



Research article

Podcast acceptance for pedagogy: the levels and significant influences

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ABSTRACT

There is limited empirical evidence arguing against accepting and using podcasts for educational purposes. This may in part, explain the recent surge in the acceptance of podcasts for pedagogy, alongside the COVID-19 pandemic. Both students and lecturers have been greatly affected by this pandemic which may explain the uptake in the use of podcasts. However, few studies have explored podcast use for pedagogy and thus, there is limited empirical backing.

This study investigated pedagogy and considered podcast performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors in Nigerian universities. This research introduced cross-sectional quantitative methods, which utilised a questionnaire, gathering data from three Federal Universities in Nigeria. The formulated hypothesis was rejected using multiple regression and a total of eight hundred and twenty-nine questionnaires were gathered from Nigerian university lecturers. The data was analysed and the results showed a low-level outcome with regards to podcast acceptance for pedagogy in Nigeria Federal Universities.

1. Introduction

1.1. Podcast and pedagogy

A podcast is an educational technology which promotes academic performance by allowing students to learn from lecturers and podcasting resources. Moreover, podcasts can encourage academic performance by allowing students to learn on an individual basis but also, help academic performance by allowing lecturers to tailor instructions that fit students' needs. Similarly, podcasts assist academic performance by allowing lecturers to deliver instructions to students when there is restricted movement (eg. in a pandemic). Educational technologies such as this are valuable resources, which provide an unlimited avenue for promoting performance in education (Thompson, 2016; Mertala, 2019).

Podcasts have been defined by several scholars in different contexts. For instance, Swanson (2012) defined the podcast concept as online resources in various forms like simulation, videotape, acoustic, or motion picture. Likewise, Lin et al. (2011) further explained podcasts as educational technologies like tailored internet, radio, and film material, which are accessible by monthly payment. Besides, a podcast provides a realistic experience (Koumi, 2006; Jordan, 2019). Also, recorded lecture podcast media has been acclaimed to be good material for reviewing the previous lessons (McGarr, 2009; Rowan, 2017). However, Robinson and Ritzko

(2009) were concerned with the probability of low student attendance, when a podcast of the live lecture is made available online for revision purposes. Notwithstanding, the podcast has been useful for 'inverted classroom' (Gannod et al., 2008, p. 777; Chen & Melon, 2018). For instance, the 'inverted classroom' involves the act of presenting podcasts to learners before lecture delivery (Gannod et al., 2008).

1.2. Review of previous research on podcast acceptance

Previous research addressing factors relating to podcast acceptance by lecturers remains scarce. For instance, the issues on disparities in gender-based acceptance of educational technologies were previously dealt with through research (Eynon, 2018). Also, issues regarding the acceptance of 'Open Educational Resources' (OER) are available in the literature (Ferreira and Lemgruber, 2019, p. 315). Evidence has shown issues surrounding visuals acceptance for pedagogical activities were previously addressed by researchers (Jackson, 2019). Ifedayo et al. (2020) addressed issues regarding the mediating effect of behavioural intention on podcast acceptance, without empirically reporting the levels and significant influences of performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors.

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Nonetheless, the COVID-19 pandemic has resulted in podcast technology acceptance for universities pedagogical activities. It appears that the use of podcasts are no longer an option but a necessity. Also, podcasting activities on YouTube and Facebook application have become a popular means for lecturers to fill in the gaps created by the COVID-19 pandemic in pedagogy. Hence, this study is relevant as it provides a clearer understanding of the nature of the factors that must be surmounted when considering podcasting activities for pedagogy. Educational technologies are an indispensable impetus during a pandemic period (Ben et al., 2020).

This research contributes to the gap that exists in lecturers' podcast acceptance, exploring: Performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors discourse in this study. Limited studies have explored the levels of performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors with regards to the use of podcast. Hence, this research contributes to the existing literature by creating more understanding of the potency of podcasts towards students' academic improvement. Venkatesh et al. (2003) revealed performance expectancy, effort expectancy, social influence, and facilitating condition as some of the salient factors that must be considered in technology acceptance studies.

1.3. Theoretical and conceptual framework

The level of performance expectancy is the extent, which lecturers accept that using technology is beneficial towards the learner's academic performance. Besides, the level of lecturers' effort expectancy is the extent, which technologies are easily accessible for pedagogy. The level of lecturers' social that influencing podcast acceptance. Also, the level of lecturers' facilitating condition is the extent, which lecturers feel that there are facilities to support technologies use for pedagogy.

Thus, this study adopted and adapted Venkatesh et al. (2003) unified theory of acceptance and use of technology (UTAUT). This UTAUT model is technology-oriented and permits the studying of any educational technology for future use (Rahi et al., 2019). The UTAUT gives better clarification regarding the likely predictors of the acceptance of technology (Vega et al., 2019). Also, the UTAUT specifically aims at addressing issues regarding reluctance towards accepting up-to-date educational technologies (Al-Saedi et al., 2019).

