

Meaningful Learning: Improving Students' Accounting Knowledge and Skills Through Learning Computer Accounting Practice Courses

(Learning Experience in the Department of Accounting, State Polytechnic of Malang)

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Abstract—The purpose of this study is to provide examples of meaningful learning practices in the Accounting Computer Practices (ACP) courses. During the process of preparing financial reports using accounting software, lecturers not only explain the technical use of accounting software in preparing financial reports, but must also broadly disclose the basic business principles, basic assumptions, and accounting principles that underline the technical mechanisms, so that learning becomes meaningful. This study was carried out using empirical methods, in the form of direct experience in studying, observing, and teaching how to use accounting software. The results of this study are that the accounting knowledge and skill of the students are increased as indicated by their ability to explain the relationship between the technical stages in the preparation of financial statements using accounting software and business principles, basic assumptions, and accounting principles that underlie the technical mechanisms of using that software. The research contribution is that the results of the research can be used as a basis for strengthening the knowledge and skills of students in the implementation of learning all of the accounting subjects which are generally sequential and interrelated. The limitation of this research is that meaningful learning is not applied to all features of the accounting software used, but only in a small part.

Keywords—*meaningful learning, accounting computer practice course, meaningful learning task, previous relevant knowledge, student's cognitive structure*

I. INTRODUCTION

The awareness to hone the competence of students must always be present in every lecturer in every lesson they do. Implementing meaningful learning is one way that can be taken to realize the goal of increasing student competence. According to Ausubel, meaningful learning is a process of linking new information to relevant concepts contained in a person's cognitive structure. Cognitive structures include facts,

concepts, and generalizations that students have learned and remembered [1].

Referring to this definition, the idea is open to carrying out meaningful learning in the Accounting Computer Practice (ACP) course. In this case, ACP is a course that is in the curriculum structure. ACP course is the course that is delivered to provide the ability to compile financial statements using accounting computer applications. In general, this course is placed in the semester in which an Introduction to Accounting course has been given.

Accounting software is an application program specifically developed to carry out the function of preparing financial statements. The activity of preparing financial statements begins with the activities of creating a new company file, managing accounts, recording financial transactions, and displaying reports. Its advantages in managing accounting records quickly, accurately, and supporting the presentation of financial reports promptly, and even at any time needed is the reason why students need to acquire the skills to operate it. In this regard, a proper learning strategy is needed so that activities to learn how to operate accounting software which is encapsulated in the Accounting Computer Practice course can produce meaningful learning outcomes for students. One of the ways that can be done is to provide learning Introduction to Accounting courses first to provide competence in preparing financial reports manually and to learn other basic knowledge about the accounting cycle, basic assumptions, and accounting principles. So that there is a basic knowledge that fills the cognitive structure of the students who can serve as an anchor for the relevant meaningful advanced knowledge, one of which is ACP. In that learning sequence and the context of meaningful learning, the Introduction to Accounting course takes a position as previous relevant knowledge that fills the students' cognitive structure.

The new matter in this research is the fact that accounting software is developed based on basic business principles, basic accounting assumptions, and accounting principles as well as accounting techniques and treatments. Referring to these conditions, the application of meaningful learning in Accounting Computer Practice courses is very useful in increasing student accounting knowledge and skills. In this case the implementation follows the main activities in implementing Ausubel's meaningful learning model: Advance Organizer (AO), Presentation of Meaningful Learning Task (PMLT), Organize New Information (ONI), and Promote Active Reception Learning (PARL) [2]. These activities are applied at every stage of the preparation of financial statements using accounting software, of course, the application is based on appropriate accounting rules.

II. METHODS

This research uses empirical research as a research method. Empirical research, following the tenets of empiricism, is grounded in the belief that direct observation of phenomena is an appropriate way to measure reality and generate truth about the world [1]. Applying observations in this research is the main because it is an important scientific component in a research.

Observations are done by studying to the mechanisms for using accounting software in preparing financial statements. In this case, a one-stage mechanism for preparing financial statements can be applied under various conditions to know the impact of each treatment given. Such, the detailed mechanism for using accounting software can be properly understood. Observation of the detail of the mechanism in using accounting software is important in this study. This is expressed factually through an understanding of the substantial relationship between the technical mechanisms for using accounting software and accounting rules that become the background for the application of these mechanisms. This condition supports the implementation of meaningful learning because the lecturer can thus determine the related knowledge that already exists in the student's cognitive structure as an anchor for the new knowledge that will be delivered.

