Effects of Feedback Types on the Student’s Self-Efficacy

Kai-Hsiang Yang and Yi-Hsuan Wu

Abstract—Self-efficacy has been found to play a key role in academic learning, and has a positive correlation with the student’s learning performance. Hence, how to improve student’s self-efficacy has become a major topic.

Previous research shows that feedback can promote students' positive attitude towards learning and enhance the learning achievement. Hence, this study investigated the impact of the type of feedback for self-efficacy.

There were 13 senior high school students participated in this study, and our results showed that self-efficacy and feedback behavior has a significant correlation. From the point of view of receiving different kinds of feedback, receiving KCR type of feedback can enhance student’s self-efficacy.

Our findings can be used as a reference for teachers to design their Web-based learning courses. In particular, the EF type of feedback is regarded as a higher level of feedback. The more EF types of feedback students receive, the less self-efficacy students have. One possible reason is that the EF type of feedback is few, while many students receive the KCR types of feedback.

Index Terms—Feedback types, self-efficacy, web-based learning.

I. INTRODUCTION

In recent years, web-based learning has been widespread in education, because it provides students to get more information and more opportunities to cooperate with peers, and it is easy to combine living and subject matter, you can increase students' interest in learning with the Internet multimedia presentation, can stimulate the curiosity of students, enhance students' willingness to learn [1].

However, despite the web-based environment to provide more flexibility for students to learn, the study pointed out, many learners are unable to adapt to the network learning, often a lack of focus, active participation, self-confidence [2]. Another study found that web-based learning is often caused by learners who get lost, affecting academic performance, thereby reducing confidence in learning [4]. Therefore, how to improve students' self-efficacy has become a major research topic.

The result of Wallace etc. shows that the most effective tools of the reconstruction of the behavior of others is the reward, and many rewards already exists in the web-based learning [5]. The reward here is not simply a reward for learners, a sense of accomplishment, achievement of progress, self-satisfaction improvement, and so on, as a reward. The research of Judson and Sawada [6] pointed out that feedback can affect student’s achievement, learning attitude and learning motivation.

The study of Slain, etc. [7] shows that feedback can promote students' positive attitude towards learning and enhance the achievement. Therefore, to enhance the learner's self-efficacy, feedback is the most effective reward.

This study investigated the impact of different types of on student’s self-efficacy. Our findings can help teachers to provide many types of feedback to students, so that their self-efficacy can be greatly improved.

II. LITERATURE

A. Self-Efficacy

Motivation to learn or personal beliefs have been explored in the field of education, many times, but in the Web-based learning has rarely been studied. However, some researchers have suggested that motivation is a more important factor in the cyberspace. Self-efficacy in 1997 by a Canadian psychologist Bandura refers to a person believes that he can complete the specific target belief, self-efficacy in learning than the motivation to learn more long-term and significant impact [8].

Self-efficacy has been found to play a key role in many academic learning applications, such as: learning the self-efficacy and computer skills [9], engineering skills [10], and group specified skills [11], sports skills [12], food and beverage skills [13], nursing skills [14]. Lots of research show that the higher self-efficacy the student has, the better performance the student provides.

Their study also noted that self-efficacy and web learning are closely related. For example, research indicates that self-efficacy affect students' online behavior. The study of Tsai and Tsai shows that student’s performance is better than the lower web-based learning task self-efficacy with higher Internet self-efficacy students; an web search strategy study also pointed out that high network student self-efficacy than low web self-efficacy in an web-based learning tasks, students have better information search strategy.

These studies have shown that closely related to the students' learning and self-efficacy. Self-efficacy has been proven, to date, both in traditional learning or web - based learning has a significant impact, it can be said - If the teachers to improve student academic achievement, willingness to learn or learning beliefs from self-the performance will be a good choice to begin.

B. Feedback

Many studies have generally found that: learners in the learning often provide effective feedback results [16], [17].
The study found that the papers study the mechanism of peer feedback can often be improved in the feedback obtained [18]. In addition, the study shows that the peer-reviewed to provide high-quality feedback [19].

The study of Dempsey, Driscoll, and Swindell pointed out, the feedback information is often divided into the following three types: knowledge reactive feedback-KR (knowledge of results); reactions feedback-correction-based knowledge the KCR (Knowledge of correct response) [20]; elaborate on the type of feedback-EF (elaborated feedback). Knowledge of results (KR), just responding to the learner's response is correct or incorrect, such as "You're right"; knowledge of correct response (KCR) is to inform the the learner correct answer content, such as "right the answer is: "; elaborated feedback (EF) explains why the learner response or answer is correct or not correct, and to provide relevant information.

In particular, three types of feedback there is no absolute good or bad, but under certain circumstances, to provide a particular type of feedback subjects will have on the common learning characteristics or contribute to the development of a capacity. Another result suggested that type of elaborated feedback is crucial in the development of the concept of a deeper level understanding and help applied to more complex situations [21].

In many studies, elaborated feedback and the Knowledge of the correct response is generally regarded as ratio Knowledge of results is better to feedback behavior. In this study, therefore study the role of these feedback behaviors play in the web learning context. Research suggests that feedback is the most effective help individual students to correct the error, the reconstruction of knowledge, incentive meta-cognitive process, improve academic performance and enhance motivation source of information [22]. Source of feedback to themselves and others is the most useful to receive feedback from other people [23]. Previous studies have confirmed that effective learning to accept feedback is very important [24].

