

Development System Relationship Model Learning and Consultation for Students Psychology

SulisSandiwarno

Department of Information System
Universitas MercuBuana, Indonesia

Abstract – Information Technology now has big impact to the world, with Information Technology always help somebody to do something. Information Technology in education has big impact, because with Information Technology education will be better, effective and efficient. With Information Technology we can development model for learning, This system model combines learning systems and media consultations conducted by psychology study program, the model of learning help users learning and to teach. This model using method Collaborative Learning Tecnology Model Acceptance and NBC (Naive Bayes Classification). With this model we hope all activities learning can be effective and efficient.

Keywords: Information Technology, Learning and Consultation, Collaborative Learning Tecnology Model Acceptance, NBC (Naive Bayes Classification), effective and efficient

I. INTRODUCTION

Distance education (of which online learning is a major subset) is a discipline that subsumes the knowledge and practice of pedagogy, of psychology and sociology, of economics and business, of production and technology. We attempt to address each of these perspectives through the words of those trained to view their work through a particular disciplinary lens. The Internet can also create online learning communities, which bring social interaction to learning and support the learning process. An online community refers to an aggregation of people who have a shared goal, interest, need, or activity and who have repeated interactions and share resources^[2]. To promote higher-order thinking on the Web, online learning must create challenging activities that enable learners to link new information to old; acquire meaningful knowledge and use their metacognitive abilities; hence, it is the instructional strategy, not the technology, that influences the quality of learning. Online learning allows participants to collapse time and space, however, the learning materials must be designed properly to engage the learner and promote learning. Terms commonly used for online learning include e-learning, Internet learning,

distributed learning, networked learning, tele-learning, virtual learning, computer-assisted learning, web-based learning, and distance learning. All of these terms imply that the learner is at a distance from the tutor or instructor, that the learner uses some form of technology (usually a computer) to access the learning materials, that the learner uses technology to interact with the tutor or instructor and with other learners, and that some form of support is provided to learners. For learners, online learning knows no time zones, and location and distance are not issues. In asynchronous online learning, students can access the online materials anytime, while synchronous online learning allows for real-time interaction between students and instructors. Learners can use the Internet to access up-to-date and relevant learning materials, and can communicate with experts in the field which they are studying. Situated learning, or the application of knowledge and skills in specific contexts, is facilitated, since learners can complete online courses while working on the job or in their own space, and can contextualize the learning. For instructors, tutoring can be done anytime, anywhere. Online materials can be updated, and learners can see the changes immediately. When learners are able to access materials on the Internet, it is easier for instructors to direct them to appropriate information based on their needs. If designed properly, online learning systems can be used to determine learners' needs and current level of expertise, and to assign appropriate materials for learners to select from, to achieve their desired learning outcomes^[15].

II. RELATED WORK

Learning is the process whereby new knowledge, skill, value, belief, attitude or behaviour is acquired^[7]. The goal of any instructional system is to promote learning. Therefore, before any learning materials are developed, educators must tacitly or explicitly know the principles of learning and how students learn. This is especially true for online learning, where instructors and learners are separated. The development of effective online learning materials should be based on proven and sound learning theories. As discussed above, the delivery medium

is not the determining factor in the quality of learning per rather, course design determines the effectiveness of the learning Online learning strategies must present the materials and use strategies that enable students to process the materials efficiently. Since working memory has limited capacity, information should be organized^[16]. In distance learning environments, this may lead to a greater sense of community which in turn can motivate learners and decrease attrition rates^[13]. Social networking sites have become popular e-learning platforms for sharing knowledge and thus carrying out collaborative learning^[18].

