

# Deployment TAM to Examine Discussion Online Discussion

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## Abstract:

Information Technology today has evolved in human life. Utilization information technology helps people in adapted for using system. For this study information technology has impact in learning process. Inside learning process need concept feedback between lecturer and students. Lecturer and student should could interaction and lecturer should give student motivation and help student solved the problems. The problem in this study is which one the better discussion learning face to face or online discussion. In this study propose to compare discussion learning face to face and online discussion. Using TAM (Technology Acceptance Model) and UML (Unified Modeling Language) as method in this study. The results in this study is online discussion has given good impact for interacting between lecturer and students.

**Keywords– Information Technology, TAM, Online Discussion**

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## I. INTRODUCTION

Information Technology has big impact in learning process. The integration of technology-assisted learning during science education seems well-placed given that it was advances within scientific disciplines that gave rise to such technology<sup>[3]</sup>. E-learning tools become increasingly rich, and offer more opportunities for synchronous communication resembling face-to-facesituations<sup>[6]</sup>. E-learning is a part of the educational process on many levels of education, from primary to higher education, extending to the postgraduate level<sup>[1]</sup>. E-learning makes learning more accessible because lecturer could share about information without limitation on place and time<sup>[2]</sup>. In e-learning, communication is key on learning process. Without communication lecturer and students could not sharing about information. There is concept of communication between lecturer and students the concept is asynchronous<sup>[4]</sup>. Its mean, there is interactive between lecturer and students in e-learning. If students have some problem and student could asking to lecturer, and lecturer could giving some solution for it.

Many citation researches about discussion in learning have created in the literature with a different concept. ItzamáLópez-Yáñez in their study has concept collaborative learning for online discussion. Its mean lecturer and student could build communication using social media and mobile network<sup>[5]</sup>. Some studies about online discussion have proposed and from some studies have some concepts.

Actually, comparing discussion learning face to face and online discussion only uses information technology as tools. In this study propose comparing between discussion learning face to face and online discussion. For comparing this study, using TAM (Technology Acceptance Model) as method and UML (Unified Modeling Language) for build conceptual scenario of online discussion.

The paper is structured as follows: the second section we will review some related works on TAM. In section three, the proposed model of TAM is presented. In section four, we present some experiments and results with discussion. Finally a conclusion and future work are presented.

## II. RELATED WORK

Adopted from the theory of reasoned action<sup>[7]</sup>, the technology acceptance model (TAM) was first developed by<sup>[8]</sup> to predict and explain human behavior specifically in the domain of computer technology.

In the TAM, attitude towards behavior predicts behavioral intention and behavioral intention predicts behavior. In addition, Davis 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. He defined PU as “the degree to which a person believes that using a particular system would enhance his or her job performance”<sup>[8]</sup> and perceived ease as “the degree to

which a person believes that using a particular system would be free of effort” [8]. PU and PEU are analogous to the relative advantage and perceived complexity.

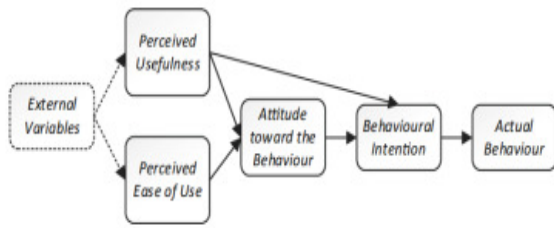


Fig. 1 Technology acceptance model (TAM)

Building an information system using the SDLC follows a similar set of four fundamental phases: planning, analysis, design, and implementation<sup>[9]</sup>. Each phase is itself composed of a series of steps, which rely on techniques that produce deliverables (specific documents and files that explain various elements of the system). The planning phase is the fundamental process of understanding why an information system should be built and determining how the project team will go about building it.

The analysis phase answers the questions of who will use the system, what the system will do, and where and when it will be used.

The design phase decides how the system will operate in terms of the hardware, software, and network infrastructure that will be in place; the user interface, forms, and reports that will be used; and the specific programs, databases, and files that will be needed.

The final phase in the SDLC is the implementation phase, during which the system is actually built (or purchased, in the case of a packaged software design and installed).

### III. METHOD

In this study using TAM as method and UML for describe an activities. In TAM need some variables such as: (1). Motivation and (2) Feedback. For motivation have value (H1) and feedback have value (H2).

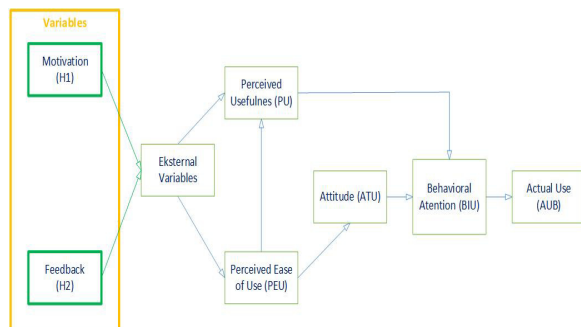


Fig. 2 Conceptual this research in TAM

In Fig. 3, this study focus in external variables (H1 and H2) and other variables of TAM are Perceived Usefulness (PU), Perceived Ease of Use (PEU), Attitude (ATU), Behavioral Attention (BIU) and Actual Use (AUB). And how to these variables has impact with this study. For show the results this study, would to calculate all variables using NBC (Naive Bayes Classification). NBC in TAM have 10 rules for every variable.

