Yang, J. C. et al. (Eds.) (2018). Proceedings of the 26th International Conference on Computers in Education. Philippines: Asia-Pacific Society for Computers in Education

Lecturers' perceptions of the acceptance of the Systematic Analysis of Learner Self Appraisal (SALSA) software

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Abstract: In this paper, I describe the tool for Systematic Analyses of Learner Self Appraisal (Salsa). The perception of the acceptance of this tool has been investigated in an educational environment by using Educational Technology Acceptance Model (ETAM). Lecturers' perceptions of usefulness and ease of use of this tool have been described from the lecturer perspective and their perceptions of usefulness and ease of use for students are also given. I interviewed five lecturers who used the Salsa software in their computing classes. The results show that lecturers and students found the tool easy to use and useful.

Keywords: lecturers' perspective, educational technology acceptance, learning management

1. Introduction

Many studies have investigated teachers' attitudes toward technology. The teacher's attitude has been seen as the most influential factor on which success of any technology implementation in education strongly depends (Askar & Umay, 2001). Research suggests that teachers will resist a technology implementation if they believe that the technology is not beneficial for them or their students (Askar & Umay, 2001). Thus, the teacher's attitude towards the technology, whether positive or negative, is highly influential. This attitude reflects on students' perceptions of the importance of the technology (Akinde & Adetimirin, 2017; Shelton, 2017; Teo, 2006; Wingo, Ivankova, & Moss, 2017). Yildirim (2000) found that teachers who use computers more tend to develop positive attitudes and further promote its use in teaching in their classrooms. Huang and Liaw (2005) and Dorman and Fraser (2009) found that the extent to which educational technology is implemented depends completely on the teacher having a positive attitude.

This research investigates lecturers' perceptions of technology acceptance in a classroom environment, as measured by the Educational Technology Acceptance Model (ETAM) (Lopez, 2012). Lecturers' perceptions were analysed with a qualitative methodology in which interview transcripts were analysed by content analysis. ETAM was used as an analytical framework for these interviews. ETAM combines two well-established and widely-used models from two major research domains: the Technology Acceptance Model (TAM) by Davis (1986) and the What Is Happening In this Class (WIHIC) educational environment instrument (Fraser, Fisher, & McRobbie, 1996).

This article is organised as follows: it starts with a description of the Salsa software used for students' self-management of learning. Next the method with sample and instrument is explained. This is followed by a full analysis of lecturers' interviews, which is presented in two sections: perceived usefulness and perceived ease of use. The article finishes with a conclusion that summarises the findings and sets put limitations and possible future work.

2. The Systematic Analysis of Learner Self Appraisal (Salsa) Software

The Salsa software (Lopez, 2005), which monitors students' self-management of learning, is briefly described in this section. Pintrich (2000, p. 453) defines student regulated learning (SRL) as "an

active constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation and behavior, guided and constrained by their goals and the contextual features in the environment". SRL does not develop automatically. Thus, the importance of incorporating SRL during educational processes and training is recognized (Brydges & Butler, 2012; Mukhtar, Muis, & Elizov, 2018). Sitholel, Chandler, and Abeysekera (2017) found that students in a guided self-managed condition outperformed students in integrated and split-attention conditions on recall and transfer tests.

The SALSA software helps students manage their learning. It gives feedback to students and tutors, on progress in the course. It has two modules: Lecturer and Student. The lecturer module monitors and manages students' requests for help and their learning progress in carrying out activities and understanding topics. A student ticks one of three status columns for activities: "Started", "Need help" and "Completed". A student chooses among four options for understanding of concepts: "Understood", "Partly understood", "Not yet understood" and "Need help". A list of course topics, with a graph indicating the overall progress of the class, are shown Figure 1.