The performance expectancy, effort expectancy, social influence, and facilitating condition are original UTAUT factors. Likewise, behavioural intention, use behaviour, gender, age, experience, and voluntariness of use are original factors of UTAUT. Besides, the lecturer's behavioural intention is the inner motive to accept technology for instructional purposes. Behavioural intention is the plan to either accept or reject technology for education (Naranjo-Zolotov et al., 2019). The way technology users accept or reject technologies derives from intentions (Magsamen-Conrad et al., 2019). Available literature evidence suggested that future research must find factors that contribute to the understanding of behavioural intention and use behaviour towards technology acceptance (Venkatesh et al., 2003). Also, it was suggested that subsequent enquiries must endeavour to investigate more factors to enhance a better grasp on technology acceptance (Venkatesh et al., 2003).

The use behavior factor in this study is lecturers' actions towards podcast acceptance. Use behavior factor is a potential technology user conduct (Cai et al., 2019). Also, a technology user approach is regarded as use behaviour (Ammenwerth, 2019). Hence, use behavior is an act (Gupta et al., 2019). Besides, the use behavior is the way technology users demand the use of technologies (Xu et al., 2019). Likewise, use behavior is a unified theory of acceptance and use of technology (UTAUT) factor that was proposed by Venkatesh et al. (2003).

However, gender is the state of being either a male or female within a technology acceptance scenario. Moreover, age is the state of either being young or old within a technology acceptance situation. Whereas, the experience is exposure to technology acceptance. The voluntariness of

use is a discretionary acceptance of the technology. Nonetheless, these factors were not considered in this research as original UTAUT contents proposed by Venkatesh et al. (2003).

The UTAUT factors were previously explained by numerous authors.' For instance, behavioural intention was explained as the predicted way of doing a task (Nisson and Earl, 2015). Also, use behaviour is an individual's observable response to situations (Bergner, 2011). Oyserman (2017) defined culture as a norm that some group of people regards as admirable. Kaplan and Haenlein (2010) defined the social belief factor as the traditional belief about the co-operative, individualised, collective, and common livelihood in a community. Jost et al. (2009) defined a political belief factor as collectively held opinion in a country, which relates to the citizens' leadership choice. Attuquayefio and Addo (2014) defined performance expectancy as the level that someone views a material to be assisting in promoting student performance. Nistor et al. (2014) defined effort expectancy as the easy adoption of learning technologies. Alraja (2016) defined social influence as the extent to which people feel learning technology must impact the environment. Thomas et al. (2013) defined facilitating conditions as the level in the availability of facilities for learning technologies use.

The performance expectancy, effort expectancy, social influence, facilitating condition, cultural belief, social belief, and political belief are independent variables in this study's conceptual framework. Also, behavioural intention is a mediating variable in this study. However, use behaviour is a dependent variable in this research.

Nonetheless, cultural, social, and political beliefs are new factors that were introduced into UTAUT in this study. Also, the cultural belief is a viewpoint held by lecturers regarding pedagogical practices (Sunny et al., 2019). Besides, social belief is associated with communal activities while political belief is related to leadership issues (Zuidervaart, 2019; Regan and Talat Khwaja, 2019). Likewise, an educational technology user nursing these beliefs assume the preservation of these cultural, social, and political beliefs are paramount when using technologies for pedagogy (Ding et al., 2019; Lemon and Garvis, 2019; Kizgin et al., 2019). Culture is the norm (Oyserman, 2017). However, social belief is related to livelihood (Kaplan and Haenlein, 2010). Political belief is related to leadership matters (Jost et al., 2009).

1.4. Purpose of the study

The main aim of this study was to investigate the levels of performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs among lecturers in Nigeria Federal Universities. Also, this study tested the hypotheses on the significant influence of performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs. These hypotheses testing is necessary to empirically understand some of the challenges encountered by lecturers when considering the use of podcasts for pedagogy. Besides, the synthesis of new factors into UTAUT was possible by following Sharma and Mishra (2015) augmentation principle that asserts the ability of UTAUT to accept more concepts. For instance, Thomas et al. (2013) research evidence likewise revealed that UTAUT permits additional synthesis with other forms of logical ideas.

1.5. Research questions

1. What are the levels of performance expectancy, effort expectancy, social influence, facilitating condition, cultural belief, social belief, and political belief among lecturers in Nigeria Federal Universities?
2. Is there any significant influence of performance expectancy on variance changes in use behaviour of Nigerian lecturers on a podcast?
 - a. Is there any significant influence of effort expectancy on variance changes in use behaviour of Nigerian lecturers on a podcast?
 - b. Is there any significant influence of social influence on variance changes in use behaviour of Nigerian lecturers on a podcast?

- c. Is there any significant influence of facilitating conditions on variance changes in use behaviour of Nigerian lecturers on a podcast?
- d. Is there any significant influence of cultural belief on variance changes in use behaviour of Nigerian lecturers on a podcast?
- e. Is there any significant influence of social belief on variance changes in use behaviour of Nigerian lecturers on a podcast?
- f. Is there any significant influence of political belief on variance changes in use behaviour of Nigerian lecturers on a podcast?