Online collaboration can be an important instructional strategy because it can promote learning synergy and authenticity as well as support the affective needs of learners^[10]. Human-computer interaction (HCI) is fundamentally an information-processing task. In interacting with a computer, a user has specific goals and subgoals in mind. The user initiates the interaction by giving the computer commands that are directed toward accomplishing those goals. The commands may activate software programs designed to allow specific types of tasks, such as word processing or statistical analysis to be performed^{[11][14]}. Collaborative learning evolves as groups of students address problems/issues regarding the course subject matter. In collaborative learning students are a source of authority and knowledge on assignments, and direct a significant amount of the learning^[3]. Current educational management is the combination of constructivist concept and technology on communication/computer networks as learning media. It also includes human contact for the construction of learning society^[8]. Collaborative learning is a more complex process accentuating the development of team roles and processes with respect to learning objectives. characterizes the components of online collaboration as: (1) positive interdependence, where respective student roles are defined within the team, (2) promotive interaction, where mutual help, feedback, and information exchange occurs between students, (3) individual accountability, and (4) group processing, where an instructor monitors and provides in-progress feedback to individuals and groups, and the whole-class reviews all team-learning. *Onlinecollaboration* can be an important instructional strategy because it can promote learning synergy and authenticity as well as support the affective needs of learners. That is to say, if structured suitably collaboration can: (1) promote the active construction of knowledge, (2) model the real world fostering group and project management skills, and (3) address a student’s need for social interaction and sense of belonging. Two categories of social affordances from online collaboration. The first of these is the educational dimension and

the second area is the social psychological dimension^[10]. ce, New York, 2010

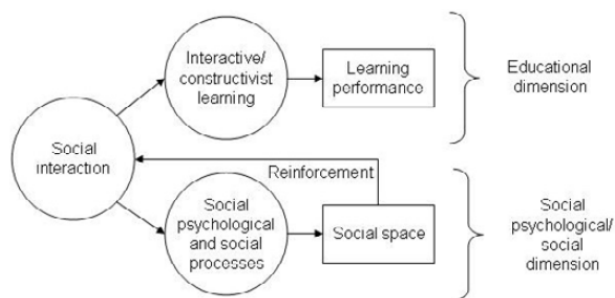


Figure1. Two categories of social affordances from online collaboration^[10]

Collaborative search is part of the broader emerging phenomenon called *social search*. Social search refers broadly to the process of finding information online with the assistance of social resources^[11]. There is as much to name software systems facilitating or supporting for such systems, such as *learning management system (LMS)*, *learning content management system (LCMS)*, *course management system (CMS)*, *virtuallearning environment (VLE)*, *managed learningenvironment (MLE)*, *technology-enhancedlearning environment (TELE)*, or *learning support system (LSS)*^[17]. Some model in Collaborative Learning are^[15]:

- a. Model 1: Group – Based Discussion

In Model 1, we introduced conversation tools to support a simple discourse approach for student learning. These tools were intended to be used by students to support work-based and collaborative group discussion
- b. Model 2: Knowledge Sharing and Discussion

In Model 2, we experimented with a combination of conversation and knowledge construction tools to support the processes of discussion and knowledge building between students.
- c. Model 3: Knowledge Acquisition, Communication and Discussion

This model represented a further extension of the discussion and knowledge-building activities described in Model 2.Elements in the community-of-Inquiry framework are:

- a. Cognitive Presence

Cognitive presence, a condition of higher order thinking and learning, is operationalised through the practical inquiry model
- b. Teaching Presence

This element considers the roles and functions of all participants in creating and maintaining a dynamic learning community.
- c. Social Presence

Social presence creates a sense of belonging that promotes meaningful inquiry and provides a context that facilitates critical discourse and reflection with collaboration learning students can write quiz and forum, download some file from teacher, and can look the score and teacher can use for upload quiz, unload file of course and input score^[5]. Building the infrastructure for online learning has many interconnected components and many factors must be considered, so it is hard to provide a straightforward checklist or recipe to follow. Distance education has provided an understanding of how the entire systems of course design, development, and delivery occurs, and how these link to related learner services and other components, all of which are vital aspects of ensuring effectiveness and quality. The content of learning system is, system should have content management learning (CMS). In CMS usually have^{[9][12]} :

- a. Forum or chat
- b. Polling
- c. Quiz
- d. Polling

TAM is a behavioral belief model that was developed by based on theory of reasoned action (TRA), and asserts that perceived usefulness and ease of use would affect attitude toward use, in turn affecting actual behavioral performance. There are five main dimensions in TAM, which are perceived usefulness, perceived ease of use, attitude toward use, behavioral intention to use, and system usage^[18]. identified two fundamental factors in TAM, perceived usefulness (PU) and perceived ease of use (PEU), which influence user attitude towards the usage of information systems^[5].

