

The status and usage of instructional media in Botswana tertiary education.

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Abstract

The status and usage of instructional media has been debated and continues to be debated in academic circles. This has been necessitated by research findings that support both perceptions of the role of instructional media in conceptualization of intended learning outcomes. The purpose of this study was to establish the status and usage of instructional media in tertiary institutions of Botswana. The objective of this study was “to establish the status of instructional media, usage, in the tertiary sector of education” in Botswana. This objective sought to find out whether tertiary institutions’ lecturers or tutors use instructional media. The study used the quantitative research design. Taking a cue from Wimmer and Dominick (2003); who assert that, quantitative research design requires that the variables under consideration be measured. A survey method was employed as it was appropriate for this study. 300 questionnaires were used to collect data. The targets were the educators in tertiary institutions. A probability sampling procedure was used. 183 questionnaires were returned. The results indicated **Computers and accessories** were mostly used for conceptualization. The reasons offrequently used “the instructional media” were that they were easy to use and were just available. It was concluded that mostly used instructional media in tertiary institutions or during the teaching and learning process were; computers and accessories, Combination of instructional media and charts & other illustrations respectively. The three main reasons why respondents frequently used “that instructional media” was the need to **improve learning** and it was their **organizational culture**. The frequent use of the same instructional media was due to **lack of resources**. It is recommended that with shortages of teaching and learning resources (instructional media) in tertiary institutions, there is a call for intervention to improve the availability of instructional media. This can be addressed by policy formulation, and Management of institutions should take a lead to make instructional media a budgetary priority and key component of effective teaching and learning process.

Key words: status, usage, instructional media, tertiary education.

1.0 Introduction

The origins of status and use of instructional media in education started when Richard Clark’s article published in 1983 down played the role of media to a mere delivery mechanism (Moffat 2013:1). This debate, brought two schools of thought on the effectiveness of instructional media in academic achievement, when Kozma in 1994, opposing Clark contended that, Instructional media itself can influence teaching and learning under certain conditions and with proper process. Kozma believes that instructional media could and should be used more than a vehicle for delivery. He viewed both instructional media and method to have a crucial role in the design of instruction (Moffat 2013). Whereas, on the other hand, Clark in 1994, argued that; “it is the method rather than media that influences academic achievement.” (Marx. 2006:02). The basic idea of Clark’s argument is that teaching methods have the most influences on learning. Instructional media is merely a delivery device and has no significant difference in learning outcomes (Moffat 2013). Clark (1983) argues that, the media comparison studies do not acknowledge other confounding variables such as the method, the teacher, the content and the environment; which play a significant role in teaching and learning process. Thus Clark (1983:445), concludes, “The best

current evidence is that media are mere vehicles that deliver instruction but do not influence students achievement any more than the truck that delivers our groceries causes changes in our nutrition.”

On the other hand, Kozma (1994) argues that, media can influence learning, and that instructional media can enhance conceptualization of intended learning outcomes. Kozma (1994) argues that, instructional media influence learning under certain conditions with proper process, here Kozma’s argument is that one cannot say with certainty that instructional media cannot influence learning, when instructional media influences learning in certain conditions. Kozma contends that, the studies, carried out which Clark (1983) refers to, failed to establish a relationship between instructional media and learning because the theories, research and designs have been constrained by vestiges of behavioral roots from which the discipline of education sprang(Kozma 1994:2). Thus, Kozma (1994:3) asserts that, “We will understand the potential for a relationship between media and learning when we consider it as an interaction between cognitive processes and characteristics of environment”. In this case, Kozma transcends the idea that, it is the cognitive domain that matters when it comes to learning, but that, the environment plays a significant role in the teaching and learning process. Thus the debate between Kozma and Clark produced two schools of thought on the effectiveness of instructional media; that is the Strong media effect and the Weak media effect. It is therefore imperative to establish the status and usage of instructional media in tertiary students’ conceptualization of intended learning outcomes.

2.0 Literature review

The quest to find the status and usage of instructional media in the conceptualization of intended learning outcomes brought three schools of thoughts: the high status and usage, the low status and usage and the mixed status and usage views.

