



Impact of the Feedback Environment on the Use of Teaching Aids in TVET Educational Institutions of Malaysia

Ying-Leh Ling*

Mathematics, Science and Computer Department, Politeknik Kuching Sarawak, Malaysia

Email: lingyingleh@gmail.com

Charles Muling Libau

Mathematics, Science and Computer Department, Politeknik Kuching Sarawak, Malaysia

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Abstract

This quantitative descriptive study was designed to determine the effect of teaching aids and the feedback environment on student learning in Sarawak. A total of 116 students from the local TVET educational institution participated in this study. The data were collected using a structured questionnaire adapted from previous researchers. The results of the hierarchical regression analysis showed a strong relationship between teaching aid and the feedback environment with student learning. In relation, findings have shown that the quality of feedback and the use of teaching aids have an impact on student learning in TVET educational institutions. The findings suggest that educators need to improve their ability to provide quality feedback while using teaching aids that are relevant to teaching content.

Keywords: Feedback; Teaching aids; Student learning.

1. Introduction

Students as the nation's human capital should be given priority in a fast and challenging world. Malaysia, as a multi-racial country that has achieved remarkable success in high-income countries, has called for a growing demand for technicians and semi-skilled workers in the technical and vocational education sector to play a role as a driving force in the nation's economy. Every institution must, therefore, ensure that TVET Transformation is implemented to ensure that graduates are fully qualified to meet the needs of different industries. In this case, there is no exception for polytechnics and community colleges to play a role in driving this agenda.

The quality of student learning in TVET institutions is seen as an important subject in the future of students in the world of careers. A student-centered learning approach should, therefore, be put in place to provide students with additional value when they find a job soon. The implementation of this approach can, in general, build up individuals who would have thought of high power (higher-order thinking) because of this approach to training students in problem-solving skills involving "reasoning" to solve complex problems. The use of teaching aids is important to attract students to help instructors apply the technique more effective. The use of teaching aids on the content presented can provide a variety of useful information to students. Less qualified and less effective learning processes are implemented without adequate and effective teaching aid. Inappropriate equipment will make it difficult for instructors to carry out practical work (Radin, 2008; Syed, 2007).

In addition to providing adequate and quality teaching aids, feedback should be channeled effectively not only formally, but also informal and continuously between instructors and students. This is to assist students to be clear with the expectations of lecturers' performance and standards set by the institution. Hence, the existence of a positive culture of positive feedback should be emphasized in every TVET institution. Thus, through this study, the researchers wanted to identify the effect of the feedback environment and teaching aids on student learning in TVET institutions.

2. Literature Review

2.1. Feedback Environment

A feedback environment has been developed to allow students to learn about their educational performance. The feedback provided to maintain and improve motivation and happiness in individuals has been explained by Lam, Yik and Schaubroeck (2002). Individuals will be able to express their opinions and attempt to view them more closely through active feedback-seeking actions (Ashford et al., 2003). In the context of TVET institutions, instructors who fail to provide feedback to their followers will not be an effective instructor. Six dimensions of an organizational feedback environment in the Malaysian context, including (1) feedback credibility; (2) feedback quality; (3) distribution of feedback; (4) positive feedback; (5) availability of feedback sources; and (6) promote actions in feedback-seeking, have been defined by Ling (2016).

Steelman et al. (2004), refer to feedback credibility as a source of feedback and trust in the knowledge of feedback from the recipient. Trust means that an individual believes in the source of feedback and the accuracy of the information. Besides, the feedback quality is specific and consistent and is useful to the recipient of feedback. If

*Corresponding Author

feedback is received to satisfy the recipient's needs, then positive or constructive feedback is considered. In the context of educational organizations, instructors should be able to provide students with significant exposure and improve the situation so that they can cope with different settings. Students must refer informally to the day-to-day information on the campus. The availability of feedback sources, therefore, refers to the frequency with which students contact their lecturers for feedback. At the same time, instructors should encourage students to take initial steps to seek feedback. They will be encouraged to receive feedback more often by positive support, mutual trust, respect for student ideas, and consideration of the feelings of the recipients.

2.2. Teaching Aids

The use of teaching aids is seen as an important component in the process of learning and learning. Teaching aids are needed to improve understanding of learning among students. Previous studies have shown that the use of TA has a positive impact on the academic excellence of the student and the teaching practice method. [Jasmi et al. \(2011\)](#), as well as [Ilias et al. \(2013\)](#) have found that the use of teaching aids can lead to a student's focus throughout the teaching and learning process and enhance efficient learning. The reason is that students can recall memorization through the use of teaching aids involving images and visuals. Teachers' strategies, methods, and teaching techniques will be concrete and diverse in terms of circumstances and teaching situations.