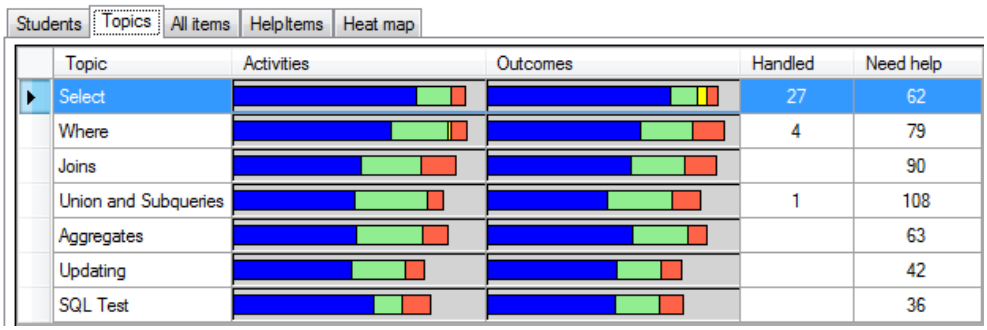

Figure 1 Class progress graph

By submitting self-reports, students regularly update their status to reflect their progress in the course. Colour coding is used to quickly identify the support required from the lecturer. Green represents a student who has started the activity but needs more time; blue represents students who have completed the activity; red represents students who have asked for help on the item; yellow represents students who have asked for help and the tutor has responded, and grey represents students who have not yet started the activity. The size of the colour bars is proportional to the number of activities in each status. Similar colours are used for comprehension of the learning outcomes. The software is available on the web and in laboratories. Students log into the Salsa software regularly and update their learning status.

3. Method

Semi-structured interviews were carried out with the course lecturers to gather their perceptions.

3.1 The Sample

Four lecturers from a computing degree in an Auckland, New Zealand, polytechnic participated in individual interviews. They were involved with a total of five classes over two semesters; one lecturer taught two classes. Lecturer 1 was a male senior lecturer who specialised in hardware and networking and had ten years of experience in teaching. Lecturer 2 was a male senior lecturer who specialised in systems and programming, with 30 years teaching experience. Lecturer 3 was a female lecturer with five years of experience who specialised in multimedia. Lecturer 4 was a male senior lecturer with 14 years of teaching experience who specialised in programming.

3.2 The Instrument

The interviews covered two basic topics: perceived usefulness (PU) and perceived ease of use (PEU). Each interview took approximately one hour and was audio-recorded. These recordings were

transcribed and the transcripts are analysed herein. The interviewer let the lecturer take the lead in the discussion and explored topics that the lecturer suggested, with probing by the interviewer to explore PU and PEU when these did not arise naturally. In some interviews, the discussion was more about students and changes needed in the software; in others, the interview would go into a discussion on feedback, intervention and ownership of students' own learning.

4. The Analysis

This section presents lecturers' perceptions of the Salsa software, analysed with the ETAM (Lopez D., 2012) analytical framework, which is displayed in Figure 2. The analysis below presents the lecturers' perceptions of the TAM constructs: Perceived Usefulness and Perceived Ease of Use.

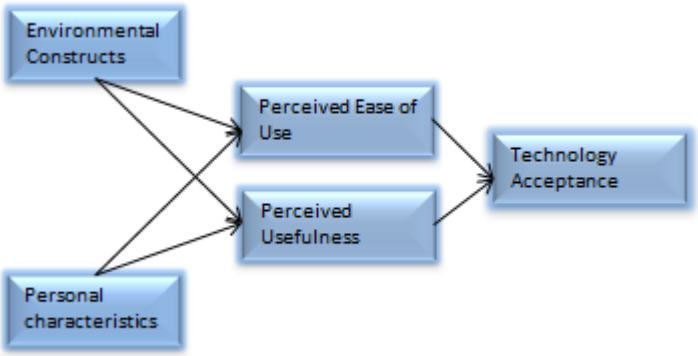

Figure 2 The constructs of the ETAM.

All data came from the lecturers, but they talked about both their own perceptions and their observations of students in class. The analysis starts with the lecturers' perceptions of usefulness for themselves and this is followed by their perceptions of usefulness for students. Similarly, the lecturers' perceptions of the ease of use of the software by themselves are presented followed by their perceptions of ease of use for their students.