2.1 The high status and usage view

The high status and usage school of thought claims that, instructional media influence academic performance of students. According to the strong status and usage school of thought, the status and use of instructional media is to enhance conceptualization of intended learning outcomes, thus promoting student academic achievement. This means that, learners who are exposed to instructional media learn more and perform better academically than those who are not exposed to instructional media, in other words, instructional media enhance conceptualization of intended learning outcomes. There are several researchers, such as; Isiaka (2007), Bada (2011), Gulek and Demirtas (2005), that support this school of thought. Rutz, Eckart, Wade, Maltibie, Rafter and Elkins (2003), found that instructional media influence academic achievement of students, when they evaluated the final grades, in their study to compare technology-enhanced and traditional instruction for a course in statistics. They found out that the Web assisted instruction mean of 76.1 compared to Traditional instruction at 67.8 percentage point. The mean difference is at 8.3 percentage point, showing significant difference between the means of those students taught using technology enhanced instruction and those taught using the traditional instruction. These findings, are in agreement with the results of Peake, Briers and Murphy (2005) who collected data on the relationship between student achievement and the level of technology integration by Texas agriculture teachers, and found that, “while there are no cause and effect relationships addressed in the study, the findings support that a positive relationship exists between the level of agriculture science teacher technology integration and students achievement in basic academic subjects”(2005:29).

2.2 The Low status and usage view

The Low status and usage school of thought purports that media do not influence academic achievement or conceptualization of intended learning outcomes. The Low status and usage effect school of thought view instructional media status and use as a mere vehicle of carrying information from the educators to the learners without any effect on conceptualization of intended learning outcomes, thus instructional media do not promote or enhance student academic achievement. In other words, there are no academic achievement benefits from utilizing instructional media, and there is no distinction in terms of performance between those students who receive instruction with instructional media and those without instructional media. Cradler and Brighforth, (2005:3) assessed over 100 research findings, and found that “.....studies generally and consistently show that technology alone does not have significant effect on teaching and learning.” Although Marx (2006) and ISTE (2008) support the strong media school of thought, as noted earlier, they too

contend that instructional media are effective in conceptualization of intended learning outcomes, if they are supported by other factors of teaching and learning process. This then, is the basis of the argument of the theorists in the weak media school of thought, that instructional media alone cannot be the only factor in the teaching and learning process, which can be attributed to the gain in learning, because teaching is a complex social interaction, stemming from various factors or activities. Simply put, there is no difference between students taught using instructional media as opposed to those taught using no instructional media when it comes to academic performance.

2.3 The Mixed status and usage view

In the quest to establish the status and usage of instructional media, there seems to be some research finding that one may call "Mixed findings" which supports both schools of thought; the high status and usage effects and the low status and usage effects schools of thought. The debate between the low status and usage school of thought and the high status and usage school of thought has been going on up to date. As a result studies being carried, there is emergence of research findings that support both schools of thoughts, which one might call mixed results. Thrasher, Coleman and Atkinson (2011), carried out a comparative study on Web instruction versus classroom instruction, on ten spreadsheet projects. Interestingly, of the ten Spreadsheet projects assigned; the data analysis indicates that, students in WBI section of the course only outperformed the classroom students on the first project. Projects 3 through 7, indicated no significant performance differences across the delivery methods, and projects 2, 8, 9 and 10 indicated significantly better performance for those students in the classroom. They concluded that instructional media do not enhance conceptualization of intended learning outcomes. The above results are similar with the findings of Muir (2007), "on research summary on technology and learning." It was concluded that, the results of the effectiveness of instructional media in conceptualization of intended learning outcomes support both schools of thoughts. This is also consistent with the conclusion of Materi (2000:3), who admits that, "The media and learning debate will likely carry on; whatever the study, proponents in either camp will likely find fault with it." This statement affirms the conclusion by Hastings and Tracey (2005:28), who claim that, "Whether or not the media of 1983 could, would, or should affect learning has never been resolved and likely never will be."

3.0 Statement of the problem & research objectives/questions

The status and use of instructional media in conceptualization of intended learning outcomes has not yet been resolved. The objective of this study was **"to establish the status of instructional media, usage, in the tertiary sector of education"** in Botswana. This objective sought to find out whether tertiary institution lectures or tutors use instructional media during teaching and learning; and if so, how often they do; and whether this use is an individual initiative or an institutional requirement. This study had the following research questions:

3.1 To what extent does the students' academic performance justify the financial resources used to purchase instructional media?

3.2 What types of instructional media are frequently used at tertiary level of education?

4.0 Methodology

4.1 Research design

This study used the quantitative research design, as Wimmer and Dominick (2003); assert that, quantitative research design requires that the variables under consideration be measured. This study followed the survey method, which Leedy and Ormrod (2010:187) describe as involving acquiring information about one or more groups of people—perhaps about their characteristic, opinions, attitudes, or previous experiences—by asking them questions and tabulating their answers. This study used a structured questionnaire. The questionnaire for this study had 22 question items, of which, questions 18 to 22 of the questionnaire apply to this study: **Establishing the status of instructional media usage, in Botswana tertiary education sector.** A total of 300 questionnaires were sent out, of which 183 questionnaires were returned and was considered to be sufficient for this study, following a cue from Babbie (1997)'s mark of 60% return rate on surveys.

