NOUN's Deployment of Instructional Video: Appraising Students' Attitude and Adoption of the Innovation

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Abstract
The introduction of instructional video technique by National Open University of Nigeria in 2014 was to enhance learning at a distance as well as to improve the students learning capacity. However, little attention was paid to students' awareness and readiness to adopt the innovative within the time of its introduction. This study investigated NOUN students' awareness, perception and adoption of the technique within the first 24 months of its introduction. Anchored on the Diffusion of Innovation Theory, the study used survey method and the structured questionnaire administered to 120 respondents selected purposively from four study centres in Lagos, Port Harcourt, Owerri, and Abuja. Data were analysed using simple percentages and presented in frequency distribution tables. Findings show that the percentage of students who knew about the innovation was high (70%) but the level of

immediate adoption was low (77%). The majority of the students, however, showed a positive disposition towards the new method of teaching. We therefore conclude that even though the instructional video technology was positively perceived, most of the target students were not aware of it in good time due mainly to poor communication. Based on these findings, it is recommended that in future, the introduction of any technology-based innovation targeted at students should be properly publicised in order to secure popular cooperation of the key target audience.

Keywords: Adoption, Computer-mediated, Innovation, Instructional video, Perception, NOUN

Introduction

The rapid increase in open and distance learning method in higher education is no doubt a response to the need to increase access to learning to more people than the conventional institutions could possibly provide. While this method is attractive to many, there have been some problems associated with learning at a distance. One of such practical challenges is the lack of interaction and group discussion among students, due to the distance of learners from educators. In response to this gap, the National Open University of Nigeria, the country's leading and only specialist-provider of Open and Distance Learning (ODL) university education, introduced a web-based, interactive method known as ***instructional video***, to enhance learning experience of students. Being a technology-based innovation, however, problems of perception, attitude, and adoption of the technique were thought to be capable of affecting the effectiveness of the programme. Consequently, this study was embarked upon to investigate NOUN students' attitude and adoption of this innovation two years after it was introduced.

Instructional strategies are a function the developmental level of students, the teacher's objectives, the content as well as the environment (time, physical setting and resources). Notwithstanding all these, no single method is likely to suffice to meet all the goals. While some methods would be appropriate in a classroom setting, others are better in an online environment. Some tested methods of instruction include the following:

1. **Module** – which is a self-contained instructional package in which students use a self-contained package of learning activities as a guide
2. **Mastery learning** – here students are presented with information to be

learned at a predetermined level of mastery; class is tested and poor performers are re-taught and retested;

3. **Mixed-mode instruction** - A combination of "face-to-face" and on-line methods
4. **On-line instruction and learning** – a self-directed and automated approach which utilises hypermedia (internet browsers, etc.) for communication - giving users the freedom to act unhindered by the constraints of physical classrooms.

As UNESCO (2002), states, "*communication serves two purposes:*

> One is the distribution of information, the second is the interaction between teachers and learners and where possible between learner and learner. In some forms of Distance Education this learner interaction is practically non-existent, but most cases it is considered important and may be provided in different ways. New technology allows the organisation of "virtual groups", and in countries where access to the internet is common, this is the fastest growing approach to distance teaching.

Video is designed with capacity to convey material through auditory and visual channels, create a multisensory learning environment, yet there is a need to know what students respond to, and their perception of effectiveness of instructional video. In the case of the National Open University instructional video, what would have been the initial reception of the initiative by students and through what channels did the students learn about the technique, what was their rate of adoption, etc.?

Statement of the Problem

NOUN's introduction of the instructional video method was an innovative and creative way of delivering instructions to its teeming students spread across Nigeria and beyond who could not be served by the conventional restrictive face-to-face method. The technique was expected to be embraced by students to improve their learning ability. However, not much has been discussed about students' awareness and adoption of the innovation within the time of its introduction; moreover, being a technology-based innovation, however, perceptions and attitudes by the target students which may affect the effectiveness of the programme, were not examined hence the need for the investigation of its acceptance and utilisation by the students. This therefore calls for an appraisal of students' attitude, including their time of knowing about it as well as the communication channel that best served them in adopting this innovation. Consequently, the following research objectives guided the study:

To determine:

1. If and from which channels students became aware of innovation;
2. The attitude of students towards the innovative instructional videos;
3. If students adopted the technology and when; and
4. How useful students perceived the technique to be.