The unit observed in this study is the accounting software used in the Computer Accounting Practice course. Technical mechanisms that have been successfully understood through observation are the data in this study. The data also includes basic business principles and accounting rules such as basic assumptions and accounting principles that underlie the application of each stage in the preparation of financial statements using accounting software. Then, the research steps are: (a) determining whether the three main criteria for implementing meaningful learning have been met, (b) determining the three main components that must be available in meaningful learning in the context of the Computer Accounting Practice course, and (c) apply meaningful learning in the Computer Accounting Practice course.

III. RESULTS AND DISCUSSION

In the accounting department in most vocational higher education is teaching Accounting Computer Practice (ACP) as one of their courses. ACP is a course that is delivered to provide the knowledge and skill to the students in arranging financial statements by using accounting computer software. In general, this course is placed in the semester in which an Introduction to Accounting course has been given. This sequence is common because Introduction to Accounting is the course that becomes the basis for further relevant advanced courses.

In meaningful learning, some conditions must be met: (1) that the learner manifests a meaningful learning set, that is, a disposition to relate the new learning task non arbitrarily and substantively to what he already knows, and (2) that the learning task is potentially meaningful to him, namely, relatable to his structure of knowledge on a no arbitrary and non-verbatim basis [3]. The detailed explanation about these requirements come from the results of the analysis toward the meaningful learning theory as follows: (1) as an antecedent consisting of previous students' knowledge, potentially meaningful instructional material, and student's willingness to learn; (2) as attributes consist of an existence of previous knowledge that allows the connection with the new knowledge, interaction of previous and new knowledge in the cognitive structure, and expansion of the cognitive structure through the incorporation of prior knowledge with the new; and (3) as the consequent ones found: existence of new knowledge in the cognitive structure of the student, that generate sense and meaning in the cognitive system of the student and that confers importance to him according to the utility for his daily life [4].

Referring to these requirements, lecturers can facilitate meaningful learning in learning the Accounting Computer Practices course through the following evidence. First, there is a previous students' knowledge. In this context, it is basics accounting. The Students gain this knowledge from learning the Introduction to Accounting course, which is generally delivered in the semester I and semester II. Therefore, Introduction to Accounting course becomes the first antecedent that must exist in this meaningful learning. This follows what Ausubel implicitly says that the learner manifests a meaningful learning set, that is, a disposition to relate the new learning task no arbitrary and substantively to what he already knows [3]. The results of the analysis of the meaningful learning theory that put forward by Ausubel reinforce that knowledge that students already know is the first antecedent in meaningful learning. As stated, Ausubel's believes that learning of new knowledge relies on what is already known. That is, the construction of knowledge begins with our observation and recognition of events and objects through concepts we already have. We learn by constructing a network of concepts and adding to them [5]. Related to the first antecedent is also stated that the central point of reflection in Ausubel's Theory is that of all the factors that influence learning, the most important is what the student previously knows; aspect considered starting point [4].

This research applies meaningful learning, where the first requirement was fulfilled that is the existing student knowledge is the basics of accounting as an anchor for meaningful new learning tasks, namely Computer Accounting Practices. So, meaningful learning as based on Ausubel that "the most important single factor influencing learning is what the learner already knows" [5] can be gratified in this meaningful learning.

Second, CAP is taught at least semester III after students complete the Introduction to Accounting course which is delivered in semester I and semester II. So that before accepting CAP as new knowledge and skills, students already know the basics of accounting in their cognitive structure, namely knowledge that is relevant to the new knowledge being learned. Another fact is that the general instructional objectives of the two courses are linear. The general learning objectives of the Introduction to Accounting course are that students are able to compile financial reports manually to become anchors for general learning objective in the CAP course, students can compile financial reports using accounting software. The criteria for relevant knowledge that already exist in the cognitive structure of students are fulfilled, as well as CAP as meaningful new knowledge for students is accepted. Students already have knowledge of the basics of accounting in their cognitive structure before accepting the CAP course as meaningful new knowledge.

