Discovery Learning Model On Learning Technology In Department Of Fashion Education Universitas Negeri Medan

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Discovery Learning Model On Learning Technology In Department Of Fashion Education Universitas Negeri Medan

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Abstract; This research is a research and development with the aim to know the effectiveness of learning model of Discovery Learning in Fashion Technology course. This research is carried out because of the gap that arises on the achievement of student learning because of the lack of balanced mastery of the theory and practice competencies in the students, in addition to the constraints in the learning process, because the achievement of the material is very limited so that the student activity is low, teaching aids not maximal, less precise. Learning is often done today still using the method of teacher learning center, so it becomes the main obstacle of students in achieving competence. While the Universitas Negeri Medan is currently applying the curriculum KKNI, where the achievement of learners to be passed by students with the implementation of six tasks namely routine tasks, critical book report, critical journal report, mini research, idea engineering and project research, in addition to these tasks students are also assessed through his attitude . The purpose of the use of discovery learning to help students develop better in the learning process in accordance with learning motivation and preference in learning, also provides practical-realistic opportunities for lecturers and students to learn independently, useful and knowing, and increased student flexibility, by combining the best aspects of face to face. The benefits of discovery learning help students to improve and improve cognitive skills and processes. Discovery effort is the key in this process, a person depends on how to learn, so that the student expected to achieve the result learn maximally. The product trial results are used as a basis for determining effectiveness, and appeal to models developed prior to use in the field. The result of this research is the increasing of student competence in the course of Fashion Technology through discovery learning model. In the result of questionnaire submitted from the expert of learning material give response (86,7%), that the material made is feasible to be used because according to SK, KD and learning objectives to be achieved by the student. Then the design of the learning also responded (87.1%) that the instructional designs were made feasible for use in the learning process.

Keywords; Model Discovery Learning, Fashion Technology Courses and Students Dress Fashion

I. BACKGROUND

The Study Program of Fashion Education has a vision and mission that is in harmony with the vision and mission of the University, then developed in accordance with the needs of stakeholders, vision, mission and goals of the Faculty and the University. In an effort to achieve the vision that has been established, the program of dress programming creates supportive systems, mechanisms and tools such as governance, human resources, educational facilities, management information systems, learning resources, academic atmosphere, research and community service, and cooperation.

The description of graduate quality of vocational education implements a double measure, quality by school size or in-school success standards and quality by size or out-of school success standards. The first criterion includes aspects of student success in meeting the curricular demands that have been oriented to the demands of the working world. While the second criterion includes the success of students who are skilled at the ability to work in accordance with national and international learning outcomes after they are in actual employment. Efforts to achieve maximum learning quality, technological and communication developments should be utilized in the learning process that is the utilization of computer media, this should also be supported by a computer laboratory is very good and feasible, and support the use of computers as a model of learning to assist lecturers in delivering materials learning.

The course of Fashion Technology is the basic course available in the Fashion Studies Program, whose material content includes the introduction of sewing machines and equipment operators, the introduction of the basic stitches in sewing, the introduction of base camps, the introduction of sewing techniques, the accepted semester students I. In the learning process of Clothing Technology it is seen that: 1) the lecturers need the right learning model in the learning process so that the learning is more effective. Previously the ongoing learning model was still implemented conventionally given additional tasks and demonstrations. Learning like this makes lecturers dominate the learning activities so as to generate limited space for students, 2) Students make lecturers as the main source of

information so that learning activities only prioritize congenial aspects, regardless of affective aspects and psychic motor students. Students tend to save difficulties when learning without any effort to solve it, so tend to be passive and as if have understood what has been taught, 3) Limited study time in the laboratory, making the lecturers only pursue the target for the material delivered on time, then students are assigned to do at home.

Furthermore, interviews were conducted on several students, saying that 1) in the learning process of fashion technology there are still many students who do not understand about sewing machine even some students who are not good at operating sewing machines, sewing techniques and the fundamentals of sewing and seam stitching , this is because the material is only delivered with conventional learning without media that can attract student interest to learn, 2) Conventional learning model using media power point that is still very simple and monotonous is not in accordance with the curriculum that has been applied that student-centered learning. In this research that will be developed is model of Discovery Learning process that requires students to find a concept that has not been known before by doing an observation and research of the problems given by lecturers, aims to create students who are active and independent in finding solutions from problems in learning activities, and train students' thinking skills and confidence skills in deciding things objectively.