The Research Questions were:

1. Were students aware of the instructional videos and from which channels?
2. What was the initial attitude of students towards the innovative instructional videos;
3. Did the students adopt the technique and at what time?
4. How useful students perceived the technique to be.

Literature Review

In their work, 'An Empirical Study of Social Networking Behaviour using Diffusion of Innovation Theory,' (Odundo, 2003; Zeeb, 2004), found that compatibility, complexity, trial-ability, and relative advantage were all significant factors influencing the use of social networking. The growth in social networking use by students was said to have been fuelled by a social circle incentive. Those in the group have more social interaction and pressure exists to belong to this communication circle.

John MCwhorter's study, titled, A Study of Early Adopters of Innovation, identified both organizational and environmental factors as statistically significant. Organisational influences were stronger than environmental influences in determining the rate of adoption of innovation in hospitals and organisational influences were statistically significant and present among early adopters of magnet programmes in hospitals. Organisational complexity, size, slack resources, control of domain, and the presence of a competitor with magnet designation were the factors associated with the rate of innovation among hospitals and specifically influencing the early adoption of innovation among hospitals.

The combination of both organisational and environmental factors had a significant influence on the rate of early adoption of nurse magnet programmes within hospitals. Similarly, Scott Bales (2016) conceptualises an early adopter as "a person who embraces new technology before most people do. "Early adopters tend to buy or try out new hardware items and programs, and new versions of existing programs, sooner than most of their peers".

Studies suggest that the instructional methods adopted by teachers do influence learning achievement significantly. According to Dunn (1983) and Chang

(2010), appropriate instructional methods would facilitate proper understanding of new concepts while inappropriate methods are likely to hinder knowledge acquisition, retention and application. This suggests that teachers, and indeed, managers should try and adapt or align their instructional methods with the needs, requirements and preferences of students to enhance effectiveness of the process in terms of learning achievement.

In the case of ODL learners, a combination of methods, including Instructional Video Methods, would be considered quite apt to achieve high level of knowledge acquisition. Students whose learning preferences are mismatched with instructional methods are less likely to develop interest in the subject matter, prompting some to drop out altogether (Odundo, 2003; Zeeb, 2004). Dunn (1983) found that student leaning achievement was significantly related to the instructional methods used by teachers. In this regard, the methods used to deliver lessons had a greater impact than the content covered in a course of study.

Chang (2010) investigated the effectiveness of teacher-centred and learner-centred pedagogical methods on the performance of students and found that learner-centred methods were more effective in influencing the perception of students towards science subjects as students placed more value on active participation in-group discussions than attendance to lectures.

Theoretical Framework

Diffusion of Innovation Theory

This work is anchored around the Diffusion and Innovation theory. This theory was first discussed in 1903 by Gabriel Tarde, a French sociologist (Toews, 2003). Tarde plotted the original S-shaped diffusion curve; this was followed by Ryan and Gross (1943) who introduced the adopter categories that were later used in the theory presently popularised by Everett Rogers. In (1957), Katz introduced the notion of the two groups: opinion leaders, opinion followers, explaining how the media interacts to influence these two groups. Rogers' Diffusion of Innovations theory is, perhaps, the most appropriate for investigating the extent of adoption of the instructional video technique among students of National Open University of Nigeria or in any higher education and educational environment for that matter (Medlin, 2001; Parisot, 1995).

Adoption of a new idea, behaviour, or product does not happen simultaneously in a social system. It is rather a process whereby some people are more apt to adopt the innovation than others. Everett Rogers popularised the theory in his 1962 book, Diffusion of Innovation, listing categories of adopters to include: innovators, early adopters, early majority, late majority, and laggards (Rogers, 1962, p. 150).