III. ANALYSIS AND DESIGN

In this paper, used TAM (Technology Acceptance Model) for method. In TAM model for this paper have requirement:

- a. Communication (H1)
- b. Interaction (H2)
- c. Attitude (H3)

Table 1.rules of Development System

No	Communication	Interaction	PU	PEU	ATU	BIU	AUB	RESULTS
1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
2	Yes	No	Yes	Yes	Yes	Yes	Yes	
3	Yes	No	No	No	No	Yes	Yes	
4	Yes	No	Yes	No	Yes	No	Yes	
5	No	Yes	No	No	No	Yes	No	
6	No	Yes	Yes	Yes	Yes	Yes	No	
7	No	No	Yes	Yes	Yes	Yes	No	
8	Yes	No	No	Yes	No	Yes	Yes	
9	Yes	Yes	No	No	No	No	No	
10	Yes	Yes	No	No	No	No	Yes	

Naive Bayes Classification Formula:

$$p|c = \frac{p(x|c)p(c)}{p(x)}$$

- p|c* posterior probability
- p(x|c)* likelihood
- p(c)* class prior probability
- p(x)* predictor prior probability

In this paper, have 2 actor (teacher and student). In this paper use the NBC (Naive Bayes Classification) for calculate the result of Development System. There are several stages of development this system.

