skin and venereal diseases.

COOPERATIVE LEARNING STRATEGIES IN LEARNING AND EXPOSITORY DERMATOLOGY AND VENEREAL

Definition of Learning Strategies

According to Kozma, explaining that learning strategies can be defined as any activity chosen, namely to provide facilities or assistance to students towards the achievement of specific learning objectives. (Kozma et al., 1978: 122-127).

Gerlach and Ely also explained that learning strategies are chosen ways to deliver learning methods in a particular learning environment, Including the nature, scope, and sequence learning can provide a learning experience to students. (Siregar, 2007: 66)

Dick and Carey explained that the learning strategy consists of all components of learning materials and procedures or stages or learning activities used by teachers in order to help learners achieve specific learning goals. (Dick & Carey, 1990: 20-21).

The things that need to be considered in applying learning strategies are (1) consideration related to the objectives to be achieved, (2) considerations relating to materials and learning materials, (3) consideration of the student angle, (4) and other considerations.

According to Killen Sanjaya cited that a teacher should choose a strategy that is appropriate to the circumstances. (Sanjaya, Strategy, 2006: 123)

Therefore, there are several principles that must be considered, namely: (1) goal-oriented activities that all students should try to achieve predetermined goals (2) activity of a teacher to encourage student activities such as physical activity and mental activity, (3) Individualist is developing individual students, (4) the integrity of the whole person development of students both the cognitive, affective, and psychomotor.

Based on the explanation above, it can be concluded that the learning strategy is a series of activities involving faculty and students by using certain methods in order to achieve the intended purpose.

Learning Self-Reliance

Witherington in Spencer argued that the independence of behavior shown by the ability to take initiative, ability to solve problems and desire to do things without the help of others. (Spenser & Kass, 1970: 17)

Bhatia argued that independence is a behavior whose activity is directed to yourself, do not expect help from others and even try to solve the problem yourself. (Bhatia, 1977: 28).

Furthermore Lindzey and Aronson said that the people who show self-initiative, trying to chase performance, showing great confidence, is relatively rare for the protection of others and have a sense of want to stand out. (Lindzey & Aronson, 1968: 21).

Knowles argues that self-learning is a learning process of a student does not depend on the direction of a supervisor and lecturer who carried out continuously, but a bona fide student creativity and initiative alone and able to work independently with reference to guidance obtained (Knowles, 1975).

Hammond and Collins defines self-learning as a process (immediate goal) is to help participants learn to take greater control of the study, whereas the final goal (ultimate goal) is to empower participants to learn in learning to improve the conditions in which they live and work. (Hammond & Collins, 1991: 13).

Moore cited Haryono suggested that the main characteristic of self-learning process is the opportunity given to students to determine learning objectives, learning resources and learning evaluation. (Haryono, 1998: 13-14).

Brookfieri quoted Pannen argued that self-learning provides an opportunity for students to learn to set goals, plan the learning process, using the chosen learning resources, make decisions and carry out academic activities are chosen to achieve the shape and purpose of learning. (Pannen, 1997: 55).

Sewart proposed self-learning is "any educational program in the learning program roomates Occurs separate in time and place from the teaching program and in roomates the learner has an influence at least equal to the teacher in Determining goals, resources and evaluation decisions." (Sewart, Keegan, & Holmberg, 1984: 78).

RESEARCH DESIGN AND METHOD

The research method used was experimental method. This method is used to test the effect of independent variables on the dependent variable. In this experiment the independent variable is the learning strategies and independent learning, while being the dependent variable is the result of learning dermatology and kelamin. Variabel first free classified into two cooperative learning strategies and learning strategies expository.

The independent variables are the attributes of learning independence classified into two independent high-level learning and Low-level learning independence. Thus the research design variables used are 2 x 2 factorial design.

Learning materials that will be used as a treatment is a matter of learning materials science skin and venereal diseases are given in the second semester of academic year 2010/2011. Based on the existing syllabus of topics that will be presented are: Basic knowledge of skin (skin anatomy, skin physiology, morphology of the skin, skin microbiology), Pyoderma, Dermatitis, Mycosis, Virus, Morbus Hansen, tuberculosis cutis, ulcers, parasitic animal diseases, dermatosis vesikobulosa chronic.