Rogers defines innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1995). In other words, the Diffusion of Innovation theory evaluates how, why, and at what rate new ideas and technology are communicated and adopted.

Five factors influence somebody's tendency to adopt an innovation. These factors include: *relative advantage, complexity, compatibility, trial-ability and observability.* Relative advantage means the degree to which the adopter perceives the innovation to be better than existing methods in terms of effectiveness or efficiency. Studies like (Teo & Tan, 2000; Premkumar & Ramamurthy, 1995), found that this factor is indeed significant especially among students. Similarly, Ilie *et al.* (2005) found that relative advantage was significant for men, but not for women.

Complexity refers to the degree of difficulty associated with the innovation in terms of people's ability to understand or apply it. On the other hand, compatibility is the degree to which an innovation is seen to be consistent with the existing values, past experiences, as well as needs of potential adopters. In a study, Premkumar and Ramamurthy (1995) reported that the greater the complexity the slower the rate of adoption.

Trial-ability, on the other hand, refers to the rate at which the new technology can be experimented before adoption. Observability or visibility refers to the ease and relative advantage with which the technology can be seen, imagined, or described to the potential adopter.

Methodology

Sample and Sampling Technique

The study adopted survey to gather quantitative data. One hundred and twenty (120) students of National Open University of Nigerian were purposively and conveniently selected from four Study Centres selected based on: (1) adequate spread between the various geo-political zones of the country; (2), Convenience, indicating some measure of ease of identifying and engaging students, and (3), cost of reaching many students. The four NOUN Study centres were: Lagos, (South-west Nigeria comprises states like Lagos State, Ogun, Osun, Oyo, Ekiti and Ondo states); Owerri, (South-east Nigeria including: Abia State, Anambra, Ebonyi State, Enugu State and Imo State); Port Harcourt (comprise: Bayelsa, State, Rivers State, Akwa Ibom State, Cross River State and Edo State and Delta State) and Abuja (also known as middle belt, they comprise: Kogi, Niger, Benue, Kwara, Plateau and Nasarawa States). This method of sampling, though inadequate for purposes of generalisation, it is nevertheless useful for the pilot study being undertaken by these researchers.

A 22-item questionnaire was developed and used to obtain information from

the respondents/students of NOUN in the sampled centres and the unit of analysis was each of the students that were interviewed either one-on-one or through the questionnaire. The questionnaire was initially sent via the respondents' email addresses as supplied by NOUN ICT department. However, the response was not adequate as only about 24 per cent (55) responses were received out of about 200 copies sent out, hence the resort to physical administration and filling of the questionnaire. Altogether, 115 copies of the questionnaire were analysed from across four study centres. The exercise covered about 30 days between August and September. Google Form, an analytical research tool developed by Google Incorporated, was used to create the questionnaire template as well as achieve accurate analysis thereafter.

Data Presentation and Analysis

In this section, the results of the quantitative data are presented and discussed in line with the research questions using simple percentage.

Table 1: Students Awareness of the Instructional Video

S/N	Response Category	Response (%)
1	Yes, I was aware	72.22No,
2	I was not aware	27.83
3	Can't tel	l04
4	Total	100
		n=115

Source: Researcher's field work, 2016

Table 1 above shows that a good majority of the students/respondents (72.2 per cent) said that they were aware of the newly introduced instructional method. Only 27 per cent said they were not aware of it as at the time of the field work. This gives the impression of a good figure; however, the second item which sought to know when they became aware of it showed that the majority, (59.1%) heard about it in the second half of the second year of its introduction - (2016).

On their source of information about the instructional video, 28.9% mentioned their colleagues as their first source of information, implying reliance on grapevine instead of official channels. This was followed by NOUN Lecturers (23.3%) and Study Centre notice boards (22.2%). Twenty one per cent of the students said they learnt about it from NOUN websites while only one per cent said the information was received from the mass media.

