Development of Calculus Material Model For Special Purpose of Accounting Expertise

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Abstract. This study aims to determine the functional relationship of calculus subject teaching material models that can encourage students’ interests, talents and learning motivation towards the achievement of accounting expertise in the Commerce Department of Politeknik Negeri Lhokseumawe (PNL). The sample of this study were 100 Accounting Study Program students from the Department of Commerce who were registered as second grade which had completed financial mathematics course. The data collection techniques in this study were using questionnaires and data analysis methods. The easiest process to understand accounting expertise is by using teaching materials of algebraic and integral differential calculus, specifically algebraic differentiation can be used anywhere especially in calculating interest. The results showed that firstly, the development of calculus teaching material models between student interest has been assumed to have a positive and significant effect on the GPA of Accounting Students, especially for the Diploma three of Accounting Study Program at the PNL. Secondly, the development of calculus teaching material model has a positive and significant effect on the student motivation of Accounting at PNL. Third, the development of calculus teaching material model for the specific purpose of accounting expertise, students’ interest and motivation are dominantly influent the GPA of the students.

1. Introduction

Politeknik Negeri Lhokseumawe (PNL) is one of the universities that organize vocational education programs for the dissemination of science and technology. Each study program development is conducted in the bases of professional competence to produce qualified graduates and who are ready to work in their respective fields with high competence according to the needs of the users.

Calculus learning may influence some learning achievement of accounting expertise such as financial accounting, accounting information system, cost accounting, public sector accounting, auditing, and taxation that can be understood by using the development of calculus instructional material model. Calculus material model can be easily applied to accounting expertise. Model of teaching materials in this calculus course can be applied anywhere, but in this case, researchers want to show the use of calculus courses that can affect student achievement accounting skills. Based on the above background the researcher is interested in conducting research on the calculus course with the title of development
of the calculus instructional material model for the specific purpose of accounting expertise that influences the student's learning achievement.

Accounting is a process of recording, classifying, summarizing, processing and presenting data, transactions and events related to finance so that it can be used by people who use it easily understood for decision making and other purposes. Joyce & Weil 1996 in Rusman (2010: 132) argues that the learning model is a plan or pattern that can be used to form a curriculum (long-term learning plan), designing learning materials and guiding classroom or other learning. integration between the concept of teaching and the concept of learning. Teaching is to guide the activities of students learning to teach, namely, organize and organize the existing environment so as to encourage and grow students doing learning activities. In the concept, it appears that the focus of teachers is as a mentor or learning leader or facilitator learning (AtikSniawati, 2011).

Accounting Information System is a system within an organization that is responsible for the preparation of Information obtained from the collection and processing of transaction data that is useful for all users both inside and outside the company. The accounting information system may also be defined as a collection of activities of the organization responsible for providing financial information and information obtained from data transactions for internal and external corporate reporting purposes. Accounting Information System provides information for management by carrying out certain operations on all data sources it receives and also affects the organization's relationship with the environment. As an accounting information system is a system in charge of collecting data describing the activities of the company, change the data into information and provide information for users inside and outside the company. In addition, the accounting information system is the only CBIS (Computer Based Information System) that is responsible for meeting the information needs outside the company. Accounting information relates to a function that is responsible for the flow of funds into the company, funds are needed to support marketing, manufacturing and other activities so it is necessary to control all fund flows so that their use can be effective. Many parties have an interest in the financial information of a company. If categorized there are two major groups that are very concerned that the external and internal parties. Both have a strong role in determining the growth of the company, especially the internal parties directly involved in financial management. Information generated by the internal company is used as a supporter in daily company activities and supporters in the decision-making process. Accounting information generated by SIA is divided into 2, namely:

- Financial accounting information, Information in the form of financial statements addressed to the extern.
- Accounting information management, information useful for management in decision making.