1.6. Hypotheses

HO₁ There is no significant influence of performance expectancy on variance changes in use behaviour of Nigerian lecturers on a podcast.

HO_{1a} There is no significant influence of effort expectancy on variance changes in use behaviour of Nigerian lecturers on a podcast.

HO_{1b} There is no significant influence of social influence on variance changes in use behaviour of Nigerian lecturers on a podcast.

HO_{1c} There is no significant influence of facilitating conditions on variance changes in use behaviour of Nigerian lecturers on a podcast.

HO_{1d} There is no significant influence of cultural belief on variance changes in use behaviour of Nigerian lecturers on a podcast.

HO_{1e} There is no significant influence of social belief on variance changes in use behaviour of Nigerian lecturers on a podcast.

HO_{1f} There is no significant influence of political belief on variance changes in use behaviour of Nigerian lecturers on a podcast.

2. Method

2.1. Research design

This research involved a cross-sectional quantitative study, which utilized the survey method as a research design. A survey method refers to the process that allows the researcher to ‘quantitatively describe a specific aspect of a given population’ (Glasow, 2005, p. 1). Besides, the survey method allows the researcher to gather a large amount of data from respondents (Glasow, 2005).

2.1.1. Participants and sampling procedure

The participants in this research were the Nigeria Federal University lecturers. This research participant was selected from three Nigeria Federal Universities. Besides, the simple random sampling technique was involved in selecting the participants to reduce bias. Also, a total of eight hundred and twenty-nine (829) participants took part in this study from the selected universities. This study participant cut across the faculty of arts, engineering, and medical sciences to mention a few.

2.1.2. Research instrument

This study questionnaire was titled lecturer’s acceptance questionnaire (LAQ, check appendix A for details). Also, this study adopted and adapted a questionnaire from existing literature evidence. Besides, adopting and adapting more than one questionnaire was necessary to have varieties of items required for each construct. Likewise, adopting and adapting more than one questionnaire was essential due to the numerous items required in the research instrument. For instance, the number of items contained in the research instrument was sixty-four. Hence, adopting and adapting only one questionnaire was assumed to be inadequate. The researcher transformed the existing questionnaire to fit this study context. This study questionnaire was a self-distributed type in paper form. The research instrument required face-to-face distribution in the proposed study location. The questionnaire contained a four-point Likert rating scale of agree (A), strongly agree (SA), disagree (D), strongly disagree (SD).

This research questionnaire contained eleven (11) sections. For instance, section A required the respondents to provide bio-data information. Section B contained brief instructions to guide the

respondents through the questionnaire fill-in process. Also, section C contained the performance expectancy dimension. Besides, section D contained the effort expectancy dimension. Section E contained the social influence dimension and section F contained the facilitating condition dimension. Section G contained behavioural intention dimension and section H contained use behaviour dimension. Section I contained the cultural belief dimension and section J contained the social belief dimension. However, section K contained a political belief dimension.

2.1.3. Validity and reliability of the research instrument

The validity of this study instrument was conducted by presenting copies to experts in educational technology. Also, this study involved five different experts for validation activities. The experts involved in the validation of this research instrument were from technology, language, psychometry, measurement, and evaluation areas. These experts scrutinised the instrument for principled issues regarding quality. For instance, the experts gave suggestions regarding negative statements. Likewise, the experts helped in identifying redundant items on the instrument. However, based on experts’ recommendations some negative items were eliminated from the questionnaire. Similarly, redundant items were eliminated from the research instrument. Besides, few items were revised for more clarity in the instrument.

2.1.4. Pilot study

The pilot study was conducted by using data gathered from thirty (30) Nigerian lecturers, which represented the target population for this research. Also, this pilot study was conducted by using sixty-four (64) questionnaire items. Besides, this pilot study was conducted to establish the Cronbach’s alpha reliability coefficient. The pilot study reliability calculation gave a Cronbach’s alpha of .919, which showed that this research instrument is valid and reliable for data gathering activities (see Table 1).

The Cronbach’s alpha of each variable ranges between .613 and .849 (see Table 2). Besides, this Cronbach’s alpha showed that the dimensions have items that were reliable and internally consistent. Also, the range of these Cronbach’s alpha revealed the suitability of this research instrument for data gathering activities. Cronbach’s alpha for each dimension allowed the researcher to further identify weaknesses in the research instrument. According to Pallant (2010, p. 100), Cronbach’s alpha coefficients above ‘.70 are acceptable’ for research. In addition, dimensions refer to variables (Lamb, 2018).

2.1.5. Data gathering procedure and analysis

The data were gathered at the beginning of a new semester in selected Nigeria Federal Universities. The data gathering took three months across three Federal Universities involved in this research. The questionnaire was self-administered by the researcher to participants in selected Federal Universities within Nigeria, and the lecturers’ participation in this study was voluntary and not mandatory. The lecturers were likewise informed on their right to withdraw from this study if there was any feeling of being endangered. Hence, ethical issues were duly observed during data gathering activities. The approving ethical committee for this research was called Jawatankuasa Etika Penyelidikan Manusia (JEPeM).