Among the characteristics that lead to effective teaching aids in teaching is the initiative of teachers using the current fuel supply and implementation. However, constraints in obtaining fuel in an educational institution can affect the learning process. The study of [Othman \(2007\)](#), [Mahidi \(2011\)](#), and [Jasmi et al. \(2011\)](#) also found that instructors failed to use teaching aids due to a lack of resources in obtaining materials. Lack of resources in diversifying teaching aids causes teachers to be difficult to be effective facilitators during the teaching and learning process [Jasmi et al. \(2011\)](#). The situation is more worrying when teaching and learning undertaken failed to attract the attention and interest of students to learn because teaching and learning using traditional methods completely without thinking about the suitability of the student. These include a lack of exposure to sources of teaching aids that would encourage students to think critically and creatively ([Mwathwana et al., 2014](#)).

3. Research Methodologies

This study was a quantitative study using a questionnaire to obtain data to examine the effects of the use of teaching aids and the feedback environment on student learning in polytechnics. The use of this research design is appropriate for large populations because the uniformity of fact and information can be interpreted from the respondents systematically ([Gay et al., 2006](#)). The respondents comprised 116 students of Diploma in Geomatics under the Department of Civil Engineering. The results showed that 53 male respondents (45.7 percent) and 63 female respondents (54.2 percent) participated in the study. The distribution of respondents by semester, the study showed that the majority of respondents consisting of students Semester 2 (96.4 percent).

The questionnaires used for this study consist of four parts. The first part is the profile of respondents requiring the gender breakdown of respondents. The second part is the learning experience of respondents in polytechnics using the research instrument adopted by [Mohd \(1999\)](#). A total of 17 items are included in Part B. Subsequently, Section C is a feedback environment measured using the [Lee and Hannafin \(2016\)](#) Study Instrument especially in the context of Malaysia. There are 24 items in Section B to diagnose the feedback process within the organization's environment. Part D is the effective use of teaching aids in the learning process of polytechnic students. A total of 22 items set out in Part D are intended to identify the implications, including the quantity and quality of the instrument in the learning and teaching process. The questionnaire used has an alpha reliability coefficient of 0.953 for Cronbach. The data collected was encoded as found in the questionnaire. In the first stage, a descriptive analysis was conducted to provide an overview of the distribution of the sample and the study variables. The mean score and the standard deviation were used to describe the variables in the study. Next, the inferential analysis was used in the second stage. Multiple regression methods have been used to study the effects of the use of teaching aids and environmental feedback on students.

4. Research Findings and Discussion

4.1. Descriptive Findings by Variables

Descriptive analysis of each variable studied by using the mean score and the standard deviation was presented in [Table 1](#). For feedback environment level, a mean score of 1.00-4.99 was categorized as low level, 5.00-5.38 as low level, 5.39-5.79 as medium-high while 5.80-7.00 as high level. Whereas for determining the effectiveness of teaching aids is determined by a mean score of 1.00-5.25 at a low level, 5.26-5.75 is categorized as moderate, while 5.76-7.00 is high. Furthermore, to identify the level of learning and teaching experience in polytechnics amongst students is according to the mean score of 1.00-4.13 at a low level, 4.14-4.38 at a moderately low level, 4.39-4.50 at a moderately high level, and 4.51-7.00 representing high level. Overall, the analysis of the study found that the dimensions of feedback quality and credibility of feedback sources were at a high level. This is because the instructors entrusted with carrying out their teaching duties have a Bachelor's degree with a relevant specialization. The findings have found that the dimensions of feedback delivery and availability of feedback resources are in a low category, although most of them have long teaching experience as lecturers. Respondents also respond to a high level where the effectiveness of teaching aids in institutions is at a satisfactory level.

Table-1. Descriptive analysis of the study variables (N=116)

Variable	Mean Score	Standard Deviation	Level
The Effectiveness of Teaching Aids	5.77	.3638	High
Feedback Environment	5.42	.6753	Moderate High
Feedback Delivery	4.91	.9225	Low
Feedback Credibility	6.16	1.9225	High
Constructive Feedback	5.24	.9274	Moderate Low
Feedback Quality	5.92	.7320	High
Feedback Availability	4.76	.8638	Low
Encourage Feedback Seeking Behavior	5.48	1.030	Moderate High
Student Learning Experience in Polytechnic	4.33	.3638	Moderate Low

4.2. Correlation Between Variables

Before testing on the influence of teaching aids and feedback environment on student learning, the correlation analysis was conducted to determine the strength and direction of the linear relationship between the variables. All variables were analyzed to determine the inter-correlation. The following table shows the value of the correlation coefficient of the variables involved in this study. Based on the findings, students' learning has a positive and significant correlation to the use of teaching aids and feedback environment between .04 to .31 except the dimension of feedback credibility ($r = -.129, p > .05$), feedback delivery ($r = .047, p > .05$), and the availability of feedback sources ($r = .110, p > .05$). This suggests a strong relationship between teaching aids and feedback environment with student learning.