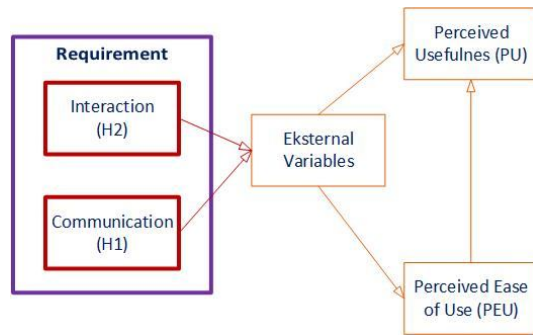


Figure 2. TAM Compare Requirement to PU and PEU

Second of step : Compare PEU to PU

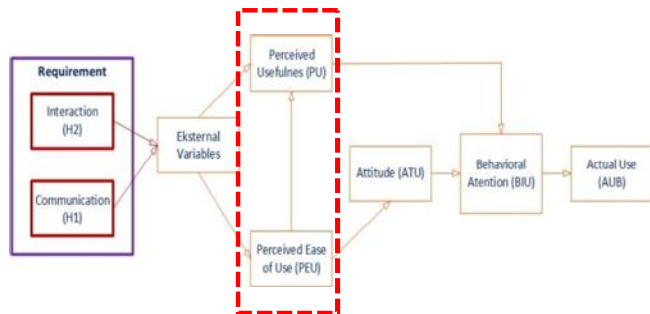


Figure 3. TAM Compare PEU to PU

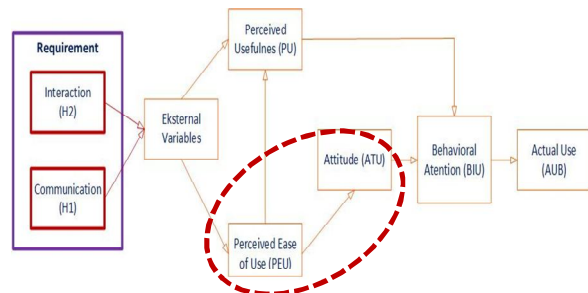


Figure 4. Compare PEU to ATU

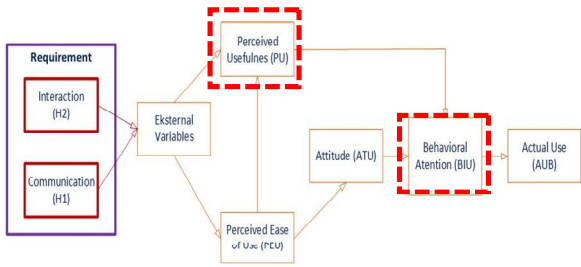


Figure 5. Compare PU to BIU

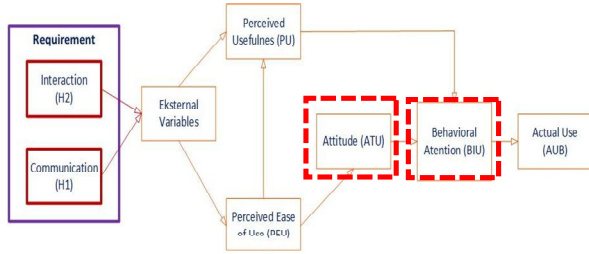


Figure 6. Compare ATU to BIU

After calculate model of learning and consultation, we get the result. Where the result are using NBC (Naive Bayes Classification).

Table2. Probability H1 to PU

Communication (H1)	PU		Probability	
	Yes	No	Yes	No
Yes	3	4	3/5	4/5
No	2	1	2/5	1/5
Total	5	5	1	1

Table3. Probability H1 to PEU

Communication	PEU		Probability	
	Yes	No	Yes	No
Yes	3	4	3/5	4/5
No	2	1	2/5	1/5
Total	5	5	1	1

Table4. Probability H2 to PU

Table5. Probability H2 to PEU

Interaction (H2)	PU		Probability	
	Yes	No	Yes	No
Yes	4	4	4/5	4/5
No	1	1	1/5	1/5
Total	5	5	1	1

Table6. Probability PEU to PU

PEU	PU		Probability	
	Yes	No	Yes	No
Yes	4	1	4/5	1/5
No	1	4	1/5	4/5
Total	5	5	1	1

Table7. Probability PEU to ATU

PEU	ATU		Probability	
	Yes	No	Yes	No
Yes	4	1	4/5	1/5
No	1	4	1/5	4/5
Total	5	5	1	1

Interaction (H2)	PEU		Probability	
	Yes	No	Yes	No
Yes	3	5	3/5	5/5
No	2	0	2/5	0
Total	5	5	1	1

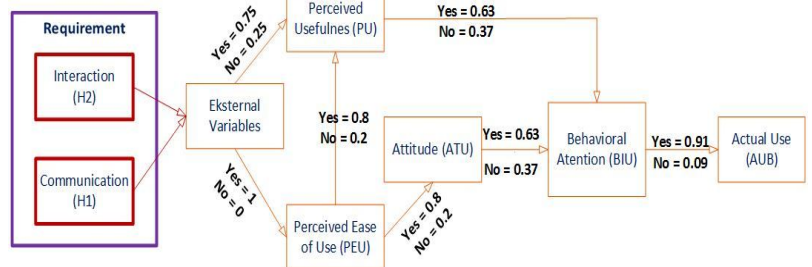


Figure 9. Result of Naive Bayes Classification (NBC)

On the result of the data analysis in Figure10, lead to the conclusion of Development System Relationship Model Learning And Consultation For Students Psychology, can be approved and acceptable for total of posterior Yes = 5.51, and for total of posterior No = 1.28.

I. RESULT AND CONCLUSION

In the calculations have been done using a method NBC based on the method of TAM get the result Development System Relationship Model Learning And Consultation For Students Psychology acceptable, because with this model, teacher and student can perform interactive communication. Expected after testing the design of Development System Relationship Model Learning And Consultation For Students Psychology is the next stage can be made system Collaborative Video Conferencing Consultation so that it can help the problems in media education.

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