The data collection had quantitative contents. The researcher requested for approval from necessary authorities like the project supervisor before proceeding to those universities involved in Nigeria.

Table 1. The reliability coefficient of the lecturers’ acceptance questionnaire (LAQ). Source: Adu (2020, p.86).

Reliability statistics	
Cronbach’s Alpha	Number of Items
.919	64

Table 2. Cronbach's alpha of each dimension in the research instrument. Source: Adu (2020, p.89).

Each dimension	Cronbach's alpha
Performance Expectancy	.765
Effort Expectancy	.830
Social Influence	.849
Facilitating Condition	.758
Behavioural Intention	.783
Use Behaviour	.789
Cultural Belief	.713
Social Belief	.848
Political Belief	.613

There was constant reminder sent to concerned authorities in the universities involved to increase the awareness regarding the intended data gathering procedures. All the participants personally completed the questionnaire.

The data gathered were analysed by using both descriptive and inferential statistics. Also, the descriptive statistics utilised Nunnally (1978) mean score interpretation guideline for research question one to calculate this study factors level. However, the inferential statistics involved a multiple regression model for testing hypothesis one. This is necessary to determine the relationship between dependent and independent factors (Pallant, 2013). Multiple regression ‘allows a more sophisticated exploration of the interrelationship among a set of variables’ (Pallant, 2013, p. 154). Also, the statistical package for social sciences (SPSS) was useful in coding the gathered data for analysis.

3. Results and discussions

3.1. Descriptive statistics results

3.1.1. Level of performance expectancy

The result showed that the podcast performance expectancy factor was at a low-level. The mean score (*M*) for the level of performance expectancy (PFM) was 1.62 (*SD* = .773). Also, the mean score (*M*) for each performance expectancy (PFM) factor item range from highest to lowest as PFM4 1.66 to PFM6 1.59. Performance expectancy (PFM) factor is the ability of podcast towards enhancing classroom pedagogy and boosting students' academic performance. The mean score *M* = 1.62 suggested a low-level result, which implies that lecturers' felt podcasting activities were insufficient towards promoting students' academic performance. The result is summarised in Table 3 as follows.

The low-level result showed that lecturers were not used to adopting podcast for classroom pedagogy in Nigeria Federal Universities. Also, the lecturers' pedagogical approaches did not entail the introduction of a podcast to enhance students' academic performance in Nigeria Federal Universities. The low-level result showed that lecturers encountered numerous obstacles, which deter the use of podcasts for classroom pedagogy.

Table 3. The level of performance expectancy. Source: Adu (2020, p.115).

	Mean	SD	Levels
Performance Expectancy			
PFM2	1.62	.722	
PFM3	1.60	.741	
PFM4	1.66	.790	
PFM5	1.61	.798	
PFM6	1.59	.764	
PFM8	1.65	.825	
Mean	1.62	.773	Low

3.1.2. Level of effort expectancy

The findings in Table 4 revealed that the effort expectancy (EFF) factor (*M* = 1.69, *SD* = .813) was at a low-level among South-West Nigeria Federal Universities lecturers. The result showed that lecturers viewed podcasts as very difficult to use. The lecturer's effort expectancy low mean score showed that lecturers believe podcast acceptance is not easy. The low mean score of *M* = 1.69 showed that lecturers felt podcast acceptance is such a rigorous activity for pedagogy. The lecturers' low mean score on effort expectancy revealed that lecturers did not view podcasts as an educational technology for convenient pedagogical activities.

3.1.3. Level of social influence

The social influence (SOF) factor was at a low-level (*M* = 1.76, *SD* = .900). See Table 5 for details. Lecturers were assumed to view podcasts as not capable of impacting the pedagogical environment in this study. However, the findings suggested otherwise as it was revealed that lecturers had low-level social influence factors with a mean score of *M* = 1.76. Hence, the findings showed that there was no extremity in lecturers thought of social influence factor. For instance, the lecturers' social influence factor revealed a low mean score of *M* = 1.76, which implies a positive argument that the podcast has the potential to impact the pedagogical environment.

3.1.4. Level of facilitating conditions

The facilitating condition (FCO) factor was at a moderately low-level (*M* = 2.07, *SD* = .964) towards the acceptance of podcasts in south-west Nigeria Federal Universities. See Table 6 for details. These findings suggested that there was a scarcity of facilities meant to support the use of podcasts in South-West Nigeria Federal Universities. The moderately low nature of facilitating conditions factor suggested that the facilities meant to support podcast acceptance were rare in South-West Nigeria Federal Universities. The moderately low-level result with a mean *M* = 2.07 showed that facilities were not completely low. Hence, the facilities were moderately available for podcast acceptance in South-West Nigeria Federal Universities.