II. LEARNING THEORY AND DISCOVERY LEARNING MODEL

Constructivism or constructivist theories of learning theory is a learning theory developed from Piaget's learning theory, Vygotsky, information processing theory and Bruner's theory. According Richardson in Wardoyo (2013) constructivism is a condition in which a person shapes an understanding based on the knowledge they have before and relate these knowledge to a new idea. Constructivism learning theory also contains important principles in student learning in schools. According to Trianto (2010) one of the important tenets of constructivism learning theory is that lecturers should not just deliver/present knowledge to students but students must also be involved in building their own knowledge. According to the theory of constructivism learning in student learning does not just take for granted information, knowledge or material submitted but students must also be able to find and build their knowledge.

Learning based on Discovery Learning is a learning based on constructivism theory of learning. One of the principles of constructivism learning theory is that students should not just take for granted information, knowledge or material but students must also be able to find and build their own knowledge. In addition, constructivism theory states that a person acquires knowledge not only from seeing and accepting what is given but someone building and forming their own knowledge into a profound understanding. The theory of constructivism learning is also closely related to how an individual connects their previous knowledge with the knowledge they have just received so that new knowledge or ideas are formed.

Discovery Learning Model According to Bruner, learning by invention is learning to discover, where a student is faced with a problem or situation that seems odd so that students can find a way of solving (Markaban, 2006). Discovery learning model seeks to lay the groundwork and develop a scientific way of thinking, learners are placed as learning subjects, the-role of educators in the learning model Discovery is a learning coach and learning facilitator. The basic idea of Bruner is the opinion of Piaget that states that learners should play an active role in classroom learning. The Discovery Learning model is to understand concepts, meanings, and relationships, through an intuitive process to finally come to a conclusion (Budiningsih, 2005).

Discovery occurs when individuals are involved, especially in the use of their mental processes to discover some concepts and principles. Discovery is done through observation, classification, measurement, prediction, and determination. The process is called cognitive process whereas Discovery itself is the mental process of assimilating concepts and principles in the mind (Robert B. Sund in Hamalik, 2001). The difference with Discovery is that in the problem faced by students is a kind of problem engineered by the teacher, whereas the inquiry is not the result of engineering, so the student must mobilize all his thoughts and skills to find the finding in the problem through the learning process. In applying the learning model of Discovery Learning, the educator acts as a mentor by giving the students the opportunity to learn actively, as the opinion of the lecturer should be able to guide and direct the student learning activities according to the purpose (Sanjaya, 2012).

Conditions such as this aims to change teaching and learning activities teacher oriented into student oriented. In the learning model of Discovery Learning, students are required to collect information, compare, categorize, analyze, integrate, reorganize the material and make conclusions. In addition Discovery Learning model is learning that requires students to find a concept that has not been known before by doing an observation and research of existing problems, aiming for students to act as a subject of learning and actively involved in learning. Learning Objectives Discovery Learning from various opinions with the discovery according to Bell (1981), namely:

a. In the invention students have the opportunity to be actively involved in learning. The fact shows that student participation in learning increases as the invention is used.

b. Through learning by discovery, students learn to find patterns in concrete and abstract situations, as well as students predominantly extrapolate additional information provided.
c. Students also learn to formulate answering strategies that are not ambiguous and use question and answer to obtain information in deciding something objectively.

The steps in applying the discovery learning model in the class are a) Determining the learning objectives, b) Identifying the characteristics of the student (initial ability, interest, learning style, etc.), c) Selecting teaching materials, d) Determining the topics that should (e) Developing learning materials in the form of examples, illustrations, tasks and so on for students to study, f) Setting teaching material topics from simple to complex, from concrete to the abstract, or from the enactive, iconic to the symbolic stages, g) Conduct a process assessment and student learning outcomes.

III. LEARNING TECHNOLOGY LEARNING RESULTS

Learning outcomes are the occurrence of behavioral changes in a person that can be observed and measured in the form of knowledge, attitude and skills. The change can be interpreted as an occurrence of improvement and better development before that do not know to know (Hamalik, 2008). Learning outcomes are patterns of action, values, understanding, attitudes, appreciation and skills (Suprijono, 2014), besides the learning outcomes include cognitive, affective, and psychomotor abilities. Cognitive domains are knowledge, comprehension, application, analysis, synthesis, and evaluation. Affective domain is receiving, responding, valuing, organization, characterization. Psychomotor domains include initiatory, pre-routine, routinized. Psychomotor also includes productive, technical, physical, social, managerial, and intellectual skills (Bloom in Suprijono, 2010).