2. Literature Review

2.1. Interest

Interest is one of the potentials that exists in someone who can encourage the person to do something active. In the process of learning interest is something that really needs attention. Otherwise, the learning achieved will not work well, as suggested by: Elizabeth Hurlock (in Susanto, 2013: 62) mentions there are seven characteristics of learning interest as follows: 1) Interest grows along with physical and mental development; 2) Interest depends on learning activities; 3) Interest growth may be limited; 4) Interests depend on learning opportunities; 5) Interests are influenced by culture; 6) Interest in emotional weight; 7) Interest weighs egoistic.

Based on the above opinion it can be concluded that the characteristics of interest in learning are to have a constant tendency to pay attention and remember something continuously, to gain pride and satisfaction towards the interests, participate in learning, and interest in learning is influenced by culture. When the student has an interest in learning then the student will always actively participate in the learning and will give a good achievement in learning.
The influence between one element and the other is functionally interconnected, therefore: According to Aaron (2009), "Interests contain several elements, among others: feelings of pleasure, willingness, awareness, attention." The four elements are described in the following description:

1) Feelings of pleasure
   Relationships in the learning process, students who are not happy about a particular course will bring a very inhibiting inner atmosphere in the learning process. Feelings of unhappiness will not help develop a positive attitude or interest in learning. This shows that interest is the tendency of one's soul to a certain object which is usually accompanied by pleasure. So, between feelings of pleasure and interest have a close relationship.

2 Willingness
   A person can be said to have an interest in something if a person has a tendency to achieve the desired goal, or have the will to realize the desired goals. Thus, the will or desire will encourage the will that is controlled by the mind and directed at a goal.

3 Awareness
   A person is said to have an interest in an object or a particular field if one has an interest in it. In other words, a person is aware because of the information about an object or a particular field that has something to do with itself.

4 Caution
   Attention is closely related to individual interests. One factor of interest is attention. Thus, interest facilitates the creation of concentration in the mind of a student. Without interest then the concentration of the lessons will be difficult to develop and maintain. From opinions on understanding and elements of interest, researchers will use elements of interest expressed Aaron (2009) as an indicator in the assessment of interest that is; 1) feelings of pleasure, 2) willingness, 3) awareness, 4) attention.

2.2. Motivation to learn

   Motivation is a driving factor and encouragement that can trigger the emergence of a sense of spirit and also able to change the behaviour of humans or individuals to lead to things better for himself. Motivation is a change in a person or person characterized by the emergence of feelings and reactions to achieve goals. Motivation can be viewed from two traits, namely intrinsic motivation and extrinsic motivation. Intrinsic motivation is the desire to act that is driven from within the individual, whereas extrinsic motivation is the motivation whose existence is due to outside influences of the individual. The behaviour that occurs is influenced by the environment. Motivation to learn is a process that encourages learning, direction, and persistence of behaviour. That is, motivated behaviour is a behaviour that is full of energy, directed and lasting longer (Agus Suprijono, 2009: 163). From the various understanding above can be taken the sense that the motivation to learn is a boost or driving force from within the individual that gives direction and passion for learning activities, so as to achieve the desired goal. So, the role of motivation for students in learning is very important. With the motivation will improve, strengthen and direct the learning process, so that will be obtained effectiveness in learning.

   Learning achievement is a process undertaken by humans to gain a variety of competencies, skills and skills. Learning achievement is the result of student effort that can be achieved in the form of knowledge, habit and skill ability and attitude after following a learning process which can be proved by the test result. Learning achievement is a thing that is required by students to know the ability obtained from an activity called learning.
3. Method

Population in this research is all students of Accountancy program of Department of Commerce force of 2017-2018; 2018-2019 and 2019-2020. From the population found the sample, this sample is a representative sample of the population. Furthermore, if the subjects are large amounts can be taken between 10-15% or 20-25% or 30-35% or more. In this research, take a sample of 20% of the study subjects. The samples were chosen by stratified random sampling method the process to complete the data in discussing this issue there were several techniques used, namely:

1. Study the data and information documentation that researchers need in this discussion is to look for data derived from the Academic and Department of Commerce especially from Accounting Studies Program.
2. Indirect observation is the theoretical basis obtained through data from various books, literature and articles that deal directly with the above problems.
3. Questionnaire dispatch process with respect to the above issues.
4. The data obtained in this study can be classified into two types of data, namely:
5. Primary data is the data directly taken by researchers from the research respondents through questionnaire research.
6. Secondary data is data obtained from the academic and Accounting Study Program in the form of data on the educational background and number of students.