The analysis also shows quality feedback, constructive feedback, feedback-seeking behavior, and teaching aids used to have a linear relationship to student learning. In other words, educators need to be able to deliver quality, accurate, constructive, and encouraging feedback-seeking behavior among students while using appropriate teaching aids.

Table-2. Inter-correlation of the study variables

	Feedback Quality	Feedback Delivery	Feedback Availability	Constructive Feedback	Feedback -Seeking Behavior	Teaching Aids	Student Learning
Feedback Credibility	.149	-.011	.052	.092	.157	.173	-.129
Feedback Quality	-	.449*	.414*	.416*	.509*	.413*	.308*
Feedback Delivery		-	.612*	.283*	.268*	.094	.047
Feedback Availability			-	.360*	.369*	.189*	.110
Constructive Feedback				-	.747*	.341*	.237*
Feedback-Seeking Behavior					-	.454*	.211*
Teaching Aids						-	.235*

Note: *Significant at $p < .05$ level

4.3. The Effects of Teaching Aids and the Feedback Environment on Student Learning

Multiple hierarchical regression analysis is done in stages, where all control variables are included in the first stage to be analyzed using the Enter method. At the next stage, all predictor variables were included in the multiple regression model for analysis using the Stepwise method. In the regression model 1, the value of $R^2 = .053$ indicates 5.3 percent change in the criterion variable that is student learning in polytechnics is caused by changes in control variables, teaching aids, and the effect is very small. The predictor variables, i.e. The feedback environment when incorporated into the regression model 2 predicts an additional 16.7 percent ($R^2 = .167$) additional variance changes in the criterion variables and this gives a more significant effect to the variables in the criterion variables ($R^2 > .05$). ANOVA results showed overall a significant relationship between the two variables control with variable control [F (1,111) = 6236, $p < .05$]. In addition, the combination of both control variables and student learning results also showed significant [F (7,105) = 3,009, $p < .05$].

In model 1, which involves only the control variable, the value of β is significant for teaching aids ($\beta = .231, t = 2.497, p < .05$) shows that this is a significant moderator of the criterion variable, namely student learning in polytechnics. Furthermore, model 2 involving a combination of control variables i.e. Feedback quality ($\beta = .308, t = 2.565, p < .05$) indicates this variable is a significant moderator of student learning. The results are not significant for the variables including feedback credibility, feedback delivery, availability of feedback, constructive feedback, and encourage feedback-seeking shows these dimensions are not a significant moderator towards student learning in

polytechnics. Therefore, the hierarchical multi-regression model obtained from this study is student learning in polytechnics = .231 Teaching Aid + .308 Feedback Quality.

The results of this study show that the use of adequate and functioning teaching aids should be integrated with the quality of feedback to have a maximum impact on student learning in polytechnics. Positive beta values show that higher-quality teaching aids will create a favorable learning environment, provide a real picture of the technology used in the work environment, and create learning opportunities based on problem-solving approaches. The quality of feedback also affects students' learning conditions in polytechnics. The higher the quality of feedback provided to students, the stronger they understand by the ability to associate theory with practice. In other words, quality feedback can clearly illustrate the direction and scope of the assignment (Hattie and Timperley, 2007) and further enhance ongoing activities. This means quality and credible feedback also influences feedback recipients' behaviors. The findings also show that the formation of quality feedback is also influenced by the extent to which individual capabilities provide reliable and specific feedback. Individual ability to provide constructive feedback will improve the quality of the learning process in achieving the stated goals (Steelman *et al.*, 2004; Thornock, 2016).

Table-3. Standard Regression Coefficient of Predictor Variables

Predictor Variable	Coefficient Value	
	Model 1	Model 2
Teaching aids	.231*	.989
Feedback delivery		-.128
Feedback credibility		-.203
Constructive feedback		.152
Feedback quality		.308*
Feedback availability		.026
Encourage feedback seeking behavior		-.051
R	.231	.409
R ²	.053	.167
Adjusted R ²	.045	.112
F Value	6.236*	3.009*
Durbin Watson	2.08	

Note: *Significant at $p < .05$ level

5. Conclusion

The findings of this study show that student learning will be more effective when the elements of the feedback environment and the use of quality and adequate teaching aids are integrated into the teaching process. Thus, instructors must be equipped with the ability to provide quality feedback to maximize the effect of teaching aids in the formation of a comfortable learning environment. This will indirectly strengthen the understanding of learning content among students. Thus, senior management should ensure adequate teaching materials based on student norms. Training on quality feedback should be emphasized over time as feedback quality elements improve student learning quality. Therefore, the quality and quantity of teaching aids should be taken into account to help students achieve their learning outcomes.

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