The above learning materials given to the treatment group cooperative learning strategies and learning strategies in the expository group with as much as 8 times the frequency of meeting face-to-face, with a time of 100 minutes per person. Based on the research design, then there are 4 groups of students who receive different treatments.

POPULATION, SAMPLES, AND TECHNIQUE DECISION-SAMPLE

The population in this study were all students of FK UKI VIII semesters totaling 480 students. Samples were VIII semester students of academic year 2010/2011 which took courses Dermatology and Gender.

Sampling technique is done by simple random, in the following manner: (1) Determine the class how to draw two courses Dermatology and Venereal to determine treatment classes and control classes. (2) Distribute the test instrument independence.

Calculate the test results to determine the independence of the sample by category of high autonomy and low self-reliance. Based on data from independent tests conducted after each class marked with a different color then the data were combined and sorted from highest value to lowest value and then take 30% of the categories above and 30% of the categories below. Number of samples are drawn for each category is 20 samples, so that the total sample consists of 40 samples. The second category of each sample was then returned back to the respective class, that class treatment and control classes. Based on the obtained that each cell in the design of experimental design totaling 10 samples respectively. Based on this, the test further analysis in the study will be conducted by Tuckey test (Murwan, 2008: 63).

DATA ANALYSIS TECHNIQUES

Student learning outcomes data were collected using achievement test instruments Dermatology and Gender. The instrument consists of 34 items. Questions prepared by the researcher to first consult with an expert manpower. Tested items were valid and reliable. Exam was held on 9th meeting, named after the lecture material that is designed to treat has been presented as a whole.

Scores obtained by the respondents as the main data used in the study. The data are then analyzed by descriptive and inferential. Descriptive analysis is presented in three forms, namely: (1) the presentation of data in the form of frequency distribution tables and histograms, (2) data that include measures of central tendency mean (average), median and mode, and (3) the size of the spread data includes deviation raw and variance.

To test the hypothesis of the proposed research, used analysis of variance (ANOVA) two paths. The test in accordance with the study design using 2 X 2 factorial design. Before the test is done first tests of normality and homogeneity test data. If the results of analysis of variance showed a main effect of independent variables on the dependent variable, and there was an interaction between the independent variables in relation to the dependent variable, the analysis will be followed by Tukey's test to test the hypothesis further research. This test is done because there is an interaction effect in testing the hypothesis of independence between learning strategy and the learning outcomes of student learning, to find out which variables contribute greater.

DISCUSSION AND RESULTS

Discussion of the results of research conducted by data description learning outcomes Dermatology and Sex and the results of hypothesis testing as outlined above. Discussion of the results of further testing of the hypothesis will be presented as below:

Differences in Learning Outcomes Dermatology and Venereal Students were Cooperative Learning Strategies and Learning Strategies Expository

Results of testing the hypothesis that there are differences in learning outcomes Dermatology and Gender in students who were cooperative learning strategies with expository instructional strategies that can be rejected. In this case the average student is given a cooperative learning strategies are not significantly lower than the mean score of the learning outcomes Dermatology and Venereal students are given learning strategy expository.

This is because the lesser the expository strategy has the potential to improve the learning outcomes with more attention to the ability of the students to understand the given reading material. Students must develop their potential based on their own merits. Motivation at the beginning of the conference held by a teacher will facilitate students who use these strategies to understand the given reading material. The inability of a teacher to direct the implementation of this strategy will have a great impact on the achievement of student learning outcomes. Teachers should be able to solve that textbook of reading skills of students to learn to think creatively and critically in solving the problems experienced during learning. Cooperative learning strategies instead focus on teamwork learning between students with students in groups and cooperation between groups. Group should not allow one of its members do not understand the issues that are discussed. Cooperative learning activities focused on cooperation among students. Students who do not understand the problems being discussed will receive an explanation from their classmate. Thus, this learning takes place, so that a common understanding of the members of the group with the subject being discussed is going to be achieved. This had a positive impact on the results of the members of the learning group.

Influence the Interaction between Learning and Independent Learning Strategies on Learning Outcomes of Students

Based on the statistical analysis of this study, showing the interaction between learning and independent learning strategies towards the achievement of learning outcomes. According to the statistical analysis showed that the learning strategies that are independent variables can affect learning outcomes Medicine Dermatology. Learning outcomes of students who have a high learning independence given pembelaaran cooperative strategy is higher than that given expository learning strategies. The mean scores of students who were given the results of cooperative strategies is 24.4, while that given the expository teaching strategy is 22.7, while students who have low self-learning cooperative learning strategies that were higher than that given expository learning strategy, ie to average 20.9 while that given the expository teaching strategies had a mean of 18.5.