4.1 Lecturer's Perceptions of Perceived Usefulness for Themselves

Perceived Usefulness, as described by the lecturers, varied from useful to not useful. Some lecturers described their perception of the usefulness of the software in their classroom as: "So for me, if I want to talk about myself, it wasn't really very useful for me. I checked it three or four times. I find it easier if I just target the students I feel are weak …"

One lecturer found that they did not have enough time to follow up with the students' requests and instead of reading reports; the lecturer just asked what the problem was. One reason the lecturer did not have enough time to follow-up on the students' software reports might be the fairly high lecturer work load at the time of data collection, limiting the ability to utilise the software fully. As a result, in this lecturer's belief, the software was not really useful and this belief would certainly project onto his students and have an impact on their perceptions of the same software. This influence would have a consequential effect on the actual use of the software itself.

One lecturer found that the software helped to diagnose students' ability to learn; to differentiate high achieving groups from low achiever groups; to show his students' progress, to modify teaching based on the individual needs of the students and the class and to provide immediate feedback. The feedback from the students about the course and any problems about teaching, proved to be immediate and effective. It gave the lecturer an opportunity to act immediately upon this student feedback, and to correct and improve any misunderstandings in either teaching material or understanding of the software: "It would appear to be very useful because it gets an immediate response. I think we should take advantage of that." It gave an opportunity for the lecturer to provide additional support. This lecturer specifically valued this feedback but also mentioned that this in a way increases workload for the lecturers*:* "I can't say that I'm proud of how

immediately I replied. I think that it's a time problem for a lecturer because it increases their workload to some extent even though the information that comes out of it is really useful."

Another lecturer pointed out that that the number of the items in this software (on which students had to make comments, and judgments), was very high. He also said that the questions in the software are not always easy to understand and that these questions should be revised: "I think that its usefulness for students and lecturers is great, but I think the way you put the questions is so critical I'm going to revise the questions." He felt the students used the software more when they had seen the benefit of its use. He also mentioned that the usefulness of the software itself was more important to the students than the mark, once students experienced the benefit of using it. This is particularly important in their first year of study when students are learning how to study, and how to organize their time during their studies.

The tool helps lecturers by giving them information on how to improve the course and their teaching, as well as notifying them that some students need help with a particular item. Lecturers had the opportunity to judge whether a whole-class or an individual response was more appropriate, based on the number of the students asking help for the same item.

The ability to give immediate feedback is illustrated when one lecturer realised that there was a need for additional explanation evidenced by a large number of the students asking for help. The lecturer noted: "It was more than half the class that said that they needed help on a certain topic. I actually emailed them the extra notes I created directly to the students during the week." It has also improved communication between the lecturer and students in a larger class. Another lecturer using a constructivist approach in his teaching explained his approach:

> For me the main use is around building a dialogue with the students and trying to build their capability to manage their own learning. So it's trying to shift responsibility away from the teacher so they take ownership of their own learning. So the concept is that they become aware not just of what they know but also of how their learning is going week by week – are they on target? Are they achieving their goals?

The key part of these observations was the fact that teaching was not just a transfer of facts and information, but was a process in which the lecturer assisted students to take ownership of their own success. The lecturer encouraged them to actively monitor and manage their own learning and used the software in this way. For this lecturer, the usefulness of the software was in having an excuse (software report) to go and have a conversation with the students how to put the students in a position where they can achieve their goals, as he is describing it. "Where I would use it is.... to produce a printout from each student, sit down with the student and say "You're telling me that you're having difficulties in this area" and start a conversation.

Most of the lecturers described usefulness of the Salsa software in managing students learning as positive. The lecturers expressed their perception of how useful was the Salsa software to their students in the next section.

4.2 Lecturer's Perceptions of Usefulness for Students

One lecturer felt that the students were not taking the software tool seriously: "And I know the majority of my students will just forget about everything, just wait for the last week, rush quickly and read and then come to the test. Despite the lack of the motivation am ong some students, the usefulness of the software for many of the students was observed by the lecturer as: "I can see that they carry on doing this because that actually gives them some self-assisting that they are doing right." The major advantage of this feedback was the fact that students did not need to ask the lecturer about their progress, and the lecturer did not need to tell them how they were going, the tool gave them this answer and confirmation of their progress. The feedback given to the students by the software was immediate and therefore very effective. It gave the students a feeling of control of their own learning and increased their self-esteem. Increased self-esteem in turn causes the belief in one's ability to increase and then one can try taking up more challenging tasks because one believes that one can do it. The process of reinforcement of self-efficacy is taking place (Bandura, 1982).

