Using Instructional Screencast to Teach Digital Immigrants: A Paradigm Shift in the 21st Century Learning Process

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This paper intended to study the attitudes of postgraduate diploma in education (PGDE) students towards the use of instructional screencast for learning. The study adopted a descriptive survey design. Population of the study include the 13 postgraduate diploma in education students admitted as at 2018/2019 academic session, and all were selected as sample for the study. Objectives of the study were to: categorize the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session into digital native and digital immigrants based on their dates of birth; and determine the attitudes of the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session towards the use of screencast for instructional process. The instrument pegged "students' attitudes to using screencast for learning" (SAUSL) was used to obtain necessary information from the respondents. It was validated, pilot study conducted, and reliability index of 0.98 was obtained using Cronbatch Alpha. Results from the study revealed that 92% of the respondents were digital immigrants, and they had positive attitudes towards the use of screencast for learning. The study concluded that even though the digital immigrants

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(respondents) had shown a positive attitude towards the use of the screencast, the paradigm shift in the education sector "new normal" necessitated the use of technology to facilitate the instructional processes. Therefore, digital immigrants are left with no option than to embrace the use of technology for learning. It was recommended by the study that lecturers, especially in the higher institutions of learning, should adopt the use of screencast in their instructional process. This would help flip the classroom, and economically manage lecture time.

1. INTRODUCTION

A paradigm shift to a more student-centered educational procedure is required for 21st-century learning. Individual students' needs can be met and pupils can be better prepared for a fast changing global world through a student-centered teaching process [1]. Problem-based learning, project-based learning, and inquiry-based learning are examples of learner-centered approaches. As a result, learner-centered training can take a variety of shapes. Learner-centered approaches differ from one school to the next, from one classroom to the next, and from one day to the next [1]. Personalized learning activities and assistance, social and emotional support, self-regulation, collaborative and authentic learning experiences, and evaluation for learning are all characteristics of LCI that may be seen in learner-centered classrooms.

Learner-centered instructional design models in the twenty-first century revolve around facilitating the acquisition of twenty-first-century learning skills. This corresponds to the premise that the majority of learners in the twenty-first century are digital natives. In 2001, Prensky coined the term "digital native" to describe a group of people who grew up in a time when computers and the internet were commonplace. Digital natives are people born after 1980 who were raised in an environment surrounded by technology and who have technological talents that are distinct from those of earlier generations [2] A digital native is a young person who has grown up in the digital age, having grown up with computers, the Internet, and video game consoles, as well as later mobile phones, social media, and tablets [3]. The ability to multitask is well-known among this set of students (digital natives). They build critical thinking skills while learning in a linear (intuitive) manner. They participate in the learning process more actively than passive listeners.

Prensky characterized a group of learners as digital immigrants while attempting to characterize some learners as digital natives. A digital immigrant is someone who was born before computers were widely used and has had to adapt to digital technologies later in life. Digital immigrants are thought to be less technically capable than digital natives, and it is stated that they will never be able to achieve the same level of technical skills and knowledge [4]. Simply described, a digital immigrant is someone who grew up before computers were widely used and had to alter their learning habits to accommodate computer technology. Despite the fact that the digital immigrant may find it difficult to adjust to the use of technology tools for learning, numerous technologies have evolved and are increasingly being employed to aid in the educational process.

Instructional screencast is one of the technologies that is attracting educators' attention. This is because, it gives the instructional process the opportunity to take place while both the teacher and the learners are at distance places, especially during lockdown. A screencast is a digital video and audio recording of what happens on a presenter's computer screen that allows students to adjust their learning pace, thereby improving their academic performance [5]. The eruption of COVID-19 necessitated a paradigm shift in the field of education. This is because it has caused schools all across the world to close. Over 1.2 billion students around the world are not in school. As a result, education has undergone significant transformations, with the rise of e-learning, in which instruction is done remotely and via digital platforms. According to research, online learning increases information retention and takes less time, implying that the alterations created by the coronavirus are here to stay [6]. If the alterations in instructional procedures brought on by the pandemic are here to stay, as the literature suggests, then the digital immigrants will be affected as well. In light of this, the researchers wanted to see how some digital immigrants reacted after being taught a course via an educational video.