3.1.5. Level of cultural belief

The cultural belief factor was argued as a factor, which allowed lecturers not to accept podcasts. This study finding showed that the cultural belief (CBE) factor was at a low-level (*M* = 1.82, *SD* = .930). See Table 7 for details. Hence, lecturers' pedagogical practice that allowed the acceptance of podcasts was rare. Thus, there was no avenue to utilise podcasts for pedagogy in South-West Nigeria Federal Universities based on low-level cultural belief factor. Besides, the low mean score revealed that lecturers did not support pedagogical activities with a podcast.

3.1.6. Level of social belief

The social belief (SBE) factor was at a moderately low-level (*M* = 2.28, *SD* = 1.031). See Table 8 for details. This implies that lecturers did not have enough level of social belief factor to impede the acceptance of podcast. Besides, this result suggested lecturers' upbringing was neither low nor moderately high. Although, the social belief factor was moderately low. Notwithstanding, the moderately low result showed that the social belief factor was not completely low among lecturers.

Table 4. The level of effort expectancy. Source: Adu (2020, p.117).

	Mean	SD	Levels
Effort Expectancy			
EFF2	1.66	.763	
EFF3	1.68	.834	
EFF4	1.73	.841	
EFF5	1.69	.814	
Mean	1.69	.813	Low

Table 5. The level of social influence. Source: Adu (2020, p.118).

	Mean	SD	Levels
Social Influence			
SOF1	1.78	.922	
SOF2	1.72	.852	
SOF3	1.80	.912	
Mean	1.76	.900	Low

Table 6. The level of facilitating conditions. Source: Adu (2020, p.119).

	Mean	SD	Levels
Facilitating Conditions			
FCO1	1.94	.962	
FCO2	2.13	.929	
FCO4	2.13	.990	
FCO5	2.10	.975	
Mean	2.07	.964	Moderately Low

Table 7. The level of cultural belief. Source: Adu (2020, p.121).

	Mean	SD	Levels
Cultural Belief			
CBE1	1.56	.850	
CBE2	1.99	.917	
CBE3	1.91	1.025	
Mean	1.82	.930	Low

Table 8. The level of social belief. Source: Adu (2020, p.122).

	Mean	SD	Levels
Social Belief			
SBE7	2.15	1.008	
SBE10	2.38	1.024	
SBE11	2.32	1.060	
Mean	2.28	1.031	Moderately Low

3.1.7. Level of political belief

The political belief (PBE) factor was at a low-level ($M = 1.68$, $SD = .850$). See Table 9 for details. This implies that lecturers did not have adequate knowledge of electing the right leader that supported the podcast. The low mean score showed that lecturers' political belief has not yielded the correct result to promote podcast acceptance. The low-level result of $M = 1.68$ revealed that the lecturer's political belief has not benefitted the Federal Universities in Nigeria towards the acceptance of podcast.

Available research showed that political belief is embedded in Nigeria educational activities since it is assumed to be capable of solving some of the educational problems in the country (Osuji, 2011). Besides, Moja (2000) study affirmed that political factors are linked to learning practices in Nigeria since some of the Nigerian educational establishments are

Table 9. The level of political belief. Source: Adu (2020, p.124).

	Mean	SD	Levels
Political Belief			
PBE4	1.74	.892	
PBE5	1.69	.856	
PBE8	1.66	.845	
PBE6	1.70	.836	
PBE9	1.65	.847	
Mean	1.68	.850	Low

financed by the Government. Similarly, Ikegbusi et al. (2016) research asserted that political factors are associated with educational endeavours in Nigeria since the selected Government determines the selection of managers for educational institutions in the country.

3.1.8. Inferential statistics results

3.1.8.1. The significant influence of performance expectancy on variance. This section provided answers to hypothesis HO_{11} , which was tested to know the significant influence of performance expectancy on variance changes in use behaviour. Also, Table 10 showed findings of regression analysis meant to reveal the influence of performance expectancy on variance changes in lecturers' use behaviour of podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .09$ indicated that only 9% level of use behaviour was influenced by performance expectancy. For instance, the performance expectancy had ($\beta = .31$, $p = .00$).

3.1.8.2. The significant influence of effort expectancy on variance changes in use behaviour. This section provided answers to hypothesis HO_{1a} , which was tested to know the significant influence of effort expectancy on variance changes in use behaviour. Also, Table 11 showed findings of regression analysis meant to reveal the influence of effort expectancy on variance changes in lecturers' use behaviour of podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .10$ indicated that only 10% level of use behaviour was influenced by effort expectancy. For instance, the effort expectancy had ($\beta = .30$, $p = .00$).

3.1.8.3. The significant influence of social influence on variance changes in use behaviour. This section provided answers to hypothesis HO_{1b} , which was tested to know the significant influence of social influence on variance changes in use behaviour. Also, Table 12 showed findings of regression analysis meant to reveal the influence of social influence on variance changes in lecturers' use behaviour towards podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .20$ indicated that only 20% level of use behaviour was influenced by social influence. For instance, the social influence had ($\beta = .45$, $p = .00$).