Table 2: Students' Attitude/Perception of Instru ctional Video

S/N	Category	Response (%)
1	Positive	21.7
2	Negative	29.7
3	Neutral	48.6
	Total	100 n=115

The initial attitude/perception of students about the innovation was another item of study. The majority of the respondents indicated that they were positively disposed to the idea; they discussed it with their colleagues, got positive feedback (29.7%), and neutral feedback (48.6%) – both of which combined also encouraged them to go ahead with the new idea. This trend is consistent with the tenets of the Diffusion and Innovation Theory. In this regard, awareness of the new technology, as well as influence of opinion leaders, including peers, are considered critical factors in its adoption.

Table 3: Time of adoption of the technology

S/N	Category	Response %
1	Immediately	13.6%
2	Delayed for a while	77.3
3	Total	100 n =115

Source: Researcher's field work

As Table 3 indicates, the majority of the respondents (77.3%) said that they did not start using the technology immediately they heard about it for reasons they could not explain. Only 13.6 per cent said they adopted it immediately. Among those who delayed for a while before starting to use the method, 59.4 per cent says they cannot say who or how they were eventually motivated; (9.4%) said they were motivated and encouraged by their colleagues while (15.7%) said they were motivated and encouraged by their academic counsellor/lecturer. This also goes to confirm the importance of the third party role in the new technology adoption framework.

Table 4: Students perceived usefulness of instructional video

S/N	Category	Response %
1	Very useful	29.3
2	Useful	46.7
3	Not Useful	12
4	Not Useful at all	2.7
5	Can't say	9.3
6	Total	100

Source: Researchers' field research work

Table 4 above shows that a good number of the students considered the technology to be useful and therefore worth their effort. Forty-seven per cent said the technique was useful, another (29.3%) said it was very useful while (2.7%) considered it not worth the while. About nine per cent could not say if the new method is useful or not.

Other variables were also considered in the study including: students' source of Internet connection which is a major factor for many of them in deciding to utilise this method of instruction; how often they logged unto the platform to access the lectures; what type of experience they had in the process of logging on; they were also asked to comment on their rating of the instructional videos as well as on the various lecturers that they had watched/viewed as they delivered the lectures.

From students' responses, many of them depend on commercial Internet to access their video lectures, a situation that is sure to affect their frequency of use of the technology. In terms of ease of logging in, a total of 58.1 per cent of the respondents said they found logging in easy and very easy while a total of 24.4 per cent said it was difficult logging in. Another 4.1 per cent said the experience varied from difficult to easy while 12.2 could not say exactly what their experiences were. It is gratifying to note that a good majority of the students are comfortable with the technology, even though a lot more needs to be done by them to properly key into the technique without much ado.

In the estimation of the students, many variables were considered to describe how effective or otherwise the various lectures were while delivering their lectures. These include: clarity of presentation; body movement while making the presentation; mastery of subject matter, visual demonstration, appropriate dressing, facial expression and non-verbal cues. Among these, the respondents selected clarity of the presentation (46.3%) and subject matter mastery (26.8%) as the most important factors that account for lecture effectiveness. Other factors such as body movement, visual demonstration and non-verbal cues received low rating from the students, which means that they did not consider those factors as being strong enough. In the same vein, the respondents said the content of the video and the lecturers themselves were the main attraction.

Respondents' rating of the various lectures showed that 13 per cent found the lectures very effective as a learning method; 44.4 % found it effective, while 24.1 % said it was not effective for them as a delivery method. Ten per cent were undecided on its effectiveness. This shows that a good majority of the students – 57.4 per cent considered the method of delivery to be effective and therefore deserved to be sustained.

Discussion of Findings

The study established that majority of the students/respondents were aware of the newly introduced instructional method even though their sources of information differed from person to person. The implication is that within the university body, grapevine sources seem to be popular as sources of information rather than the official channel of communication. The university has a duty to improve on its information dissemination mechanism especially to its core target – the students – to avoid the incidence of 'fake' news intruding into the mix.

