

# Learner's Perception on Open Learner Model

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**Abstract**—There are various way could be done to improve the performance of students' learning activity. In open learner model (OLM), students can track their learning record and increase the endeavour in case there is low score. However, in OLM-based system, there are various kind of user. This paper aims to examine the perception of learner to open learner model adoption in higher education. We developed and implemented a simple open learner model system with which students can monitor their learning performance. We deploy a questionnaire after that and gain some insight about students' perception regarding the system they use. The result shows that the majority of students agreed to the benefit from OLM adoption eventhough there are several issues regarding to privacy. The findings is followed by discussing the future works to be done.

**Index Terms**—Open learner model, adoption strategy, technology, higher education.

## I. INTRODUCTION

Learner model is a conceptual representation of students' learning performance. While it is common for teacher to keep the learner model within the grade books, Open Learner Model (OLM) offers a new paradigm to reveal the model to the students so that it will be more beneficial for students. This is possible because students have the ability to do a self-evaluation regarding to their learning performance which in turn make them be able to adjust their learning strategy when it is needed [1], [2]. Learner can access their learning progress, observe and spotted their own strengths and weaknesses [3]. Furthermore, learner can compare their learning performance with other [4]. In addition, in a more complex system, students can track their learning's activities and direction [5] and collaborate the learning activities with their peers [6].

The growing attention to Open Learner Model adhered and becoming obvious since the emergence of Web 2.0 [7]. There are various kind of implementation of OLM. Some of it are simple while some other are more complex. Simple OLM system might use skill meter that shows the progress of students' learning performance [8]. It can also be in the form of social media-like applications [9].

Based on the preliminary observation, there are several obstacles facing the implemention of this learning system, e.g., not every student is comfortable to reveal their learning performance. Eventhough the OLM system seems to be a potential system to increase students performance, there are several problems remain, i.e. students' trust [3], privacy [10], and even the user interface [8] and also social and ethical problems [11]. Moreover, this kind of system needs students'

computer literacy. They who less experienced using computer will suffer difficulty in using it [12]. Most of published works were discussing about the design and implementation of OLM system and there are only a few works done on the evaluation phase of the system. It is important since the user acceptance could determine the success of such system adoption process. Besides, it can mitigating the risk that may occur during the process such as the knowledge heterogenity of learners [13], the resistance from learner that they feel disengaged with the learning system [11].

This paper aims to explore the learners' perception on the implementation of Open Learner Model in higher education institution context. A simple OLM system was built and implemented as an experimental tool. The output from the system was the students' performance in their learning activities. In the end of the course, they put their feedback on a questionnaire.

The rest of the paper are structured as follows. In section two, we explicate the result of literature review. In section three, we explain the method to gain research result. In section four, the research result is elaborated. Finally, section five will enclosed this paper with some concluding remarks.

## II. RELATED WORKS

Several research works have disclosed the user-related problems arose behind the use of OLM-based systems [2], i.e. (1) motivation, where many users are not enjoying OLM usage and (2) interactivity, where many OLM-based system are not engaging for the user. Furthermore, there are several problems related to social and ethical context that user brings during their interaction with the system [11]. For example, learners tend to not share their learning progress to others [4]. They prefer to keep it for themselves. These problems are potentially become a barrier in the adoption process of OLM-based system.

Basically, OLM-based system is the system that provide its user the ability to personalize the system's behavior regarding to their learning progress [14]. In addition to that, the system are able to recommend personally about the task that student have to complete [13]. There are several OLM-based system that has been developed from simple to sophisticated or detailed one. From simple progress bar and skill meter , to grid bar, and social media-like applications. It is all aiming to provide the students with the information about their learning model in their current enrolled courses. There are four types of OLM-system as depicts in Fig. 1, i.e. inspecting, co-operative, editable, negotiated [15].

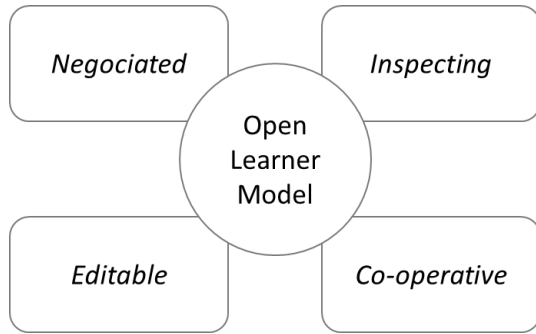


Fig. 1. Type of OLM system.