4.2 Population and Sampling

The population comprised of all tertiary institutions in Botswana registered and accredited by either Botswana training authority (BOTA) and or by Tertiary Education Council (TEC). The target respondents were the educators in these tertiary institutions and those who hold positions of responsibilities. This study used probability sampling procedures-multi stage sampling technique, and this was done to increase the degree of representativeness and heterogeneity in the sample for generalization purposes. A total of 300 respondents were sampled.

4.3 Data presentation and analysis

This objective was developed in order to address the research topic fully and was phrased as follows: “To establish the status of instructional media usage, in the tertiary sector of education.”

Research question Six (6) was phrased as follows: What types of instructional media are frequently used at tertiary level of education?

Question twenty (20), in order to fully address the concerns of research question six was phrased as follows: Which instructional media do you frequently use in your institution/ when you teach? This question asked the respondents to name instructional media which they frequently used in their institution or when they taught. Its purpose also was to find out which media were readily available in tertiary institutions in Botswana. The following Table 4.31 presents the responses.

Table 4.3.1: Instructional media frequently used in Respondents’ institutions

INSTRUCTIONAL MEDIA FREQUENTLY USED	FREQUENTLY	PERCENT	VALID PERCENT
Computer and accessories	61	33.3	38.6
Models	14	7.7	8.9
Charts and other illustrations	31	16.9	19.6
Combination of any of the above	52	28.4	32.9
TOTAL	158	86.3	100.0
Did not respond	25	13.7	
GRAND TOTAL	183	100.0	

Valid percentages indicate that 38.6% of the respondents used computers and accessories. 8.9% of respondents used teaching and learning models. 19.6% of respondents used charts and other illustrations of teaching and learning. 32.9% of respondents used a combination of the above instructional media. It was concluded that respondents in Botswana mostly used: computers and accessories, Combination of instructional media and charts & other illustrations.

Question twenty-one (21) was developed as follows: Why do you use the instructional media mentioned in question 20 above? This question asked the respondents to identify the reason(s) why they frequently used the instructional media which the respondent(s) mentioned above in question (20). The following Table 4.3.2 presents the following data:

Table 4.3.2: Respondents’ reasons for using Instructional media in question 20

REASONS FOR FREQUENTLY USING INSTRUCTIONAL MEDIA	FREQUENTLY	PERCENT	VALID PERCENT
Very cheap	8	4.4	5.7
Easy to use	57	31.1	40.4
Just available only	47	25.7	33.3
Organizational culture	23	12.6	16.3
No reasons	6	3.3	4.3
TOTAL	141	77.0	100.0
Did not give reasons	42	23.0	
GRAND TOTAL	183	100.0	

Valid percentages show that 5.7% of the respondents frequently used “that instructional media” because it was very **cheap**. 40.4% of the respondents reported it was **easy to use**. 33.3% of the respondents indicated **just available**. 16.3% of the respondents said **organizational culture**. 4.3% of the respondents did not have reasons why they frequently used “the instructional media.” Therefore **three main reasons** why respondents frequently used “that instructional media” were: easy to use, were just available and also because of their organizational culture. It was concluded that; 73.3% respondents in Botswana used frequently “the” instructional media because that “the instructional media” were **easy to use** and they were **just available** in their institutions. 16.3% of respondents reported that they frequently used “the” media because it was the respondents’ organizational culture.

Question 22 required respondents to make a comment on the two questions above. The questions were: Question (20) “which instructional media do you frequently use in your institution/ when you teach?” and question (21) “why do you frequently use the instructional media mentioned in question 20 above? Table 4.3.3 below presents the comments from respondents summarized thematically.

Table 4.3.3: Respondents’ comments on questions 20 and 21

COMMENT	FREQUENCY	PERCENT	VALID PERCENT
Improved learning	45	24.6	38.1
Lack of resources	53	29	44.9
Instructional media available	12	6.6	10.2
Instructional media expensive	5	2.7	4.2
No comment	3	1.6	2.5
TOTAL	118	64.5	100
COMMENT NOT GIVEN	65	35.5	6.5
GRAND TOTAL	183	183	

Valid percentages indicate that: 38.1% of the respondents commented that instructional media **improved learning**. 44.9% of the respondents commented it was **lack of resources**. 10.2% of the respondents reported that it was **only instructional media available**. 4.2% of the respondents indicated that **instructional media were expensive**. Finally 2.5% of the respondents reported that they had **No comment**. It was concluded that the main reasons why respondents used the same media frequently were that: **Lack of resources** (in this case other resources for variety), **Improved learning and it were the only instructional media available**.