Furthermore, in this study there are 2 independent variables studied, namely interest (X1) and learning motivation (X2) while the dependent variable is the student's academic achievement which is shown from the final value obtained in the Group Value of Accounting Expertise Course (Y).

- Interests (X1)
  It is a high inclination of the heart, something of a taste and an interest in something, without any telling and arising not suddenly/spontaneously, but arising from participation, knowledge, and custom.

- Motivation (X2)
  It is the overall driving force to do something more than what should be done, thus creating a passion for one's work so that they will cooperate, work effectively and integrate with all their efforts to achieve satisfaction. Motivation to learn is a force (power motivation), the driving force (driving force), or tool builder’s willingness and a strong desire in students to learn actively, creative, effective, innovative, and fun.

- Learning Achievement Accounting Group Expertise Value (Y)
  Is proof of the success of learning or the ability of students in doing learning activities in accordance with the weight achieved? Achievement or learning outcomes (achievement) is a realization of the potential skills or capacities of students. The results of learning or learning achievement in this study can be seen from the mastery of the students will group of subjects Accounting expertise, which is reflected from the final value obtained by students to the course, expressed in numbers and weights.

4. Results and Discussion

Based on the background that has been described above, in this study can formulate whether the problem with the development of teaching materials model in the calculus course can affect the factors of interest, motivation and student achievement accounting expertise in Accounting Study Program at PNL based on the results of correlation testing obtained the value = 0.628. It can be interpreted that the correlation between student interest and motivation of students has a strong and positive relationship because R is positive and close to 1. While the adjusted R square value is obtained 0.394 which means the percentage of the relationship of influence of independent variables (Student Interest and Student
motivation) on variables independent (GPA) of 39.40% (0.394 x 100) while the remaining 60.6% (1 - 0.394 x 100) are other factors not included in this research model.

Then from the results of the simultaneous test (Test F), then obtained Fcount = 0.975 while the Sig = 0.000, because of the value of Sig <0.05 means that the student's interest and motivation of students together have a significant influence on increasing GPA of Accounting Students in Study Program III Accounting for the PNL.

Then from the results of a partial test between students 'interest and students' motivation for GPA for accounting students of the PNL Accounting D III Study Program, it turns out that the interest between students and GPA appears to have a significant effect because of the value of Sig <0.05. So that the proposed hypothesis is proven. Furthermore, from the results of the second hypothesis test, that is between the motivation of students with accounting GPA, there was a significant effect on the value of Sig <0.05. Thus, the hypothesis is proven. While the dominant variable affecting the GPA is the interest of students. So, the third hypothesis is proven.

Based on this discussion all the research instruments will be presented here, whether there is influence or not between interest and motivation toward the development of calculus instructional material model for the special purpose of accounting expertise.

5. Conclusion
Based on the development of calculus instructional material model for the special purpose of accounting expertise between student interest and student motivation toward students’ GPA in Program Diploma Three Accounting of PNL hence can be presented some conclusion that the development of calculus learning materials model between student interest to GPA can be said to have a positive and significant effect. Thus, the first hypothesis can be said to be proven. Then the development of learning material model of calculus between student motivation to student's GPA can be said to have a positive and significant influence on Accounting Student's GPA. Thus, the proposed hypothesis is proven. Later, the development of calculus instructional material model for the specific purpose of accounting expertise between student's interest and motivation to student's GPA, which variable is the most dominant influence the GPA of the students later to be noticed in the connection of regression analysis. Thus, the hypothesis is proved as well.

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