Rogers ibid identified four main elements that affected the adoption of innovation to include: (1) the innovation, (2) communication channels, (3) time, and (4) the social system. The innovation is the new product or service, the Instructional video technology, which was adopted in addition to existing methods. The communication channel is the means by which messages are transmitted from one individual to another. In this regard, NOUN had the opportunity of communicating the innovation through many channels: the mass media, official websites, notice boards, etc. and should be encouraged to exhaust these subsequently.

The findings also show the attitude of students towards the innovation, indicating that the majority of the respondents were positively disposed to the idea. This positive disposition did not happen immediately but followed a series of actions

including discussing it with their colleagues who gave them positive feedback which encouraged them to go ahead with the new idea. This trend is consistent with the tenets of the diffusion and innovation theory. In this regard, awareness of the new technology, as well as influence of opinion leaders, including peers, proved to be key factors in its adoption.

The study also found that students adopted the innovation but in phases as the majority of them did not start using the technology immediately they heard about it for reasons they could not explain. Only a few adopted it immediately. These few fall within the first phase of Diffusion of Innovations theory referred by Rogers (1961) as 'innovators'. The phases of adoption of the technique agree with the Diffusion of Innovations theory innovation adoption framework typically: - innovators – 2.5%; early adopters – 13.5%; early majority – 34%; late majority – 34% and laggards – 16% - all with some modifications. The implication in this finding is the critical role which opinion leaders and peer influence play in the adoption and acceptance of new ideas. This may suggest that the informal communication systems appear to have as much influence in changing behaviour as the mass media.

The phased adoption is in line with the *trial-ability* of the Diffusion of Innovation theory which refers to the capacity to experiment with the new technology before adoption. On this note, many of the students said they hesitated before adopting the new technology, ostensibly, in that process, they had to try it out, thus affirming this fourth factor by Rogers.

The study links awareness level of the innovation to the perception and adoption of the innovation by the students. This much has been demonstrated by the number of respondents that were not yet aware of the new approach to learning, which also means, that same percentage of students had not yet adopted the technology as at the time. This shortfall is attributable to communication lapses following the launch of the innovation. This, therefore, calls for a proper programme of publicity and information dissemination about an innovation to allow the target audience to adequately follow up with the technology.

Conclusion and Recommendations

The study clearly reveals that the adoption level of the launch and introduction of NOUN Instructional Video Technology was quite low, occasioning low adoption of the technology among the sampled population. Even though this study is a pilot, it no doubt, can subsist as a representative of the larger population of students in the other geopolitical zones of the country. It, however, revealed a high level of interest and positive disposition of the students (including both those who knew about the video

technology and those who were just learning about it). By being positively disposed to the new technology, the students stand a good chance of adopting the technology and imbibing the tenets in a short while. A need for an enlarged study of the entire regions of the federation is recommended as the programme enters its third year.

Furthermore, because most of the students from the study centres from South-east, South-south and North-central – indicated low awareness as against students in Lagos centres, the point can be made that urban dwellers appear to be exposed to innovations faster than regional or local dwellers. This situation clearly shows that the so much touted world being a global village, where urban dwellers may not necessarily have much advantage over rural dwellers, is not yet applicable in Nigeria.

It is hereby recommended that this gap can be narrowed down by involving all study centres across the nation with a view to streamlining their communication before the take-off of any important programme affecting students. In this regard, rather than cause the students to access information from their colleagues, there should be publicity/communication plan using such tools as: University website, bulletin boards, as well as SMS (Short Message Services), among others, which students indicated as part of their sources of information.

We also recommend that lecturers or educators should endeavour to create some platforms for reaching out to their students online. This could be in the form of blogs and special interactive platforms that could help them keep in touch regularly. Through such blogs, new developments within the academic community could be passed on to the students seamlessly. Through this method, students would feel at home being in contact with their lecturers virtually as well as feel free to ask questions for further clarification.

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