The CAP as a new meaningful learning task is non-arbitrary towards the Introduction to Accounting course as the relevant knowledge that already exists in the student understanding structure. CAP course learns how to prepare financial reports by using accounting software. It has the same learning objectives as the Introduction to Accounting course. In the process, both are using the same techniques as a basis, which is known as the accounting cycle. The accounting software uses in the CAP course, that is the difference in its implementation. Of course, it has technical stages or a more detailed and computerized use mechanism, beginning with entering information about company profiles until providing the financial statements. Each of these usage mechanisms has an accounting meaning as it is known by students when they learn the Introduction to Computer course. So in the context of meaningful learning, the substance of the CAP course is non-arbitrary toward students' knowledge of the basics of accounting. Such, some plausible or reasonable basis for establishing the relationship between the CAP course as a new meaningful learning material and students' knowledge about basic accounting in their cognitive structure can be granted. It also means that the CAP course is consistent with what students have understood.

The potential meaningfulness of the CAP course which factually is studying accounting software in arranging financial statements is that: the steps, terms, cycles, principles, and assumptions are the same as what is studied and used in the previous course that is Introduction to Accounting course which has constructed understanding in the cognitive structure of students. Referring to Ausubel's explanation, then CAP meets to the criteria of substantivizes or nonverbatimness,

implies that the potential meaningfulness of the material is never dependent on the exclusive use of particular words and no others, i.e., that the same concept or proposition expressed in the synonymous language would induce substantially the same meaning [3].

Third, students must connect new knowledge to what they already know. The unfavorable condition related to this requirement is that students forget to the knowledge which becomes the anchor for the new meaningful task being taught. Ausubel points out that Meaningful Learning is not one in which the subject never forgets. The student presents knowledge retention, however, there may be forgetfulness, which is easily rescued when the student re-studies the content. According to Ausubel, forgetfulness is a natural continuity of Meaningful Learning, but the student does not completely forget what he has learned. It is a progressive loss of the dissociability of the new knowledge in relation to the knowledge that gave it meaning and served as a cognitive anchorage; not a loss of meanings [4]. Lecturers can play a role in student forgetfulness by helping to recall relevant concepts that already exist in the structure of student understanding. Thus to carry out meaningful learning in the Accounting Computer Practice course, all requirements are met.

Computer Accounting Practice course is course that delivered to provide the ability to arrange financial statements using accounting computer applications. Habitually, this course is positioned in the semester in which a Basic Accounting or Introduction to Accounting course has been established. The real substance of this course is to study the use of accounting software in preparing financial statements. The characteristics of learning activities are very technical, many use certain commands that overall are procedural, consisting of sequential steps from one step to the next step to produce certain outputs that are part of the overall financial statements. Starting from the very beginning, that is creating a new company file, determining the setup of the software environment, populate the master databases, recording the various types of financial transactions, and presenting reports until finally starting a new accounting period that represents the closing journal entries. Understanding to the details of the technical stages of using accounting software is important in meaningful learning. Because to carry out meaningful learning in the Accounting Computer Practice course, the lecturer must find a substantial relationship between the technical stages of preparing financial statements and accounting meanings that become the background for the application of these technical stages. This condition supports the implementation of meaningful learning because the lecturer can determine the related knowledge that already exists in the student's cognitive structure as an anchor for the new knowledge being delivered.

Three main components that must be available in meaningful learning in the context of the Computer Accounting Practice course, are (1) technical steps of accounting software in preparing financial reports. In this case, technical steps are part of the overall accounting software as a tangible form of meaningful learning tasks that students accept as new

knowledge; (2) explanation relating to an each of these technical steps; and (3) relevant knowledge that already exists in students' understanding structures as an anchor for the new knowledge they receive. Lecturers are obliged to provide these three components because in this context there is no need for hard efforts from students to disclose, especially for the new knowledge they are learning. However, they must have the intention to connect all of the lecturers' explanations as new knowledge to the relevant knowledge that they already know.

Many steps and commands are applied in preparing financial statements using accounting software. One of the technical steps is the first step, which is creating a new company file as shown in Figure 1. This step consists of six more detailed steps, that are: (a) Introduction; (2) Company Information; (3) Accounting Information, (4) Account List; (5) Company File; and (6) Conclusion. This initial step can serve as a discussion among a series of further discussions in the framework of preparing financial statements.