3.1.8.4. The significant influence of facilitating condition on variance changes in use behaviour. This section provided answers to hypothesis HO_{1c} , which was tested to know the significant influence of facilitating conditions on variance changes in use behaviour. Also, Table 13 showed findings of regression analysis meant to reveal the influence of facilitating conditions on variance changes in lecturers' use behaviour towards podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .03$ indicated that only 3% level of use behaviour was influenced by facilitating condition. For instance, the facilitating condition had ($\beta = .17$, $p = .00$).

3.1.8.5. The significant influence of cultural belief on variance changes in use behaviour. This section provided answers to hypothesis HO_{1d} , which was tested to know the significant influence of cultural belief on variance changes in use behaviour. Also, Table 14 showed findings of regression

Table 10. Summary of Significant Influence of Performance Expectancy on Variance Changes in Use Behaviour. Source: Adu (2020, p.133).

Variable	Use Behaviour
Independent Variable	
Performance Expectancy	.31*
R	.31
R^2	.09
Adjusted R^2	.09
F Value	84.83

Table 11. Summary of significant influence of effort expectancy on variance changes in use behaviour. Source: Adu (2020, p.134).

Variable	Use Behaviour
Independent Variable	
Effort Expectancy	.30*
R	.30
R ²	.10
Adjusted R ²	.10
F Value	68.62

Table 12. Summary of significant influence of social influence on variance changes in use behaviour. Source: Adu (2020, p.135).

Variable	Use behaviour
Independent Variable	
Social Influence	.45*
R	.45
R ²	.20
Adjusted R ²	.20
F Value	210.78

Table 13. Summary of significant influence of facilitating conditions on variance changes in use behaviour. Source: Adu (2020, p.136).

Variable	Use Behaviour
Independent Variable	
Facilitating Conditions	.17*
R	.17
R ²	.03
Adjusted R ²	.03
F Value	25.85

Table 14. Summary of significant influence of cultural belief on variance changes in use behaviour. Source: Adu (2020, p.137).

Variable	Use Behaviour
Independent Variable	
Cultural Belief	.36*
R	.36
R ²	.13
Adjusted R ²	.13
F Value	125.60

analysis meant to reveal the influence of cultural belief on variance changes in lecturers' use behaviour towards podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .13$ indicated that only 13% level of use behaviour was influenced by cultural belief. For instance, the cultural belief had ($\beta = .36, p = .00$).

3.1.8.6. The significant influence of social belief on variance changes in use behaviour. This section provided answers to hypothesis HO_{1e} , which was tested to know the significant influence of social belief on variance changes in use behaviour. Also, Table 15 showed findings of regression analysis meant to reveal the influence of social belief on variance changes in lecturers' use behaviour towards podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .01$ indicated that only 1% level of use behaviour was influenced by social belief. For instance, the social belief had ($\beta = .11, p = .00$).

3.1.8.7. The significant influence of political belief on variance changes in use behaviour. This section provided answers to hypothesis HO_{1f} , which was tested to know the significant influence of political belief on variance

Table 15. Summary of significant influence of social belief on variance changes in use behaviour. Source: Adu (2020, p.138).

Variable	Use Behaviour
Independent Variable	
Social Belief	.11*
R	.11
R ²	.01
Adjusted R ²	.01
F Value	10.39

changes in use behaviour. Also, Table 16 showed findings of regression analysis meant to reveal the influence of political belief on variance changes in lecturers' use behaviour towards podcast in Nigeria Federal Universities. Based on findings, the value of $R^2 = .13$ indicated that only 13% level of use behaviour was influenced by political belief. For instance, the political belief had ($\beta = .40, p = .00$).

There were seven (7) significant factors in these results. For instance, these findings revealed that the seven (7) factors significantly influenced use behaviour. Thus, hypothesis one (HO_1) was rejected.

3.1.9. Inadequacies in podcast performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors

This section discussed research question one results, which investigated the level of university lecturers' acceptance of podcasts based on performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors. The results showed that Nigeria Federal Universities were behind in the use of podcasts as educational technologies for pedagogical activities. Based on the research findings, there were inadequacies in the levels of podcast performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors. This implied that lecturers encountered several obstacles in using podcast technology for pedagogical endeavours.

Similarly, this research finding was consistent with Okeke and Ihe-nacho (2019) findings, which showed that there existed inadequacies in the acceptance of technologies in Nigeria universities. Also, Teo and Huang (2019) study revealed low-level acceptance of technology for pedagogy. Likewise, Bondarenko et al. (2019) research noted that there was low-level use of educational technologies for pedagogical activities.

3.1.9.1. The significant influence of performance expectancy on variance changes in use behaviour of Nigerian lecturers on a podcast. This section discussed hypothesis one result HO_1 , which addressed the significant influence of performance expectancy on variance changes in use behaviour. For instance, the significant influence of the performance expectancy factor is the strength, which performance expectancy has on use behaviour (Steffens, 2020).

Besides, performance expectancy influence on use behaviour was positive and significant based on the beta (β) value and level of probability estimate. Also, this result suggested that performance expectancy predicted variance changes in use behaviour of Nigerian lecturers on a

Table 16. Summary of significant influence of political belief on variance changes in use behaviour. Source: Adu (2020, p.139).

