

Influence of Tutors' Direct Teaching Practice on the Academic Achievement of Distance Education Students: Does Perceived Module Usefulness Matter?

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ABSTRACT

In the print mode distance education, module usefulness is significant to teaching and learning. This study examined the role of perceived module usefulness in the relationship between tutors' direct teaching practice and students' academic performance. A descriptive survey design with a quantitative approach was used. The study covered Distance Education students in University of Cape Coast, Ghana. The study targeted Diploma in Basic Education students using a multi-stage sampling with a sample size of 380. Questionnaire was the main instrument used. Validity and reliability of the instrument were established. Multiple regression analysis with 1,000 bootstrap samples was used to test hypothesis 1. Simple mediation analysis through Structural Equation Modelling with 5,000 bootstrap samples was used to test hypothesis 2. Tutors' direct teaching practice was a significant predictor of students' CGPA, with students' interaction having the largest contribution lagged by assessing students' learning and delivery of lessons respectively. Module usefulness was a significant mediator in the relationship between tutors' direct teaching practice and students' academic achievement, $b = .0279$, Boot CI [.0094, .0467]. It is recommended that the management of the distance education programme should frequently organise seminars and workshops for tutors; deliver modules on-time and make module content useful for students' consumption.

KEYWORDS

direct teaching practice, instructional practice, distance education, module

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Introduction

Teaching practices in the classroom are key to the work of a teacher and this is normally evident in activities observed during classroom instructions. Studies have shown that there is an association between teacher quality and students' classroom learning (Seidel & Shavelson, 2007; OECD, 2010). The teaching practice of tutors is developed in a constructivist teaching context where learning as a procedure takes place in the minds of people during classroom interactions. In the case of distance education students, the constructivist practice could be fostered via the teaching process as facilitators guide learners in peer tutoring before their 'off-campus' teaching practice. This is much more entrenched in the cultures of western nations (Duguid as cited in OECD, 2012).

Distance education (DE) has opened up education opportunities for people worldwide and has come in contemporary times come to be accepted as an avenue for opening up education to satisfy the demand for tertiary education. This has brought about a parallel paradigm shift to the provision of tertiary education resulting in innovative ways of educational delivery, learning, and calving different roles for educational practitioners. DE has often been associated with education facilitated by technology either wholly or blended or print-based. Though electronic technology is key in DE delivery in modern times the focus must often be on the appropriate means by which learner needs and constraints can be resolved within a particular learning context. This is premised on the different developmental levels, the resource base of nations and institutions still bearing in mind best practices though. The focus therefore must be on the instructional activities and outcomes that meet learners' goals and not the technology of delivery.

With print-based distance education modes teacher or facilitator interaction with learners as means of support to forestall student drop-out and encourage completion is paramount. Effective interaction teaching or facilitation requires engaging learners in activities in the course of interaction other than presenting content to them (Hyun, Ediger, & Lee, 2017). In such class interaction, practices such as opening up discussions, critiquing responses, and complementing feedback are encouraged to develop students' high order of thinking (Prince & Felder, 2007). Where a facilitator or teacher lacks the skill to initiate purposeful class engagement, the effectiveness of the tutors' delivery is put in question and students' performance is affected.

The ability to engage students effectively depends on how well the tutors prepare for face-to-face interaction. Thorough planning is therefore required of the tutor or facilitator to make the desired impact. Often, as with the tertiary level, presentation outline becomes imperative as it gives direction to what is to be taught in terms of content (depth, coverage, learning activities), and how the lesson

unfolds during the instructional period (Cicek & Tok, 2014; Borich, 2007). Ganyaupfu (2013), points out that when inappropriate pedagogy is employed to nurture higher-order thinking amongst tertiary students they tend to perform poorly (Adunola, 2011). Thus, facilitators need critical pedagogical skills to facilitate where the dominant technology for bridging the transactional gap between the facilitators and the learners is the study module.