Based on the Ausubel's meaningful learning model and use the stage of **Creating a New Company File** as a meaningful learning task that delivered to the students, below are the phases and the details of it that must be carried out:

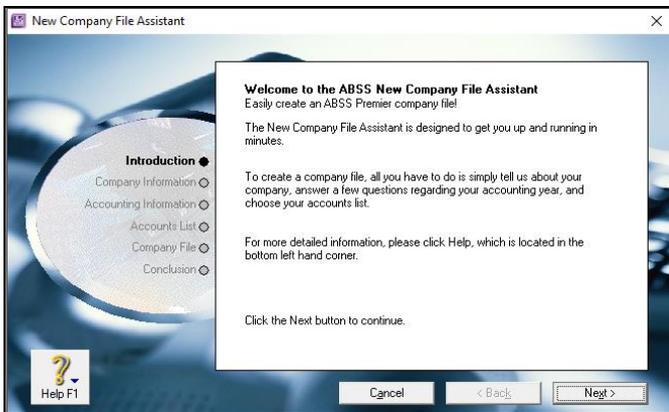


Fig. 1. New company file assistant.

A. The Application of Meaningful Learning in the Computer Accounting Practice Course

The main activities in carrying out this meaningful learning consist of the following activities: Advance Organizer (AO), Presentation of Meaningful Learning Task (PMLT), Organize New Information (ONI) and Promote Active Reception Learning (PARL) [2]. **Create a New Company File** is used as an explanation in this study, where the sub-steps used are **sub-step 2 regarding Company Information** and **sub-step 3 regarding Accounting Information**. These activities are presented in live/direct mode as follows:

1) *Title of the lesson:* Chapter I: Creating a New Company File

2) *Learning objective:* After studying this chapter, you shall be able to:

- State the sequence of the process of creating a new company file;
- Explain the purpose of creating a new company file;
- Explain the Introduction step;
- Apply the steps to enter the company information and explain economic assumptions and equity as the relevant accounting meanings and show the results of implementing these steps;
- Apply the steps to enter the accounting information and explain time period assumption and revenue and expense recognition principles (matching) as the relevant accounting meanings and show the results of implementing these steps;
- Apply the steps for determining the chart of accounts and explain the differences in the structure of the chart of accounts among industry classification and showing the results of implementing these steps;
- Apply the steps for determining the location for storing work results files; and
- Explain the consequences if select the Command Center command and explain the consequences if select the Setup Assistant command in the Conclusion step.

3) *Present the lesson:* Explain and give the examples of the application sequentially:

a) Company information step:

- AO-2: Don't forget that every assignment to solve cases or problems in arranging a financial statement that you had to complete was always associated with one particular company name. Implicitly, this condition confirms that accounting activities always occur within one business/ economic entity. This relates to one of the most familiar assumptions, which is the economic entity assumption. This assumption requires that the activities of the entity must be kept separate and distinct from the activities of its owners and all other economic entities for accounting purposes [6]. Figure 2 shows the second step, filling out the company information columns.



Fig. 2. Company information step.

- **PMLT-2:** The Company Information step asks you as a user to enter the information about the company profile, that is Company Name, Company Number, VAT Number, Company Address, Telephone Number, Fax Number, and Email Address. It is only simple way. Technical explanations for this stage are: (a) Technically, especially for the Company Name, it is used as a file name that stores all your activities from creating a new company file until presenting the financial statements and other necessary reports. This is the way how to document all of the accounting records done by accounting software. Of course, there is no such step when you are learning accounting basics in the Introduction to Accounting course; (b) The company name is a completeness document that is stored in the database and can be viewed as important information through the Setup - Company Information menu; and (c) By default, the Company Name is displayed on every report created. Preparing financial reports using accounting software is still based on the unit entity assumption as is in preparing manually. Therefore, this step is there.
- **ONI-2:** The completeness in the form of a Company Name is an application of the economic entity assumptions, both in manual and electronic financial reporting. The way to document using accounting software is done in a more structured manner, after this stage is complete, prove the results of the steps you have taken!
- **PARL-2:** Beside learning interactively by reading the messages displayed by accounting software so that you can respond correctly to what the application needs, I also suggest that you always see the results of the commands you use.