However, if the independent variables affect learning outcomes independent learning, to students who have a high learning independence given cooperative learning strategies and learning strategies ekpositori, had a mean of 28 is higher than the one having a low learning independence is 20.9. This shows that learning outcomes will be achieved best when tailored to the student-owned independent learning. Thus the learning outcomes Dermatology and Venereal can be achieved optimally when applied learning strategies appropriate to student learning independence.

Based on the results of hypothesis testing on students who have a high learning independence given cooperative strategies is higher when compared to the 28 students who have a high learning independence given expository learning strategy that is 27.1. This shows that both strategies have similar effectiveness to students who have a high learning independence. This is evidenced by the lack of a significant interaction between cooperative learning strategies and independent learning toward high achievement scores Dermatology and Venereal higher. Despite this independence in students who have a high learning cooperative learning strategies were also indicates the effect of the interaction effect between learning and independent learning strategies, and the resulting score is slightly higher than that given by the expository teaching strategies.

Results showed that the scores of students who have learning outcomes independent low learning cooperative learning strategies that were higher when compared with that given expository learning strategies. It can be seen from the average score of student learning outcomes that have a low learning independence given the expository teaching strategy was 18.5 lower when compared to those given the cooperative learning strategy with a mean 20.9 and this was statistically highly significant.

Cooperative learning strategies are appropriate learning strategies for students with high and low learning independence. Students can develop their independence in critical and creative thinking. This strategy is also effective for helping students who have low self-learning to achieve better learning outcomes scores. Here is a chart that shows the interaction between learning and independent learning strategies on learning outcomes Medicine Dermatology.

Silverback learning outcomes dermatology and venereal

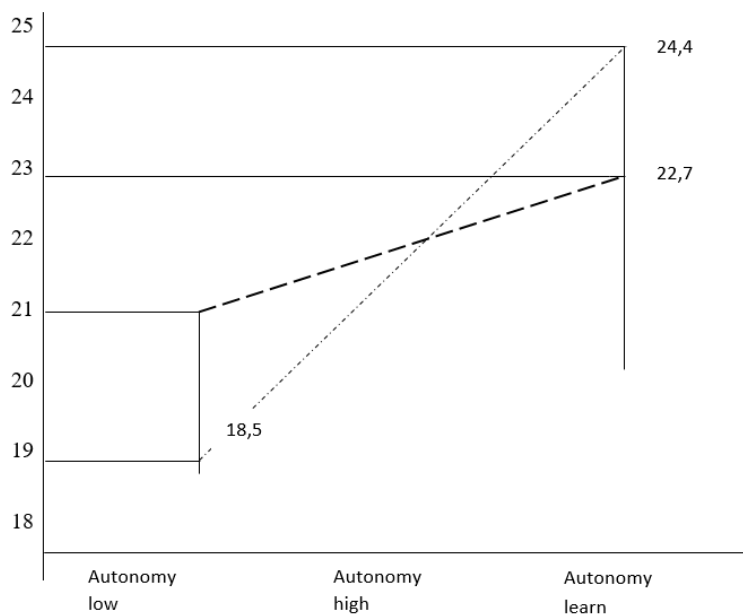


Figure 1. Interaction with independent learning instructional strategies on learning outcomes Medicine Dermatology

Description:

: Expository learning strategies

: Cooperative learning strategies

Based on **Figure 1** shows that learning independence possessed a factor affecting student learning outcomes improved Medicine Dermatology. The images show a significant average difference between the student who has a high learning independence by having low independent learning in students who were given the expository strategy, while the students were given a cooperative strategy mean learning outcomes are achieved almost the same. Based on the description of the analysis described above shows clearly there is influence between learning and independent learning strategies on learning outcomes of Dermatology and Venereal students, as shown in the picture above is the highest interaction between cooperative learning strategies and independent learning, so that learning outcomes mean score of Medicine Dermatology students who have a high learning independence given the highest expository instructional strategy that is 27.1. Lowest interaction between expository learning strategies with a low score of independent learning, so that the average score of student learning outcomes that have a low self-given expository instructional strategy was 18.5.