Materials Clothing Technology is a science of skills that studies the way or technique, method of making or completion of clothing. Purpose of Fashion Course Courses; 1) To provide supplies of knowledge and skills to students in the course of fashion technology. 2) Students can know, understand and operate large and small sewing tools. 3) Students know partial handling technique using hand and some using sewing machine.

IV. RESEARCH METHOD

This research and development was conducted on the subject of Fashion Technology Study Program of Education of Fashion in Unimed, that is the development of Discovery Learning model in Fashion Technology course. The model in research and development this study aims to produce an empirically tested product. To produce these products, there should be a documented and measurable activity stage at all stages of development. Researchers divide research activities in several stages. The long research process of course requires different types of data, data sources and data analysis methods. Researchers are required to apply basic knowledge about the technology of clothing to be able to solve problems during the development process takes place.

The subjects of the experiment at this stage are three subject matter experts in Clothing Technology, three design learning experts. The data collected through the implementation of formative evaluation are grouped into: (1) first stage evaluation data in the form of test result data of course contents expert, instructional designer, and instructional media expert, (2) second stage evaluation data in the form of individual test result data and test try the field, in the form of data from the results of student reviews and lecturers course Fashion Technology. The instruments used to collect data in this development study are questionnaires and interviews. Questionnaires and interviews were used to collect data on the results of the review of expert content of the subject matter, the instructional designer, and the learning media expert, the students during the trial, the students and the lecturers during the field test.

In this design stage, first, formulate the learning objectives of the SMAR (specific, measurable, applicable, and realistic), compile the learning achievements, and the tasks done. Next compile the test, then determine the learning strategy, and the learning model of discovery learning. In addition, other sources of support are considered, including relevant learning resources, learning environments.

This step is: 1) The core of the analysis step because of studying the problem then find alternative solutions that have been identified through the step needs analysis. 2) An important step that needs to be done to determine the learning experience that students need to have during the learning activities. 3) Steps that should be able to answer the question, whether the learning program can overcome the problem of student's gap ability?. 4) Ability gap here is the difference in the ability of students with the ability that should be owned by students. Statement of capacity gaps: a) Students can-not achieve the standard of competence that has been determined after following the learning process. b) Students are only able to achieve 60% competency level of the competency standard that has been outlined. At the time of this step, key questions should be made as follows: c) What special abilities and competencies should the student have after completing the learning program ?. d) What indicators can be used to measure the success of students in following the learning program? e) What tools or conditions do students need in order to demonstrate competence-

knowledge, skills, and attitudes, after participating in a learning program? f) What teaching materials and activities can be used to support the learning program?
The steps of development stage in this research are as follows:

1) Potentials and problems, including: (a) identification of learning problems/needs and determining material competency standards; (b) conduct a learning analysis; (c) identifying student initial characteristics and needs analysis; (d) develop basic competence, indicators, and learning achievements (e) prepare tests; (f) develop learning models embodied in the form of syllabus and RPP; and (g) developing the subject matter.
2) Determining the learning discovery learning model, including: (a) adjusting the learning model in accordance with student learning characteristics; (b) developing teaching materials Fashion technology; (c) Determining the learning discovery learning model.
3) Collection of materials, including: collection of materials.
4) Develop and create discovery learning models: (a) Production planning model; (b) the production process of teaching materials of fashion technology; (c) questions and answers; (d) response assessment; (e) responding feedback; (f) repetition; (g) the lesson setting segment; (h) cover.
5) Review and trial of Phase I, Phase II, Phase II