The accounting meaning of this step is that the company name represents an economic entity. Therefore, this is related to the economic entity assumption, which requires that the activities of the entity must be kept separate and distinct from the activities of their owners and all other economic entities for accounting purposes. The effect of this assumption is that the owner's presence in the company/economic entity is stated through the Shareholders/Owner's Capital account in the Equity account group on the balance sheet in the amount of their participation.

b) Accounting information step:

- **AO-3:** When you learn to compile financial reports manually, perhaps you don't realize that all the problems in preparing financial statements that you solve are related to the period and dates of financial transactions. The year of occurrence and transaction date is exactly determined in the problems. The year and date of transactions written in the problems imply the importance of time assumptions in accounting. It is

related to the accounting meaning, which is the time period assumption. However, most companies need immediate feed-back about how well they are doing. For example, management usually wants monthly financial statements. The Internal Revenue Service requires all busi-nesses to file annual tax returns. Therefore, accountants divide the economic life of a business into artificial time periods and that useful reports covering those periods can be prepared for the business. This convenient assumption is referred to as the time period assumption [6].

Both small and large companies prepare financial statements periodically in order to assess their financial condition and results of operations. Accounting time periods are generally a month, a quarter, or a year. Monthly and quarterly time periods are called interim periods. Most large companies must prepare both quarterly and annual financial statements. An accounting time period that is one year in length is a fiscal year. A fiscal year usually begins with the first day of a month and ends 12 months later on the last day of a month. Many businesses use the calendar year (January 1 to December 31) as their accounting period. Some do not [6].

The accounting year also deals with the needs of business entities to measure their financial performance. In this regard, the revenue recognition principle, and the expense recognition principle are facilitate those needs. The revenue recognition principle therefore requires that companies recognize revenue in the accounting period in which the performance obligation is satisfied. The expenses recognition principle often referred to the matching principle). Match expenses with revenues in the period when the company makes efforts to generate those revenues. Accountants follow a simple rule in recognizing expenses: "Let the expenses follow the revenues." Thus, expense recognition is tied to revenue recognition [6]. Figure 3 shows the third step, determining the accounting information columns.

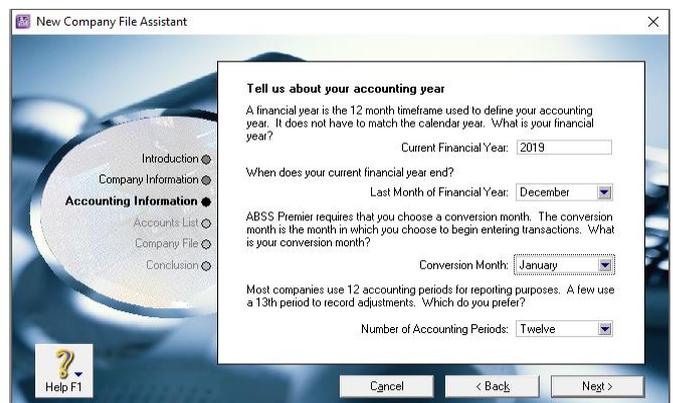


Fig. 3. Accounting information step.

- PMLT-3: The Accounting Information step asks you - as a user - to enter the information about the accounting period to be applied, that is Current Financial Year (The year applied as the accounting period), End Month (The month when the current financial year end), Conversion Month (The month is specified when the user starts entering the transaction), and Number of Accounting Periods (The number of months applied to an accounting period). Consists of two choices, twelve and thirteen. If twelve months is chosen, then there are financial transactions that are recognized in the financial statements with nominal amounts as an estimation. If thirteen months are selected, all financial transactions are recognized in the financial statements at their actual nominal amounts.

The applied accounting period does not allow for users to record financial transactions with dates before that period. The applied accounting period allows the recording of financial transactions with a date after that period. To avoid the errors caused by these conditions, users can detect them using the Company Data Auditor, Transaction Review, Future Dated Transaction facilities. Thus the matching principle will run properly.

- ONI-3: Understand the relationship between the steps to fill in accounting information and the assumptions and principles associated with the timing and requirements for measuring the financial performance of economic entities!
- PARL-3: These assumptions and principles underlie the operation of the accounting software. As an illustration, if you determine that the Accounting Year is 2019, the Last Month is December, and the Conversion Month is January, then the accounting software will run the process of preparing the financial statements as a new accounting year. In this condition, the nominal accounts in the accounting software cannot be filled with the opening balance. The matching principle runs in this condition, namely, financial performance is measured by matching between income and expenses in the same accounting year. In the same case, if you determine that the Conversion Month is March or another month except for January, then the accounting software will run the process of preparing financial statements, not as a new financial year. In this condition, the nominal account in the accounting software can be filled with the opening balance. Try these two conditions through the use of accounting software and prove the explanation above then relate it to your knowledge about the relevant assumption and principles.