Higher learning independence is also a factor influencing the increase in learning outcomes Medicine Dermatology. Thus it is clear that there are significant interactions between learning and independent learning strategies on learning outcomes of Dermatology and Venereal.

Differences in Science Learning Outcomes and Genital Skin Disease that has a High Learning Independence given the Cooperative Strategies and Expository

The hypothesis that there are differences in the learning outcomes of skin and venereal diseases Science student who has a high learning independence given cooperative learning strategies and learning strategies expository acceptable. It can be seen from the magnitude of the mean score results of Sciences study of skin and venereal disease are given cooperative learning strategies are not significantly higher compared to students who have a high learning independence given strategy cooperative.

The mean score of student learning outcomes that have a high learning independence given cooperative learning strategies was 28, while that in the given expository instructional strategy is 27.1. This means that the

learning outcomes of skin and venereal diseases Science students are given a cooperative learning strategy is higher than that given expository learning strategies.

Thus the implementation of learning science of skin and venereal diseases require creative and imaginative process of a lecturer, thus allowing the formation of cognitive strategies to help students thinking ability are organized internally in solving the problem. Thus if a student has had since the beginning of independence learned well, will better understand the lecture material, so as to achieve the learning outcomes scores better than having a low learning independence, which in turn allows the lecture material can be well understood by students.

Expository instructional strategy implementation process provides the opportunity for all students to develop properly, in order to achieve high performance, in other words, the emergence of competition. This competition led to a student who has a low learning independence will be lost, so that the learning performance can dicapaipun low. Based on the analysis described above, the student who has a high learning independence given cooperative learning strategies are not significantly higher than that given expository strategy.

Differences in Learning Outcomes of Skin and Venereal Diseases Science Students who have a Low Learning Independence given Cooperative Learning Strategies and Expository

Research hypothesis which states that there are differences in the learning outcomes of skin and venereal diseases Science students who have low self-learning cooperative learning strategies that were higher than those given acceptable expository instructional strategies. This is evident from the results of hypothesis testing results showed that the mean scores of students who have low self-learning cooperative learning strategies that were higher than that given expository learning strategies.

Learning outcomes of students who have low self-learning cooperative learning strategies that were higher than that given for expository teaching Science subjects skin and venereal disease focus to learning independence in achieving a good understanding of materi who served as the material has the same efloresensi at different locations so that students must often use textbooks. Thus for students who have a low learning independence, it is an obstacle to the achievement of the course material that has been presented. For that collaboration with peers or groups to achieve a common understanding in solving a problem is very important. This can be done by pembelajaran cooperative strategy. In cooperative learning strategies, members of the group who has a low learning independence will get help from peer group in solving the problems that are being discussed. In the principle of cooperative learning strategies each group member is responsible for the group members. Learned through this friend is helping students who have low self-learning can improve learning outcomes for good.

CONCLUSION

Based on the data that has been obtained in the field, the results of hypothesis testing, and discussion of research results, it can be concluded as follows:

1. Effect of cooperative learning strategies are not significantly higher than expository learning strategies on learning outcomes of students. Based on these findings, it can be concluded that cooperative learning strategies and expository learning strategies can be applied to improve student learning outcomes.
2. There is an interaction effect between learning strategy and learning independence to the achievement of student learning outcomes. Based on these findings it can be concluded that in order to improve the learning outcomes of students who have a high learning independence can be done by using cooperative learning strategies and expository, whereas for independent learning which have lower, preferably using cooperative learning strategies.
3. Effect of cooperative learning strategies are not significantly higher than expository learning strategies on learning outcomes of dermatology and venereal students who have high self-reliance. Based on these findings, it can be concluded that in order to improve the learning outcomes of the science of skin and venereal diseases, students who have high self-reliance, can be done with cooperative learning strategies and expository.
4. Effect of lower than expository strategy of cooperative learning strategies on learning outcomes of dermatology and venereal students who have a low learning independence. Based on these findings it can be concluded that in order to improve learning outcomes dermatology and venereal students who have low self-study should also be done with cooperative learning strategies.

In general it can be concluded that in order to improve learning outcomes dermatology and venereal students can be done by using cooperative learning strategies and expository learning strategies by considering student learning independence. Students have high learning independence can be enhanced science learning outcomes

genital skin disease using cooperative learning strategies and expository, whereas for students who have a low learning independence should use cooperative learning strategies.

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