In the estimation of Huang, Chandra, DePaolo and Simmons (2015), transactional distance (which is psychological) is decreased by the use of interactive technology (online or internet) in contemporary times. Where students' geographic location, spread, and national and institutional infrastructure does not support online or e-learning to mediate students learning on the distance the print material (though very primary) becomes an important interface to link the psychological distance in developing economies. This means that though electronic technology is key in DE delivery in contemporary times the focus must often be on the appropriate means by which learner needs and constraints can be resolved within a particular learning context.

This paradigm shift in educational provision provides parallel access to all who desire to enjoy tertiary education but are unable to because of their background, socio-economic circumstance, location, or work status and must be encouraged. Innovative ways of educational delivery which is facilitated by other levels or forms of technology other than electronic technology wholly or blended or print based must be encouraged in order not to deny people access to tertiary education. Focus must often be on the appropriate means by which learner needs and constraints can be resolved within a particular learning environment.

Module use in dual-mode distance education programmes is central to institutions offering the dual-mode of distance education such as the University of Cape Coast, Ghana. With this mode, the principle of parity of esteem in terms of the weighting of the certificates on the job market is recognised. Support systems such as face-to-face sessions are fashioned out to assist students to learn. The modules and study guide which embody the content of the programme around which dialogue takes place are key as it bridges psychological distance in the distance education programme. The quality of the module content, the depth, layout, and skills provided are critical for students accessing higher education programmes (Idruss, 2006). Students independently study these modules in the comfort of their homes and on a bi-weekly basis meet at designated study centres within their regions and district in terms of proximity to interact with facilitators to clarify concepts not well understood. This support system forestalls the tendency for students to drop out and enhance their ability to do well to stay competitive in the job market.

Tutors teaching practice (facilitation) is important in the print-based distance learning programme where face-to-face tutor /teacher interaction is required to enhance students' use of course modules on the programme. It is important to emphasise that modules play a significant part in the direct teaching practice of tutors and students' learning (Idruss, 2006). The module gives the direction, depth, activities, exercises, and pedagogy that needs to be employed in the interaction process. The structure, therefore, influences the facilitation procedure.

Although studies have attempted to explain the relationship existing between the direct teaching practice and students' academic achievement, less attention has been paid to other variables, like module usefulness, which influences this relationship (Charanjit, Othman, Napisah, & Rafiah, 2017; Rohaya, Sahidah, Hamimah, & Mohd, 2014; Setiawati & Corebima, 2017). Very few studies have been done on the link between direct teaching practice and module usefulness (Norman, Robinson-Bryant, & Lin 2020; Amboyan, 2019; Lim, 2016). These studies found a positive relationship between direct teaching practice and module usefulness. Norman et al., (2020), emphasised the need for the integration of modules in teaching. Conversely, several studies have shown a significantly positive relationship between module use and students' performance (Betlen, 2021; Satyarthi; 2021; Khalil, & Yousuf, 2020; Naboya, 2019; Lim, 2016). This study sought to examine the role of module usefulness in the relationship between tutors' direct teaching practice and students' academic performance.

Hypotheses

The study was directed by two hypotheses:

1. H₀: Tutors' direct teaching practices do not significantly influence the academic achievement of Distance Education students.
H₁: Tutors' direct teaching practices do significantly influence the academic achievement of Distance Education students.
2. H₀: Module Usefulness will not significantly mediate the relationship between tutors' direct teaching practices and the academic achievement of Distance Education students.
H₁: Module Usefulness will significantly mediate the relationship between tutors' direct teaching practices and the academic achievement of Distance Education students.

Methodology

Research Design

The study used a descriptive survey design with a quantitative approach to achieve the aim of this research. This design was used because it allowed for the description

of current practices regarding tutors' direct teaching in the distance education programme and how it affects students' achievement by asking the students several questions and quantifying their responses to address the objective of this research. The quantitative approach was utilised to use numeral and higher statistical analysis to establish the effect of one variable and the other (Creswell, 2014).