Inspecting means that the OLM system provide read-only information to the students regarding their learning performance. Students can only view the information. Co-operative means the students' learning model built together by both students and system. Editable means that students able to change the information provided by the system. Last but not least, negociated means that the students' learner model was formed as the result of negotiation process between students and system. Each of these type could rise different perception by students which may lead to different adoption process. Therefore, different approaches are needed too.

Although OLM seems to be a promising approach to keep the students' motivation high during the course [7], there are still an evidence of students' resistance [5], [13]. Furthermore, research had found that students is more comfortable to know final score rather than evaluate their progress periodically and take an action regarding to that [12].

The study about OLM is much more discussing about the technical problems and negleting the users' perspective [4]. There are not so many study works at this topic [15]. Therefore, research are required on this topic In this context, this research is done.

### III. METHODS

There are four steps taken in this research that has been done to gain research results, namely prototype development, experiment, survey, and data analysis.

Firstly, we build a prototype of OLM-based system on a spreadsheet application. The sheet consists of columns containing information about students presences, assignments' score, mid and final examination score, and their projective final score. The objective is to simplify the development process and to quickly

Secondly, we held an experiment by implementing the simple OLM system we've built into a class consisting of college students. In the OLM system, students or learners can view their grade, including middle and final examination periodically. In addition, they are able to view the other grading components, e.g., the number of presence and the score for quizzes and assignments. The learner's score is updated periodically as soon as the quizzes, assignments, and examination has been finished so that they can acknowledged the score immediately. The experiment lasts for 6 months.

Thirdly, we run a survey to the students as respondents. They are college students who aged between 18 to 24 years old. There are n=55 respondents agreed to participate in this

study. The questionnaire consists of 6 items that use likert-type scale between 1 (strongly disagree) to 5 (strongly agree). The Cronbach's Alpha score for the questionnaire is 0.75. However, this score is still acceptable for exploratory research [16]. The questions in the questionnaire are related to students' experience on joining the class with OLM-system adopted.

The survey consists of two types of questions, open-ended and close-ended questions. Open ended questions aims to inquire the respondent's opinion about the OLM-based system. Close-ended questions aims to portray the respondent's perception on using OLM-based system.

Last but not least, the retrieved data from questionnaire were analyzed using both statistic and qualitative approach. The former aims to depict the descriptive data while the latter aims to gain insight into students' perception.

### IV. RESULT

The OLM-based system that has been built was implemented since the beginning of the class. This system is based on spreadsheet application. The teacher will export the sheet into PDF and then upload it to separated and online e-learning system periodically after students finish their assignments. The system will automatically project these score to the final score.

Meanwhile, students can assess their performace based on the score uploaded by the teacher. However, students can agree or not with the score. If does not agree, they can respond and mention a complain to the teacher. This process lasts until the end of the course and the students retrieve their final score.

In the end of the course, the survey was held to gain an insight about the students perception regarding to the OLM system they involved in. There are n=55 valid responds. The profile of the respondents can be seen in Table I.

TABLE I: RESPONDENTS BY AGE

Age	N	%
18	4	7
19	15	27
20	23	42
21	6	11
22	3	5
23	4	7
Total	N=55	

Based on their age, the respondents divided into six categories ranging from 18 to 23 years old with the majority of them are on the age of 19 (27%) and 20 years old (42%).

The majority of respondents are male. About three quarters of them are male (75%) while the other are female (25%). However, they are all in the same course within the semester. The questionnaire consists of six questions related to the use of OLM-based system in the class as depicts in Table II. The table describe the number of respondents that agree with the questions.

The main findings derived from questionnaire are divided into two parts, the close-ended questions and open-ended

questions. The close-ended questions are described as follows.