The product of the learning model of Discovery Learning starts from the initial product trials through the following steps: a) Determining the objectives of the experimental design experts, materials experts, media experts, and students. The expected input from the experts is the suitability of the material description with the basic competence and competence standards, the accuracy of the material and the supporting material. Then analyze the conceptual and revision of the first phase of development. b) Program test: at this step the product has been fixed in revision I and the assessment questionnaire is given to the user individually for the purpose of knowing the validity of the product after being improved based on the review (small group trial). Inputs from trial II are further used as a basis for improving the model product. c) Medium group trial. These trials are conducted to determine whether there are still deficiencies that need to be improved from products developed after discussion either based on expert reviews or individual trials. If there is still a shortage then based on input made further improvements. This trial is conducted to determine whether there are still deficiencies that need to be improved from the product developed after discussion either based on expert reviews or individual trials so that the product can be declared viable as a valid source of the field. The types of data are: (1) the learning aspect and the truth of the content are obtained from the material expert and the instructional design; (2) the design of the model and the learning design is obtained from the instructional design expert; (3) the quality of learning descriptions and material presentation, obtained from small group, medium and large group trials. This qualitative descriptive analysis technique is used to process the data of the expert review of the content of the learning materials, and the instructional design experts, students and lecturers of the course subjects. Qualitative data obtained in this study are data from validators in the form of review of model assessment instruments, field observation results in the needs analysis phase and interviews in the stage of needs analysis and initial test.

V. RESULTS AND DISCUSSION RESEARCH

Implementation of Discovery Learning Model on learning Fashion Technology is done in stages. In the early stages of research and development this is a set of learning developed. The next stage of doing research in accordance with the syllabus, standards of competence and basic competence. This study aims to obtain data on what needs obtained by lecturers and students in the learning process, in addition this research aims to obtain data how the concept of Discovery Learning Model as a learning model to be developed. The first process in this development activity is to analyze the needs of the students of Fashion Courses program by spreading the questionnaire to 32 students who are following the learning of fashion technology, then distributing questionnaires to 3 lecturers Educations Fashion.
The results of the distribution of questionnaires distributed were found (62.75%) of the students stated that they really need the Discovery Learning Model in learning the fashion technology to be used as a means to enable students to receive learning well with more interesting learning methods, and (95%) lecturers states require a learning model of Discovery Learning as an additional modification of teaching and learning in improving learning more effective and interesting.

Based on the results of needs analysis can be concluded that the model discovery learning is still needed by lecturers and students in learning activities of fashion technology. after obtaining a series of development process, then the next step is to design and develop the model of discovery learning. Early product of discovery learning model outline as follows: Component Design of discovery learning model as follows: a) Determining of course identity: Identity of course of fashion technology at student of Fashion Clothing semester 1. b) Determining standards of competence and basic competence and learning achievement; The standard of competence that is achieved is fashion technology while the basic competence to be achieved are: Various kinds of sewing machine, how to use and maintain

it, Sewing technique, clothing edge completion technique, completion of buttonhole, button, collar, arm and pocket, and rimple.

The stages of the product trial are carried out as follows: (1) validation by the material expert, (2) validation by the instructional design expert and media expert, (3) small group 5 experiments, (4) revision I by material expert, (5) group trial while 17 students, (6) revision II by material expert validator, design instructional expert, (7) large class test of 32 students, (8) revision of material expert, design instructional expert. Based on product validation through a series of tests and revisions that have been done, then the model of learning discovery learning on the competence of sewing machine use has a valid status. The experiment was conducted in 2 stages: (1) evaluation of material experts, design instructional experts, (2) field trials. Product validation aims to know the opinion of material experts, designers of learning about the accuracy of design, learning aspects and the truth of the model discovery learning and the design of learning. Based on product validation through a series of tests and revisions that have been done, then the discovery learning model of fashion technology course has been valid. The experiments were conducted in 4 stages: (1) evaluation of material experts, designers of learning, and media experts, (2) small group trials, (3) medium group trials, (4) large group trials.

Based on the validation result of the material expert, there are 3 items that are considered Excellent, namely the clarity of the learning objectives of fashion technology, the truth and the accuracy of the material and the truth of the material concept, while there are 4 items that are considered good, covering the accuracy of the material coverage, the depth of learning materials of fashion technology, the sequence of learning materials and the attractiveness of the content of the learning discovery learning model that has been developed.

Based on the validation results of material experts that the feasibility of the presentation which includes the quality of the presentation of the material of the fashion technology and the quality of the test is considered very good, and the rest is considered good including preliminary quality, involvement and role of students in learning activities, feedback quality, and presentation time. Overall of feasibility aspects of the presentation of learning is considered very good. Assessment by the material expert includes content feasibility aspects, feasibility of presentation and language feasibility on developing discovery learning model on learning fashion technology consists of several topics: Various kinds of sewing machine, how to use and maintain it, Sewing technique, clothing edge completion technique, Completion cleavage buttonholes, buttons, collars, sleeves and pockets, reinforcement stitching, and rimple.