Population

The study covered Distance Education students at the University of Cape Coast Ghana. At the University of Cape Coast, distance programmes run under the College of Distance Education which has teaching centres in all the sixteen (16) regions in Ghana. The study centres of the programme in the country have been divided into three zones: Northern, Middle, and Southern zones. The study was targeted to Diploma in Basic Education (DBE) students since they have demonstrated poor performance in both major and minor areas over some time (CoDE, 2018). Specifically, second-year DBE students were involved in the study because the first years had entered the programme not long ago and do not have many experiences to be shared whereas the final-year students had also ended their lectures and were about to graduate (Levitz, 2015). The second-year DBE students were 5,644 in number (Students Records Unit (CoDE), 2018).

Sample and Sampling Technique

The sample size for the study was 380 DBE students. This number was selected based on the recommendations of Krejcie and Morgan (1970) who stated that for a population close to 6,000, a sample of 361 is appropriate to make meaningful inferences of the findings from the sample to the population. For non-responses, the number was increased to 380. This is based on the assertion of Corry et al., (2017). A multi-stage sampling technique was used to sample the students. Stratified sampling was used to select one region within each zone with DBE programmes. Simple random sampling was used to select the centres and systematic was used to select the students from each centre.

Data Collection Instrument

The questionnaire was used as the major instrument for this study. The instrument had three sections: (1) demographic information, (2) direct teaching practice, and (3) module usefulness. Demographic variables like gender, age, and study centre were taken from respondents. The direct teaching practice scale had four dimensions: lesson delivery, students' interaction, higher-order thinking, and assessing students' learning. The items were measured using a 5-point scale (1-Strongly Disagree = SD; 2-Disagree = D; 3-Moderately Agree = MA; 4-Agree = A; 5-Strongly Agree = SA). The Module usefulness scale had eleven items. The responses to the items were measured using a 5-point scale (1-Strongly Disagree = SD; 2-

Disagree = D; 3-Moderately Agree = MA; 4-Agree = A; 5-Strongly Agree = SA). Mean score of 3.0 was used as a criterion based on the responses. That is: $(1+2+3+4+5)/5$. Items with mean scores above 3.0 depict agreement to the item, whereas items with mean scores below 3.0 depict disagreement to the item. In measuring internal consistency, the McDonald's Omega (ω) reliability estimate was used. The reliability estimates for the sub-dimensions were: .901 for lesson delivery (8 items), .851 for students' interaction (6 items), .806 for higher order thinking (8 items), and .842 for assessing students' learning. Before the administration of the instrument, a pilot test was conducted using Diploma in Early Childhood Distance Education students (50).

According to Saunders and Townsend (2016), a common rule of thumb is to use a sample size of 10 to 20% of your full-scale survey sample size, or at least 30 to 50 respondents. The responses gathered together from the pilot study were used to improve the quality of the instrument. This was done with the help of expert judgement. A data spreadsheet developed by the researchers was used to retrieve the Cumulative Grade Point Average (CGPA) of the students who responded to the questionnaire.

Data Analysis

After the administration and data entry, 373 questionnaires remained to be processed for data analysis. The data was screened and cleaned to remove errors (double barrelled questions and ambiguous questions). Items with low reliability coefficients were removed. Multiple regression analysis (with 1,000 bootstrap samples) was used to test hypothesis 1. The bootstrapping was necessary because it helped to relax the assumption of normality, gave insight into how variable the model parameters are, and useful in knowing how much random variation there is in regression coefficients simply because of small changes in data values.

To test hypothesis 2, simple mediation analysis was used with Structural Equation Modelling (Analysis of Moment Structures, AMOS). Again, 5,000 bootstrap samples with bias-corrected were employed at an alpha level of .05. Mediation analysis helps to explain a relationship between two variables with a third variable. In the case of this study, module usefulness was used to explain the relationship which exists between tutors' direct teaching practice and students' academic achievement.

Results

Hypothesis One

H₀: Tutors' direct teaching practices do not significantly influence the academic achievement of Distance Education students.

This hypothesis was tested to establish the influence of tutors' direct

teaching practices on the academic achievement of Distance Education students. The predictors were lesson delivery, students' interaction, higher-order thinking, and assessing students' learning. The criterion was the CGPA of the students. Before the analysis, assumptions (normality (See Appendix A), autocorrelation, and VIF) were tested and were met.