TABLE II: PERCEPTION TO OPEN LEARNER MODEL

No	Questions	Agree (%)	Mean	Sd
1	<i>Is Open Learner Model important in learning activities?</i>	47	4.24	0.69
2	<i>Is Open Learner Model helps the better learning activities?</i>	51	<b>4.27</b>	0.65
3	<i>Is Open Learner Model encouraging students to improve the effort in learning activities?</i>	51	4.25	0.7
4	<i>Is Open Learner Model helps increasing the final score?</i>	40	4.13	0.77
5	<i>Are students not willing to reveal their score to another?</i>	90	<b>3.64</b>	1.06
6	<i>Is Open Learner Model implemented in the class is easy to understand?</i>	42	4.24	0.74

*Is Open Learner Model important in learning activities?* In this question, the majority of respondents (47%) (mean=4.24; sd=0.69) agree that the OLM is quietly important for them to support their learning activity. The system allows them to monitor their score periodically so that they can assess their own learning performance. The system allows students to anticipate and avoid a failure of courses.

*Is Open Learner Model helps the better learning activities?* Most of respondents (51%) (mean=4.27; sd=0.65) agree that the implemented OLM system have contribution in their learning activity. The information provided by system could sometimes encourage students to study harder than usual in order to increase their final score.

*Is Open Learner Model encouraging students to improve the effort in learning activities?* Most of respondents (51%) (mean=4.25; sd=0.7) agree that OLM is affecting their learning behaviour. They tend to increase their effort in order to gain higher score for final exam. This confirms previous research that stated the same statement [2]. However, although not significantly affect the overall result, there is respondent that disagree with this statement. They feel unaffected by any information provided by the system

*Is Open Learner Model helps increasing the final score?* Around 40% of respondents (mean=4.13; sd=0.77) believe that OLM system can increase their final score in the end of their courses. This is possible because they are able to monitor their score periodically during the course and fix any problem before the course ended.

*Are students not willing to reveal their score to another?* In this situations, respondents are splitted widely about their position (mean=3.64; sd=1.06). Although the majority of respondents did not showed their reluctance but there are about 10% or respondents is unwilling to get their score exposed. This confirms previous research too [4]. The score is related to personal and private information for students and they do not want to share it with their peers.

*Is Open Learner Model implemented in the class is easy to understand?* Most of respondents (42%) (mean=4.24; sd=0.74) agree that the system is easy to understand. They can read the information provided by the system easily as the information is structured according to the rule of the course.

In the open-ended questionnaire, the students had been asked about their perception on using the OLM to accompany their learning activity and track their progress. Overall, the students perceived the prototype as usefull tools for them mainly to track their score and escape from failure in their course. More over, they want to receive the progress in timely manner.

In addition, they need the score in detailed view so that they can acknowledged which part that need improvement and take an action to solve the problem. In addition, they need a feature that allows them to give feedback regarding their recent score. They prefer this feature being integrated into the system and not as separated part of it. However, the biggest contribution of this system is assisting students to estimate their learning result.

## V. DISCUSSION

From the research result, it can be seen that students perceive OLM system as potential means for them to enhance their learning performance which in turn they believe that this changes will increase their overall score at the end of the course. However, there are several issues that arose from the implementation of OLM. Privacy and trust becomes the most prominent factor in the implementation of OLM. Some of students reluctance if their score showed up in the class. They tend to view it personally eventhough the score come up from group assignments.

However, there are several feedback from the students about the system being built in this research. The students believe that it will be better if there is a feature in the system that permit them to provide a feedback about the report. Furthermore, they prefer to make use an online version of the system so that they can access it anywhere and anytime.

To sum up, based on the data presented on Table 1, it can be seen that the highest mean is in question 2 (4.27) which stated that the prototype provide assist in increasing learning performance. Meanwhile, the lowest mean is in question 5 (3.64) which stated that students did not want to let their friends see their score.

## VI. CONCLUSIONS

OLM-based learning environment offers an opportunity for students to improve their learning performance. The result shows that even a simple OLM system can increase the confidence of students to improve their learning performance. It helps them know their strength and weaknesses during the learning process. However, there are some drawbacks that might rise in the implementation. Open the learning result might cause inconvenience feeling on students.

This research has limitations. The prototype of OLM system has limited features in which can not accommodate all the students' needs. Furthermore, the number of respondents

are limited so that the result can not yet be generalized.

Further study will be done in developing prototype for Open Learner Model application that accommodate the feedback from this research, e.g. online-based system. Likewise, research could be done in the topic of evaluation in OLM implementation.

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