Table 1. Rules of TAM in NBC

No	Perceived Usefulness (PU)	Perceived Ease of Use (PEU)	Attitude (ATU)	Behavioral Intention (BIU)
1	Yes	Yes	Yes	Yes
2	Yes	No	Yes	Yes
3	Yes	Yes	Yes	Yes
4	Yes	Yes	Yes	No
5	No	Yes	No	Yes
6	Yes	Yes	No	No
7	Yes	No	No	No
8	Yes	Yes	Yes	Yes
9	No	Yes	No	Yes
10	Yes	No	Yes	Yes

Table 2. Rules of TAM in NBC (H1 and H2)

No	Feedback (H2)	Motivation (H1)
1	Yes	Yes
2	No	Yes
3	Yes	Yes
4	Yes	No
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	Yes	Yes
9	Yes	Yes
10	Yes	No

Variables in table 2., would compared to table 1. The first of step is external variables (H1 and H2) compared with PU and PEU. Second of step PEU compared with PU. Third of step PEU compared with ATU and PU compared with BIU. Fourth of step ATU compared with BIU. And the last step BIU with AUB. Matrix of NBC is

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

for calculate posterior could use this matrix

$$posterior = \frac{likelihood \times prior \ probability}{evidence}$$

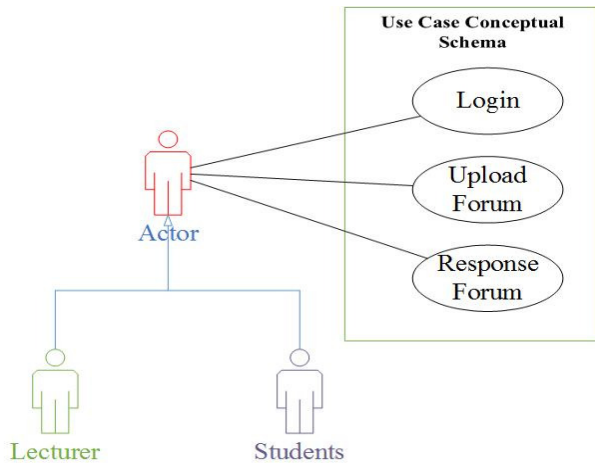


Fig. 3 Use Case Diagram Conceptual Model

In Fig. 4 there are 2 actors inside system, lecturer and students. Lecturer and student can interact with system. The first step is, actors or users have to login (input username and password), if login successful, then users could continue to discuss in online system.

#### IV. RESULT AND DISCUSSION

After develop analysis with TAM and design with use case diagram, in this step we can see result of analysis.

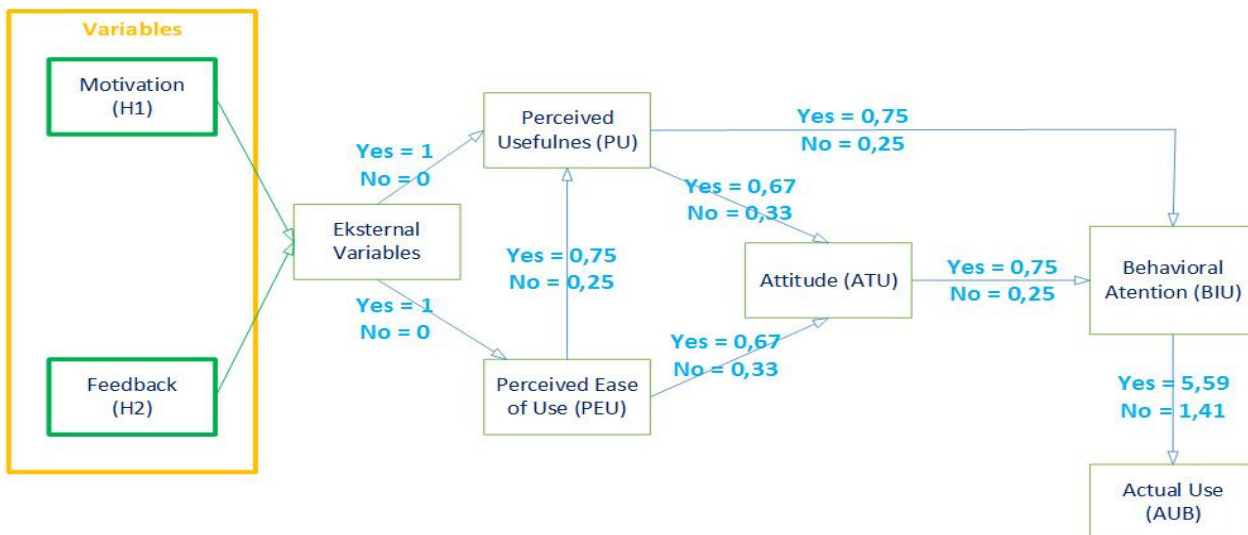


Fig. 4 Result of TAM

From Fig. 4 we got the results from TAM (posterior yes and posterior no).

Posterior yes:

- a. H1 x PU : 1
- b. PEU x PU : 0,75
- c. PU x ATU : 0,67
- d. PEU x ATU : 0,67
- e. PU x BIU : 0,75
- f. ATU x BIU : 0,75
- g. BIU x AUB : 5,59

Posterior no:

- a. H1 x PU : 0
- b. PEU x PU : 0,25
- c. PU x ATU : 0,33
- d. PEU x ATU : 0,33
- e. PU x BIU : 0,25
- f. ATU x BIU : 0,25
- g. BIU x AUB : 1,41

From Fig 4. Have results for developing this model, the results is **posterior yes = 5.59** and **posterior no = 1.41**.

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