The analysis in Table 1 indicated that the autocorrelation assumption was not violated since the Durbin-Watson test yielded an estimate of 1.722 which fell within the range of 1.5 and 2.5 (Table 1). Also, all the VIF estimates were below 2.5. This suggested that multicollinearity was low and thus, the multicollinearity assumption has been satisfied. Other results on the overall model are presented in Table 1.

Table 1: Model summary

Model	R	R Square	Adjusted R Square	VIF range	Durbin-Watson
1	.689	.475	.469	1.257-1.311	1.722

a. Dependent Variable: academic achievement

b. Predictors: (Constant), direct teaching practices

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	159.814	4	39.953	83.109	.000b
	Residual	176.911	368	.481		
Total		336.725	372			

b. Bootstrap results are based on 1000 bootstrap samples

The result, as shown in Table 2, revealed that the overall significant model, $F(4, 368)=83.109$, $p<.001$. Further analysis revealed that tutors' direct teaching practice (i.e., lesson delivery, students' interaction, higher-order thinking, and assessing students' learning) explained about 46.9% of the variances in students' academic performance. Table 3 presents the relative contribution of the predictors to the criterion.

Table 3: Relative contribution of direct teaching practices to CGPA

	B	Beta	Bootstrap ^a		Sig.	95% Confidence Interval	
			Std. Error	T		Lower	Upper
(Constant)	-3.231		.367	-8.80	.001	-4.023	-2.632
Lesson delivery	.202	.151	.066	3.06	.003	.081	.347
students' interaction	.302	.246	.059	5.12	.001	.187	.415
higher order thinking	.290	.226	.070	4.14	.001	.156	.431
Assessing students' learning	.206	.183	.056	3.68	.001	.095	.318

a. Bootstrap results are based on 1000 bootstrap samples

The findings, as observed in Table 3, shows that the sub-dimensions of tutors' direct teaching practices significantly predict students' CGPA. Students' interaction was the largest contributor to students' CGPA, $b=.302, t=3.68, CI (.187, .415), p=.001$, followed by higher order thinking, $b=.290, t=4.14, CI(.156, .431), p=.001$. Assessing students' learning was found as the next significant contributor, $b=.206, t=3.68, CI(.095, .318), p=.001$. The smallest significant contributor was lesson delivery, $b=.202, t=3.06, CI(.081, .347), p=.003$.

Hypothesis Two

H₀: Module Usefulness will not significantly mediate the relationship between tutors' direct teaching practices and the academic achievement of Distance Education students.

This hypothesis sought to test whether the relationship between tutors' direct teaching practices and academic achievement can be explained by module usefulness. The predictor was direct teaching practice, the criterion was students' academic achievement (CGPA), and the mediator was module usefulness. Figure 1 and Table 3 present the details of the analysis.

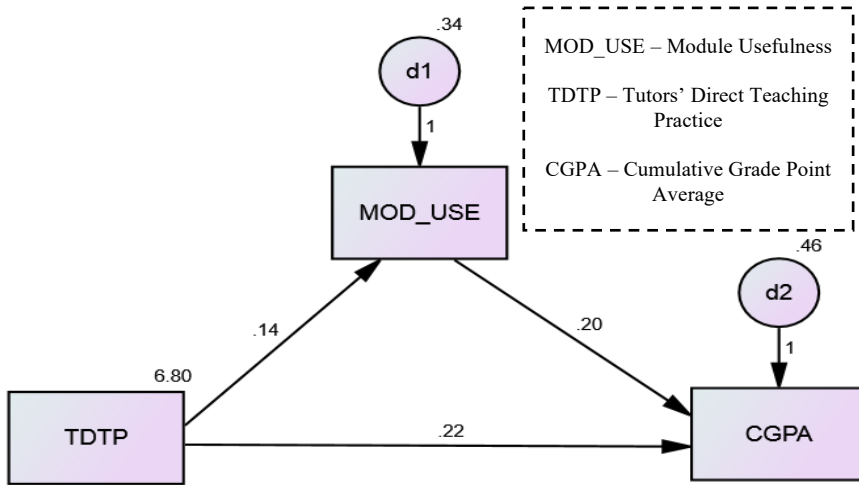


Figure 1: Path Models

Table 3: Total effects, direct effect, and indirect effect

	Effect	SE	t- value	p- value	Confidence Interval	
					Lower Limit	Upper Limit
The total effect of X on Y	.251	.014	18.254	.000*	.224	.278
The direct effect of X on Y	.223	.016	14.01	.000*	.192	.254
The indirect effect of X on Y	Effect	Boot SE		BootLLCI	Boot ULCI	
Module Usefulness (M)	.0279	.0094		.0093	.0467	