The tool was seen as very helpful to the students who used it and were getting regular feedback on how they are going with the course. The tool gave students the opportunity to ask for help, as one of the lecturers noted:

… there are sometimes students that don't feel very comfortable talking in class about their progress in the course… yet they were quite comfortable asking for help using the software.

The software gives the opportunity to intervene when it's needed because the information is current and it is possible to give immediate feedback. Of particular importance for students' involvement was information about assessments and dates and reminders in the software. Students were received a warning that the test is in two weeks' time for example. The students were very happy with this and found it very useful. The tool seems to be useful for this lecturer and the students in more than one way: it is useful to give feedback to the students, and answer discreetly on the request, to get feedback about the course and how to improve it, to get feedback from the students about the teaching and how to improve it, and to be able to make timely corrections if needed.

4.3 Lecturer's Perceptions of Ease of Use for Themselves

Ease of use of the Salsa software was discussed in the interviews with the lecturers. This section presents a qualitative analysis of the Ease of Use construct from the four lecturers' interviews.

Most lecturers described the software as very easy to use and to navigate. They also explained how the same tool could be used on different levels. It could be used at a very simple level, for example: "So someone who has no time, he can just click on 'Open' and in five minutes you can find all the details you like." It can also be used at a more sophisticated level as described by the lecturer "Someone who wants to know more – he can go to the graphs, he can go to the statistics; he can do a lot of things. I think, yes, it is very easy to use." Lecturers described all the menus as very clear to understand and navigate, and self-explanatory. "For me to use Salsa it was quite obviously very user friendly. I enjoyed it. I thought it was really quick to use, you can just tick and mark it as done." One of the reasons why the tool was so easily adopted by the lecturer may have been the fact that these are lecturers from a computing degree who are used to continuous introduction of new technologies and tools in their everyday teaching.

4.4 Lecturer's Perceptions of Ease of Use for Themselves

Ease of Use for students was described by lecturers as helpful and easy to use. The half-an-hour session for the introduction of how to use the tool was enough and no student asked for additional help. The lecturer stated that students were capable of using it at any level very easily: "I think it's pretty easy for them to use the tool actually. But I would say that, like me, they are not using it to its full potential." Another described the tool, as being very simple for the students to use: "I think it was easy for them to use. I never saw anyone that didn't understand what to do." Another commented: "I think from a student point of view, none of them I believe find it difficult to use. "

One lecturer described three ways the students could access the tool: firstly, in the classroom, secondly, from home (the students can install the tool on their computer) and thirdly, from the website. His observation was that the majority would use it in the classroom and very few on the internet. He noted that it was easy for the students to use the tool, and the only training they needed was the small introduction to the tool at the beginning of the course. In summary, it can be concluded that most of the lecturers who used the Salsa Software found it easy to use and they also believed the tool was very easy for students to use.

5. Conclusion

The main technology acceptance constructs that were covered in the lecturers' interviews (Perceived Usefulness and Perceived Ease of Use) have given a detailed and rich picture of the students' and lecturers' perceptions of this software technology acceptance. This analysis included both the lecturers' perceptions of software ease of use for lecturers and ease of use for students, as well as their perceptions of usefulness for the lecturer and usefulness for their students. Most lecturers expressed the opinion that it was useful for them and mostly useful for their students. The tool was reported by lecturers as very easy for both lecturers and students to use.

The significance of this study is that it contributes to better understanding of how lecturers accept and implement technology that is used for students' self- learning and management. This

could help higher education institutions to promote positive attitudes and better support lecturers' efforts to foster student success in self-managing their own learning. The findings may also help software developers create more effective support systems for self-management of learning. They could help educational managers to better support educators to achieve acceptance of the technology that supports this learning.

The main limitation of the study is that it was situated in only one educational institution and only five classes were studied. As a result of this, the study may be of interest mainly to teachers who know and use the program. The limited number of lecturers involved means that their opinions may not be representative of others. An additional limitation of this work is that it gathered perceptions of ease of use and usefulness from lecturers rather than directly from students. Future work could investigate students' perceptions directly.

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