The results of the analysis by the material expert, and the instructional design on each aspect of the overall assessment are determined by the average score in each category. The results are analyzed to determine the feasibility or not developed a model discovery learning in the course of fashion technology. Material experts assess the learning of fashion technology based on the above three aspects of the content feasibility aspects of (88.6%), aspects of presentation of (86.7%), and the aspect of language (85%), as a whole the three aspects are very good category. The percentage of expert material research results is shown in Figure 1 below:

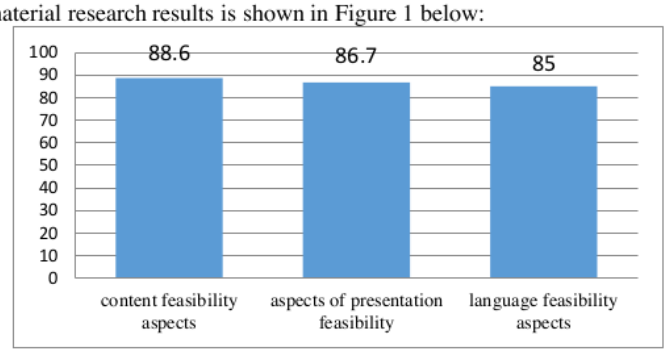

Figure 1. Obtaining score development of discovery learning model on Fashion technology by material experts.

Assessment by the learning design expert that the design of discovery learning model on learning fashion technology based on three aspects, namely the content feasibility aspect (83.6%), presentation feasibility (85.5%) and feasibility of graph (86%). Overall included in the category of very well that can be interpreted to meet the demands of learning needs. Percentage of assessment results of design expert of learning can be seen in picture 2 below.

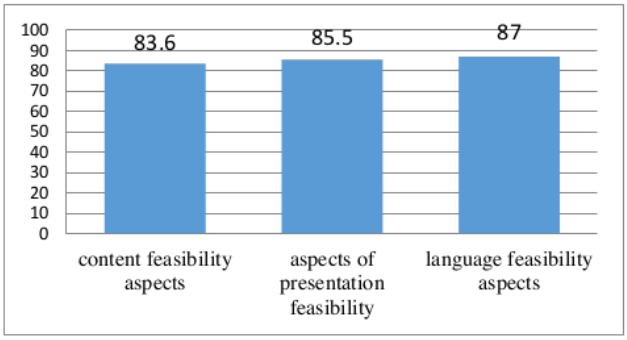

Figure 2. Score model discovery learning on fashion technology by a learning design expert

Based on the responses of instructional design experts say that the model discovery learning on learning fashion technology 37 eneral shows very good and acceptable but there are some suggestions and enter to improve the feasibility of the product. The results of the analysis of the problems raised by the designers of learning as follows: 1) discovery learning model should be further detailed, so that students understand the treatment 2) Adjust the conditions of learning discovery learning, and note the lesson plans and learning achievement that must be compiled in accordance with needs discovery model.

The average results of the assessment on small group trials on 5 students based on three aspects, namely the content feasibility aspect (58.5%), presentation feasibility (62%) and language feasibility (65%). Overall included in the category enough. The percentage of small groups is seen in Figure 3 below.

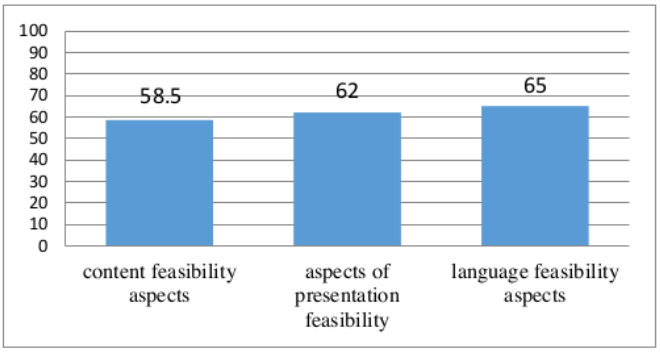

Figure 3. Obtaining scores of discovery learning models on fashion technology in small group trials

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The results of the assessment of the discovery learning model on the learning of fashion technology shows that the model product is feasible to be used and there are suggestions for improvement so that the development is continued in the group trial being on revision II. The result of data analysis on group trial is on every aspect of assessment will be described in figure 4 below.