X-Direct Teaching Practices; Y-Students' CGPA

*Significant at .05 level

A significant direct effect ($b=.223$, $t=14.01$, $p<.001$) and total effect ($b=.251$, $t=18.254$, $p<.001$) of tutors' direct teaching practices on students' academic achievement (CGPA) was found. The indirect effect of tutors' direct teaching practices on students' academic achievement (CGPA) through module usefulness was found to be significant, $b=.0279$, $BootCI [.0094, .0467]$. Thus, module usefulness was found as a significant mediator in the relationship between tutors' direct teaching practices and students' academic achievement. The results from the total effect ($b=.251$, $t=18.254$, $p<.001$) and direct effect ($b=.223$, $t=14.01$, $p<.001$) confirm the fact that module usefulness explains the association between tutors' direct teaching practices and students' academic achievement. In other words, for tutors' direct teaching practice to have a large effect on students' academic performance, modules need to be useful enough.

Discussion

On the whole, tutors' direct teaching practices were found as a significant predictor of students' CGPA, with students' interaction having the largest predictor, followed by higher-order thinking lagged by assessing students' learning and delivery of lessons correspondingly. This result is clarified by the idea that lesson delivery has little influence on students' CGPA. Studies have shown that teaching encompasses students' engagement in learning activities and not the mere presentation of information to learners (Christensen, Garvin & Street as cited in Hyun, Ediger & Lee, 2017).

It can be said that a greater proportion of distance education students at the University of Cape Coast are adults above 25 years. As a result, just the delivery of lessons, particularly where they have access to modules, would not be beneficial to them. The findings of this study are consistent with a study by Organisation for Economic Cooperation and Development (2012) which found that direct teaching practice is comparatively prominent in explaining students' academic achievement. This seems to suggest that instructors who can encourage students' interaction and arouse higher-order thinking as well have greater chances of exciting students' intellectual capability and relevant prior knowledge.

Notwithstanding the significant contribution of tutors' direct teaching practices to students' academic achievement (CGPA), modules need to be useful for a greater effect of direct teaching practice to be realised. This is to say that, although direct teaching practices affect students' academic achievement, this effect becomes large when students perceive course modules to be effective. The distance education programme at the University of Cape Coast heavily depends on course modules. This is because students meet course tutors for 18 hours a whole semester. Modules are distributed to students at the beginning of each semester. This helps students to read before they meet for face-to-face interactions with course tutors. Thus, all quizzes and examinations are done based on the course content of the module. Hence, the course modules are, obviously, a significant part of the distance education programme at the University of Cape Coast.

In the Distance Education Programme of the University of Cape Coast, Ghana, modules function as a support framework that connects facilitators at one point and the learners at the other. The contents have become an object of dialogue with which all interaction takes place. Therefore, the transactional gap existing in the relationship between facilitators and students on distance programmes is linked by the content of the module which makes the 'distance' psychological, educational, and geographic (Moore & Anderson, 2003). It is, therefore, not surprising that module usefulness significantly explained the relationship between tutors' direct teaching practices and students' academic achievement. This finding

reflects a study by Nyerere (2012) which was conducted among distance education students in Kenya and found that the absence or delay in the distribution of modules and useful content of modules significantly affected students' failure or dropout rate.

Conclusions and Recommendations

It can be concluded that tutors' direct teaching practices are significant parts of teaching and learning, as far as distance education is concerned. It must be said that tutors' direct teaching and learning aids in students' understanding of issues taught and consequently affect their academic performance. However, this effect does not reach its full potential if modules are not useful to distance education students. This is because teaching and learning activities in the distance education programme at the University of Cape Coast, largely depend on the use of course modules.