The application of the Ausubel learning model in learning ACP subjects significantly increases students' accounting knowledge and skills. The important finding is that students become aware that every technical mechanism in the use of accounting software is always guided by accounting rules. This is in accordance with the research results of Safdar et. al. [2]

that Ausubel's teaching methods in physics theory are better in achievement than the controlled group and it has made it easy to pave the way for research in order to lead the teachers to adopt Ausubel's teaching strategy, in the teaching of physics specifically at secondary level [3]. Safdar also states that his research results are consistent with the views of Ausubel specifically the importance of pre-learning, the linking of new ideas to previous knowledge [2,3]. The results of other studies also show good results on the use of meaningful learning methods. The findings show that the evaluating ubiquitous learning using the meaningful learning paradigm can significantly enhance learning effectiveness, especially for low-achieving students, although the gains were not so significant for the high-achieving students [7]. In other studies, the meaningful learning paradigm also gets attention to become the main choice in order to evaluate the effectiveness and feasibility of applying ubiquitous learning in education [8].

III. CONCLUSION

The opportunity to carry out meaningful learning in accounting courses is very open. This is based on the characteristics of some knowledge in accounting that must be taught sequentially. For example, students must learn the Introduction to Accounting before learning Intermediate Accounting and Cost Accounting courses. This condition fulfills the criteria of meaningful learning, that is, previous students' knowledge, potentially meaningful instructional material, and students' willingness to learn.

Meaningful learning in the Computer Accounting Practice course is highly recommended with more or fewer practices as presented above. An example of this implementation is carried out with the reception learning approach, in which the lecturer is relatively fully prepared and delivered teaching materials. In the Organize New Information section, the lecturer encourages students' intention to relate the new meaningful learning tasks to relevant knowledge that already exists in their cognitive structures.

The hope of implementing this meaningful learning is that students will be able to see accounting software as not just a tool that performs ease, speed, and accuracy in preparing and presenting financial reports. More than that, students can understand the essence and substance of accounting in accounting software, and thus the knowledge they receive can be stored longer in their long-term memory.

REFERENCES

- [1] H. Bhattacharya, "Empirical Research," in *The SAGE Encyclopedia of Qualitative Research Methods*, A SAGE Reference Publication, Vol 1 & 2, pp. 253-255, 2008.
- [2] M. Safdar, A. Hussain, I. Shah, Q. Rifat, *Concept Maps: An Instructional Tool to Facilitate Meaningful Learning*, *European Journal of Educational Research*, Vol. 1, No. 1, 55-64, 2012.
- [3] D.P. Ausubel, "Facilitating Meaningful Verbal Learning in the Classroom," *The Arithmetic Teacher*, vol. 15, pp. 126-132, February 1968

- [4] G. Agra, N.S. Formiga, P.S. de Oliveira, M.M.L Costa, M.G.M, Fernandes, M.M.L, da Nobrega, "Analysis of the Concept of Meaningful Learning in Light of the Ausubel's Theory," *Revista Brasileira de Enfermagem*, Vol 72, pp. 248-255, Jan./Feb., 2019.
- [5] N.N, "Learning Theories", Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam Universitas Pendidikan Indonesia, Unpublished.
- [6] J.J. Weygandt, P.D. Kimmel, and D.E. Kieso, *Accounting Principles*, Wiley, 2015.
- [7] Y. Huang, P. Chiu, The Effectiveness of the Meaningful Learning-Based Evaluation for Different Achieving Students in a Ubiquitous Learning Context, *Computers & Education*, Volume 87, September 2015, Pages 243-253.
- [8] Y. Huang, P. Chiu, T.C. Liu, Tzung-Shi Chenc, The Design and Implementation of a Meaningful Learning-Based Evaluation Method for Ubiquitous Learning, *Computers & Education*, Volume 57, Issue 4, December 2011, Pages 2291-2302.