Variable	Use Behaviour
Independent Variable	
Political Belief	.40*
R	.40
R ²	.13
Adjusted R ²	.13
F Value	120.24

podcast. For instance, this result was consistent with [Sawalha et al. \(2019\)](#) study, which tested the hypothesis on the significant influence of performance expectancy towards acceptance of the technology. Likewise, it was revealed that performance expectancy had significant influence on technology acceptance ([Sawalha et al., 2019](#)). Similarly, [Naranjo-Zolotov et al. \(2019\)](#) study revealed that performance expectancy had a significant influence on the intention to adopt technologies. [Jeon, Ali, and Lee \(2019\)](#) study revealed performance expectancy as a significant predictor of intention to adopt the technology.

3.1.9.2. The significant influence of effort expectancy on variance changes in use behaviour of Nigerian lecturers on a podcast. This section discussed the HO_{1a} result, which addressed the significant influence of effort expectancy on variance changes in use behaviour. For instance, the significant influence of a factor is its ability to determine variance changes in another factor ([Sabri et al., 2020](#)).

Besides, effort expectancy influence on use behaviour was positive and significant based on beta value and level of probability estimate. Also, this result suggested that effort expectancy predicted variance changes in use behaviour of Nigerian lecturers on a podcast. For instance, this result was consistent with [Lim et al. \(2019\)](#) findings, which revealed effort expectancy as a significant influence towards technology acceptance.

3.1.9.3. The significant influence of social influence on variance changes in use behaviour of Nigerian lecturers. This section discussed the HO_{1b} result, which addressed the significant influence of social influence on variance changes in use behaviour of Nigerian lecturers on a podcast. For instance, available literature evidence revealed that use behaviour factor is significantly influenced by social influence ([Savio et al., 2020](#)).

The social influence result significantly predicted use behaviour in this study. Hence, this finding was positive based on the beta value and level of probability estimate. Also, this result was consistent with [Mohamad and Kassim \(2019\)](#) findings that suggested the significant influence of social influence factor on technology acceptance.

3.2. The significant influence of facilitating condition on variance changes in use behaviour of Nigerian lecturers on podcasts

This section discussed the HO_{1c} result, which addressed the significant influence of facilitating conditions on variance changes in use behaviour of Nigerian lecturers on a podcast. For instance, the significant influence of the facilitating condition factor connotes its predicting power ([Sari et al., 2020](#)).

The use behaviour factor was significantly predicted by facilitating conditions. Hence, this result suggested that facilitating conditions had positive dominion on use behaviour. For instance, the significant influence of facilitating condition revealed its power over use behaviour in this study. Also, this finding is consistent with [Penarroja et al. \(2019\)](#) results that revealed facilitating condition as having the ability to influence the utilisation of technology for education.

Although, previous research had investigated the systems of technology acceptance for educational activities. Notwithstanding, limited research has adequately dealt with issues pertinent to podcasting facilities in Nigeria Federal Universities. For instance, [Sohn and Kwon \(2020\)](#) investigated factors influencing technology acceptance with limited reference to issues related to developing world universities. Also, [Rakhmawati and Rusydi \(2020\)](#) study addressed issues on developing a technology acceptance system, with no evidence suggesting the acceptance of learning technologies within Nigeria universities.

3.2.1. The significant influence of cultural belief on variance changes in use behaviour of Nigerian lecturers on a podcast

This section discussed the HO_{1d} result, which addressed the significant influence of cultural belief in use behaviour of Nigerian lecturers on

a podcast. For instance, the significant influence of a factor is the strength, which it possesses towards variance changes in another factor ([Jamilakhon et al., 2020](#)).

Besides, the findings regarding the significant influence of cultural belief on variance changes in use behaviour revealed that cultural belief significantly predicted variance changes in lecturers' use behaviour of podcast. These findings are consistent with [Huang et al. \(2019\)](#) research, which showed that cultural belief predicted technology acceptance. Also, [El-Maamiry \(2020\)](#) research showed that cultural factors had a significant influence on the instructional system. [Hassan and Wood \(2020\)](#) study revealed that cultural factors had a significant influence on technology use. Hence, [El-Maamiry \(2020\)](#) with [Hassan and Wood \(2020\)](#) studies were consistent with this research finding, which suggested that cultural factor was a significant predictor of technology use.

3.2.2. The significant influence of social belief on variance changes in use behaviour of Nigerian lecturers on a podcast

This section discussed the HO_{1e} result, which addressed the significant influence of social belief on variance changes in use behaviour of Nigerian lecturers on a podcast. For instance, the significant influence of the social belief factor connotes the significant impact ([Schunk and DiBenedetto, 2020](#)).

Besides, this study findings revealed that social belief significantly predicted variance changes in lecturers' use behaviour of podcasts. These findings were consistent with [Hmielowski et al. \(2019\)](#) results that suggested social belief influenced technology acceptance. Also, [Marino et al. \(2020\)](#) research showed that social belief significantly influenced technology acceptance. Likewise, [Osatuyi and Turel \(2019\)](#) study showed that social belief significantly predicted technology acceptance. Hence, these studies' result by [Marino et al. \(2020\)](#) with [Osatuyi and Turel \(2019\)](#) were consistent with this research finding, which revealed that social belief was a significant predictor of technology use.