5.0 Findings

Research question six (6)-38.6%, of respondents used **Computers and accessories**. 32.9% of respondents used **Combination of instructional media**. 19.6% of respondents **Charts and other illustrations**. The reasons why respondents frequently used “that instructional media” Were: 40% of respondents said they were **easy to use**. 33.3% of respondents reported that they **were just available**. 16.3% indicated that it was **organizational culture**.

6.0 Discussion

The objective was: To establish the status of instructional media usage, in the tertiary sector of education. This objective sought to find out whether tertiary institutions’ lectures or tutors use instructional media during teaching and learning. If they use instructional media, how often do they use instructional media? Further it sought to find out whether the use was an individual initiative or an institutional requirement?

Research question Six (6) was phrased as follows: What types of instructional media are frequently used at tertiary level of education? This research question asked respondents to provide the types of instructional media they used and their frequency of use during teaching and learning process in their institutions for tertiary students’ conceptualization of intended learning outcomes. This problem was answered from information provided for questions 20, 21 and 22 of the questionnaire of this study as indicated below:

Question twenty (20), in order to fully address the concerns of research question six was phrased as follows: Which instructional media do you frequently use in your institution when you teach? This question asked the respondents to name instructional media which they frequently used in their institution or when they taught. Its purpose also was to find out which media were readily available in tertiary institutions in Botswana. Valid percentages indicate that 38.6% of the respondents used computers and accessories. 8.9% of respondents used teaching and learning models. 19.6% of respondents used charts and other illustrations of teaching and learning. 32.9% of respondents used a combination of the above instructional media. Therefore, the researcher concluded that respondents in Botswana mostly used the following instructional media in their institutions or during the teaching process: computers and accessories, Combination of instructional media and charts & other illustrations.

Question twenty-one (21) was developed as follows: Why do you use the instructional media mentioned in question 20 above? This question asked the respondents to identify the reason(s) why they frequently used the instructional media which the respondent(s) mentioned above in question (20). The results show that 5.7% of the respondents frequently used “that instructional media” because it was very **cheap**. 40.4% of the respondents reported it was **easy to use**. 33.3% of the respondents indicated **just available**. 16.3% of the respondents said **organizational culture**. 4.3% of the respondents did not have reasons why they frequently used “the instructional media.” Therefore **three main reasons** why respondents frequently used “that instructional media” were: easy to use, were just available and also because of their organizational culture. The researcher then concluded that; 73.3% respondents in Botswana used frequently “the” instructional media because that “the instructional media” were **easy to use** and they were **just available** in their institutions. 16.3% of respondents reported that they frequently used “the” media because it was the respondents’ organizational culture.

Question twenty-two (22) was the last question for this study and this question was phrased as follows: Make a comment about questions 20 and 21. Question 22 required respondents to make a comment on the two questions above. The questions were: Question (20) “which instructional media do you frequently use in your institution/ when you teach?” and question (21) “why do you frequently use the instructional media mentioned in question 20 above?”

Valid percentages indicate that: 38.1% of the respondents commented that instructional media **improved learning**. 44.9% of the respondents commented it was **lack of resources**. 10.2% of the respondents reported that it was **only instructional media available**. 4.2% of the respondents indicated that **instructional media were expensive**. Finally 2.5% of the respondents reported that they had **No comment**. It was concluded that the main reasons why respondents used the same media frequently were that: **Lack of resources** (in this case other resources for variety). **Improved learning and it** were the **only instructional media available**.

7.0 Conclusion

The status and use of instructional media in tertiary education sector of Botswana was established as follows: mostly used instructional media in their institutions or during the teaching process were; computers and accessories, Combination of instructional media and charts & other illustrations respectively. The three main reasons why respondents frequently used “that instructional media” only were that; they were **easy to use**, the need to **improve learning** they were **just available** and it was their **organizational culture**. This use of the same instructional media was a result of **lack of resources**, which is similar to the findings and conclusions of Jotia and Matlale (2011), who carried a study in Botswana to find out how the use of instructional materials in Social Studies affects students’ performance, they concluded that, “there was a shortage of instructional resources in Botswana primary schools” (Jotia and Matlale 2011:117).

8.0 Recommendation

There are shortages of teaching resources (instructional media) in tertiary institutions of Botswana as indicated by 44.9% of respondents, and that tertiary educators use the same instructional media call for intervention to improve the availability of instructional med. This can be addressed by policy formulation if nothing is in existence concerning instructional media in some institutions. Management of institutions should take a lead to make instructional media a priority and key component of effective teaching and learning process at tertiary level of education in Botswana. This would enhance conceptualization of intended learning outcomes, making teaching and learning to be interesting to tertiary students in Botswana.

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