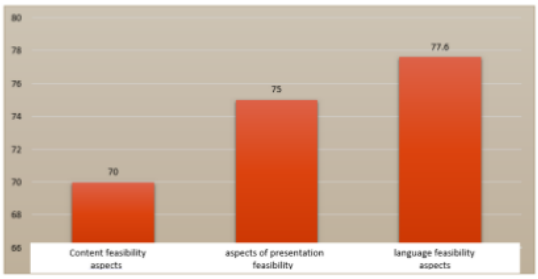

Figure 4. Obtaining scores of discovery learning model on fashion technology on Trial Group trial

Figure 4 shows the percentage of assessment results on a trials based on three aspects: content feasibility (70%), presentation feasibility (75%) and language feasibility (77.6%). Overall included in either category. The results of the assessment of the discovery learning model are generally stated well and there are no suggestions for improvement and can be continued in large/field group trials. Percentage of assessment on large group trials in 32 students based on three aspects: content feasibility aspect (93.3%), presentation feasibility (93.8%) and language eligibility (91.6%). Overall included in very good category.

The results of the assessment of the model discovery learning on fashion technology is very good and no suggestions for improvement so no further revision. This can be seen from small-scale trials, medium-class trials up to large-field trials/field increments of the responders' answers, in Figure 5 below.

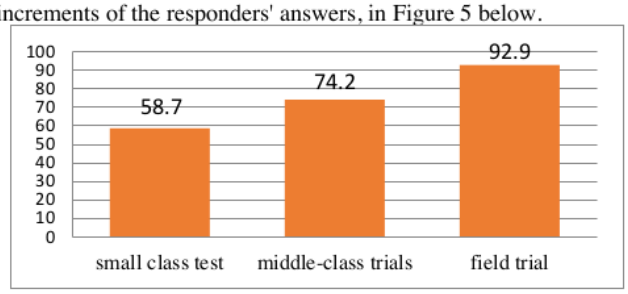

Figure 5. Average grade of values obtained from small, medium and large group trials as a whole

Learning discovery model of fashion technology is done based on the stages as found in the research procedure, then revised and refined aspects based on data analysis and trial and insert suggestions from materials experts and designers of learning and lecturers and students as users of discovery learning model. In the results of questionnaires submitted from the expert learning materials provide responses (86.7%), that the material made eligible to use because in accordance with the standards of competence, Basic Competence and learning objectives achieved by students. Then the design of the learning also responded (87.1%) that the instructional designs were made feasible for use in learning fashion technology. This is reinforced by the findings of the results (Martaida, 2017 and Yosef 2017) that the findings of students are motivated to learn because it is inspired by the model used, where teachers not only motivate students but also a source of inspiration for students to continuously learn, so the desire for learning to appear in students because of the inspiration given by the teacher.

Discovery Learning is seen as a model of learning, departing from learning further understanding of learning models obtained also from Models of Teaching (Wilson, 2014). Which states that: models of teaching deals can be constructed, sequenced, or delivered. They may provide theoretical or instructional frameworks, patterns, or examples for educational components-curricula, teaching techniques, instructional groupings, classroom management plans, content development, sequencing, delivery, development of support materials, presentation methods, etc. Teaching models r be discipline or student-population specific.

Discovery Learning Discovery Learning is an inquiry based, constructivist learning and theory of how to learn. The learning models given to students have learning scenarios to solve real problems and encourage them to solve their own problems. In solving their problems; because it is constructivist, students use their previous experience in solving problems. Activities they d by interacting to explore, questioning during experimenting with trial and error techniques (Bruner, on David 2017). According to Borth and Jones (2000) states that in discovery learning, students are expected to recognize problems, find solutions, find relevant information, develop solution strategies, and execute the chosen strategy. In collaborative learning discovery, participants are immersed in the practice community, solving problems together. Hoffman (2000) Learning discovery is a teaching of strategy instructors th can be utilized to increase student engagement and relevance. There are five discovery studies consisting of: case-based learning; incidental learning; learn by exploring; learning by reflection; and self-directed simulation learning, or in combination, that can be applied to activities and teaching skills.

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