Based on the findings of the study, it is recommended that the management of the distance education programme at the University of Cape Coast should:

1. Frequently organise seminars and workshops for tutors on the programme with a focus on tutors' direct teaching practices. These workshops and seminars should equip tutors on how to: deliver lessons, promote students' interactions, stimulate higher-order thinking, and assess students' learning.
2. Ensure that modules are delivered on time and the content is useful for students' consumption. This should be done by frequently reviewing the content of the modules to ensure that the module becomes useful for students. Feedback can also be taken from the students on the usefulness of the module.
3. Students need to be encouraged to give prompt feedback on content read to help guide module writers on students' educational needs.
4. Tutors have to inform management on whether the content taught fully provides and fits into what students need to know. Tutors need to provide feedback on how module content meets current trends to reflect changing needs and expectations.

Implications for the Study

The study shed light on how tutors direct teaching practices and module usefulness significantly impact the academic performance of distance learners. With proper Lesson delivery, guided students; interaction, higher order thinking and effective assessment of students; learning, the expected learning behavior of distance learners is achieved. However, the expected performance of students can be enhanced when the course modules are perceived to be useful. Hence, modules that are presented to capture the needs and interest of students would be perceived

as useful and this leads to greater students' commitment and subsequently improving academic performance.

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Appendix A

The normality assumption was tested before the test was conducted. The normality test was conducted using the Q-Q plots and the result is shown in Figure 2.

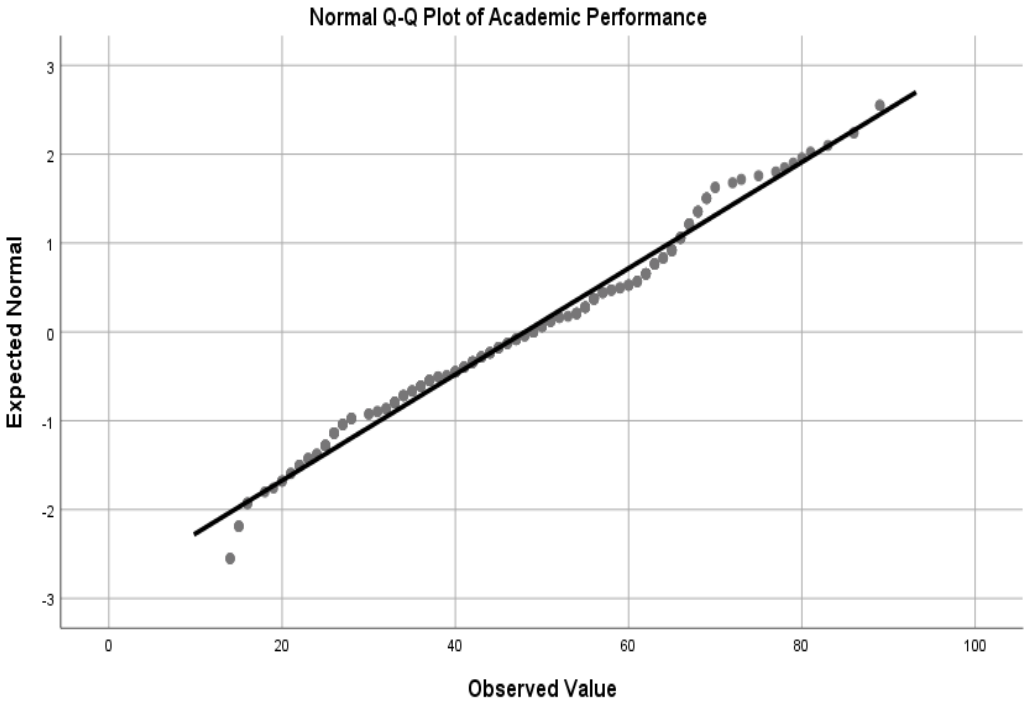


Figure 2: Q-Q Plot for Normality

The Q-Q plot shown in Figure 2 revealed that the data points are closer to the regression line. This depicted that the residuals for the variable academic achievement are normally distributed and hence, the normality assumption was satisfied.