Feedback influence the findings, the knowledge of the correct response and a variety of feedback to achieve the same results, but noticeable than other types of feedback spend less time [25]. In other words, the KCR type of feedback is more effective than other types of feedback. The aforementioned examples, in [26], show that different types of feedback may lead to different learning outcomes. Therefore, the study received feedback (eg: KR, KCR, EF) the role played in the web of students’ academic performance.

The study shows that the feedback can affect learners’ motivation and self-confidence [27]. In particular, the feedback affect self-efficacy (for example: you can do this task better) [28]. Therefore, we study the effects of EF, KR and KCR types of feedback on students’ self-efficacy, and our results show that the EF type of feedback is highly associated with students’ learning motivation [29].

Many studies have found that feedback can indeed affect the willingness to learn and self-confidence of the learners, thereby affecting academic performance. In other words, to accept feedback is regarded as one of the most effective factors that enhance self-efficacy and achievement.

III. RESEARCH METHODS

A. Research Purposes and Research Questions
Based on the above literature mentioned, the purpose of this paper is to study the effect of KR, KCR and EF types of feedback on students' self-efficacy.

B. Research Process

1) Task

Experimental subjects are students in a high school which is located in the vicinity of the aboriginal tribes, so students are almost native people. These young students are becoming less and less familiar with their own unique culture. Hence, we design an information thematic course to help they understand their own culture.

All homework in the class are related to these students’ culture and their can choose a topic related to their own culture, and follow all steps in our Web learning platform to create their own e-book files. We use these e-books as their outcome and some teachers will provide grades to these e-books.

2) Process

In our experience, teachers use our Web learning platform to teach all instructions for creating an e-book file, and students are divided into several groups. Teachers ask each group to find out a topic related to their own culture in three weeks as the theme of their e-book. When students completed the task, they will be asked to fill out self-efficacy questionnaire, and should upload each responsible e-book files to the learning platform. All the uploaded files and questionnaire can be seen, so that students can reference other e-book files and provide their feedback to other groups.

Teachers will collect all feedback, and send the feedback to students. Which means each of 13 students will receive feedback from other 12 students. After that, students should revise their work and upload their e-book files again. And all students will be asked to fill in the self-efficacy questionnaire again. Thought this process, the investigators were able to compare the differences in student self-efficacy and peer-feedback.

In particular, we use an anonymous evaluation in our experiments so that students can provide feedback without any pressure. Some studies also mentioned this point [30, 31]. Asian students are more concerned about the relationship with other people, and therefore may not provide grams criticism or feedback to their classmates. Therefore, in order to obtain more reliable peer feedback, we use anonymous evaluation.

C. Research Tools

1) Questionnaire

The questionnaires consisted of the scales of “self-efficacy” using a 5-point Likert scale ranging from (1) “not at all true of me” to (5) “very true of me”. Since this study was conducted with students in Taiwan, the authors used the Chinese version of MSLQ, which has been proved very reliable with $\alpha$ of .9. The self-efficacy scale consisted of ten items (for example, “I'm sure I can use the Internet to collect information”).

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2) Participants

There are 13 students participated in the study, and all participants are enrolled in a comprehensive high school in Yi-Lan County of Taiwan.

IV. RESULTS

The first goal of our study is to analyze the effects of different types of feedback on students’ self-efficacy. The results are shown in the Table I and Table III, where $P = 0.011 < 0.05$ and $P = 0.007 < 0.05$, which has significantly differences; that is, to receive the KCR and EF types of feedback have a significant impact on the enhancement of self-efficacy; while receiving the KR type of feedback has no significant impact. The more KCR type of feedback students receive, the more self-efficacy they have. But it is worth mentioning that the more EF type of feedback students receive, the less self-efficacy they have.

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V. CONCLUSION AND DISCUSSION

In this paper, we showed that self-efficacy and the types of feedback that students received have a significant correlation. On the other hand, self-efficacy and students’ learning performance are closely related [32]. Hence, our findings can provide teachers to enhance students’ self-efficacy by providing more types of feedback to their students; while it may directly or indirectly affect students’ academic performance.

From the point of view of receiving feedback, receiving the KCR and EF types of feedback can significantly improve students’ self-efficacy. The more KCR types of feedback students receive the more self-efficacy they have. These findings can be used for teachers to design their courses. In particular, the EF type feedback is regarded as a higher level of feedback, and our result show that the more EF type of feedback students receive, the less self-efficacy they have. One possible reason is that when students receive more EF type of feedback, they will receive less KCR type of feedback, so it reduces the self-efficacy.

This study further suggests that teachers can provide students with more high-quality feedback, so that students’ self-efficacy could be highly enhanced.

Some possible future works are as follows. First, in this study, students only receive feedback from their peers. To a better understanding of the role of feedback in the learning process, it should consider receiving feedback from different sources, for example, the teacher feedback and peer feedback. In addition, although the anonymous peer-evaluation can help to relieve stress, but study of the effect of anonymous and non-anonymous feedback process on students’ self-efficacy is also an important issue in future studies.

REFERENCES


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