3.2.3. The significant influence of political belief on variance changes in use behaviour of Nigerian lecturers on a podcast

This section discussed the HO_{1f} result, which addressed the significant influence of political belief on variance changes in use behaviour of Nigerian lecturers on a podcast. For instance, the significant influence of political belief connotes the significant impact ([Kofta et al., 2020](#)).

Besides, this study findings revealed that political belief significantly predicted variance changes in lecturers' use behaviour of podcasts. These findings were consistent with [Anania et al. \(2019\)](#) research results, which suggested that political belief influenced technology acceptance. Likewise, [Ferguson et al. \(2020\)](#) research revealed political belief as a significant predictor of technology acceptance. Also, [Qiang \(2020\)](#) study showed that political belief had a significant influence on technology use. Hence, these studies' results by [Ferguson et al. \(2020\)](#) and [Qiang \(2020\)](#) were consistent with this research finding, which revealed that political belief significantly influenced technology use.

4. Conclusion and implication

Podcasting activities have gathered popularity in the twenty-first century for pedagogical activities. This has been due to the COVID-19 pandemic and universities around the world in maintaining the social distancing rule. For instance, the COVID-19 pandemic has disrupted the Nigeria Federal Universities academic calendar due to the temporary closure of universities. Thus, educational technologies like the podcast have been a very lucrative means to fill the gap created in pedagogy nowadays. However, this study showed that some of the developing nations like Nigeria is behind in the race of accepting podcast for pedagogy and for this reason lecturers find it difficult to utilise podcasting technologies to promote students' academic performance. This study revealed through empirical evidence that Nigeria

Federal Universities lecturers' level of adopting podcasts for students' academic performance was at a low-level. Hence, this result implied that Nigeria Federal University lecturers are facing several upheavals regarding podcast acceptance for pedagogical activities.

This research finding showed that adopting podcasts during an unforeseen situation like the COVID-19 pandemic must be very difficult for Nigeria Federal University lecturers. There were some Nigeria Federal Universities that were caught unaware at the declaration of the mandatory lockdown of Universities for containment of the COVID-19 pandemic. The reason for this conclusion was based on the findings derived from this research, which showed a low-level deployment of a podcast for pedagogy.

Also, this study contributed to knowledge by providing better clarity on the nature of lecturing activities in Nigeria Federal Universities in the light of increased use of educational technologies for instruction. For instance, the findings of this study showed that Nigeria Federal Universities must overhaul the entire educational technologies at hand to promote podcasting activities for instruction.

This study showed that there existed some weaknesses in the acceptance of podcasts for promoting students' performance in Nigeria Federal Universities. Besides, this study indicated that lecturers did not bother about using podcasts for enhancing students' academic performance due to numerous challenges. This study attests to the unprepared nature of Nigeria Federal Universities towards introducing podcasts in mass for pedagogy. Also, this study revealed that student-centered approaches to instruction by using podcast is not very popular in Nigeria Federal Universities.

This research showed that there was a gap that existed in the acceptance of podcasts for pedagogy in Nigeria Federal Universities. Furthermore, this study revealed that face-to-face approaches remained a popular approach to pedagogy in Nigeria Federal Universities as podcasting activities posed an uphill task to lecturers. This gap, which existed in podcast acceptance for pedagogical activities impeded Nigeria Federal Universities lecturers' from progressing with podcasting initiative as practiced by developed world universities. Thus, the deployment of a podcast in a large scale for teaching and learning activities was limited in Nigeria Federal Universities based on this research finding.

However, this research finding showed that Federal University lecturers were striving to look for alternative means to improve students' performance in the light of inadequacies experienced when using podcasts for pedagogical activities. Also, this enquiry discovered that some of these alternatives that were sort after by Nigeria Federal Universities lecturers towards promoting students' performance were obsolete and inadequate in this twenty-first century that is digitally based.

This research finding focused on answering the question related to investigating the level of lecturers thought that using podcast was determined by levels of performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors. Hence, it was revealed in this study that there must be additional factors creating challenges for lecturers towards adopting podcasts for students' academic performance. The reason being the researchers' critique of Venkatesh et al. (2003) theoretical framework of technology acceptance, which contained several other factors influencing technologies use for pedagogy.

Thus, this study recommended that Nigeria Federal University lecturers must change their performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors thought towards podcast use. Besides, the futuristic change in lecturers' thought regarding performance expectancy, effort expectancy, social influence, facilitating condition, cultural, social, and political beliefs factors is a positive development meant to promote podcast use for pedagogy. For instance, a positive change is attainable by introducing the blueprint by Brennan et al. (2010), which recommended online delivery of services.

Declarations

Author contribution statement

Ifedayo Adu, Azidah Ziden, Aziah Ismail: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data will be made available on request.

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The authors declare no conflict of interest.

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