2. REVIEW OF THE RELATED LITERATURE

2.1 Screencast and Academic Performance

Technology and internet access have become an integral aspect of education and classroom instruction in recent years. Interactive multimedia, audio/video classes, and asynchronous content have all taken center stage in discussions about education. Teachers explored for pedagogical strategies to make the shift to online learning simpler for students during the COVID-19 pandemic. Screencast lessons are one such tool that has established itself as a successful and impactful way to teach, present, and communicate with students over time [7]. A screencast is often made up of a recording of the computer screen and commentary by the instructor. This visual and auditory style, while simple to create, is a great way to narrate presentations, explain topics, answer students' questions, and teach how to use software and navigate websites. Students have been demonstrated to benefit from screencast videos in order to obtain a better comprehension of the curriculum and to increase their engagement with the course content [7].

A screencast is a video of the computer screen output that has been recorded or captured. When utilized for educational purposes, digital video recordings frequently include audio narration to clarify what the students are seeing in the video [8]. The video recorder captures the actions on the screen for a specific period of time. A presenter narrating, sound from the application being presented, or background audio from an audio file or another application can all be included in the audio recording [8].

Developing and deploying screencast lesson videos as a pedagogical tool in online courses is based on a number of theories. The cognitive theory of multimedia, for example, explains the advantages of combining education with multimedia for online learners, particularly through screencasting's audio-video format [7]. Screencasts can be used to demonstrate problem-solving algorithms, accompany software instructions, and provide interpretation-based conceptual understanding in an active learning manner, among other things (Lloyd & Robertson, 2012). Screencasting, with its portability and ease of use, can make learning easier for students whose everyday activities do not allow them to devote much time to studying. Lectures can be supplemented or replaced by a screencast. However, it is most commonly used to record lectures as they are presented in the classroom and then share them with students via portable devices and/or the Internet. The video capture feature allows the professor to record himself during lectures using the webcam of the computer connected to the camera, allowing lecturers to maintain eye contact and demonstrate their knowledge [9].

Gambari and Hassan [5] observed a significant difference in performance between the experimental and control groups in favor of the experimental group in a study on the impact of instructional screencast on the performance of National Open University undergraduates in educational technology. There was also a substantial difference in retention-test performance between the experimental and control groups, with the experimental group outperforming the control group. Undergraduates' attitudes concerning screencast and receiving screencast comments were likewise shown to be favourable [5, 10]. The findings led to the recommendation that courseware producers create and use screencasts to enhance course materials.

The way potential consumers see new technologies is greatly determined by their attitude toward the technologies. Simply said, attitude refers to a person's thinking or predisposition to respond in a certain way as a result of their experiences and temperament. Individuals' real behavior is influenced by their attitude, both consciously and unconsciously [5]. Many digital immigrants have negative feelings about technology. However, the "new normal" in the education sector necessitates the employment of technology to aid in the educational process. As a result, digital immigrants have little choice but to embrace the use of technology for learning. During lockdown, institutions of learning reverted to the use of technology for learning. Part of the students who were impacted by the shift in instructional strategies are digital immigrants, who are assumed to have technology issues when compared to digital natives.This prompted the researchers to investigate postgraduates' attitudes toward the use of screencasts for learning, as this could provide insight into the possibility of shifting to 21st-century instructional strategies.

2.2 Objectives of the Study

The objectives of this study were to:

1. Categorize the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session into digital native and digital immigrants based on their dates of birth.
2. Determine the attitudes of the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session towards the use of screencast for instructional process.

2.3 Research Questions

1. How could the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session be categorized into digital native and digital immigrants based on their dates of birth?
2. What are the attitudes of the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session towards the use of screencast for instructional process?

3. METHODOLOGY

The design adopted for this study was a descriptive of a survey type. This form of research design enables researchers to cover a large number of respondents and utilize data collected the way it is without any manipulation. The population for this study were the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session at Usmanu Danfodiyo University, Sokoto. They were 13 students at the 2019/2020 academic session, and all were selected as sample for the study. An adapted questionnaire from Gambari and Hassan [5] pegged "students' attitudes to using screencast for learning" (SAUSL) was used to obtain necessary information from the respondents. The instrument was a four liker scale of Disagree (D), Strongly Disagree (SD), Agree (A) and Strongly Agree (SA). It consisted of two sections, section A and B. Section A solicited information on the age of the respondents, and section B solicited information on the attitudes of the respondents towards the use of screencast for learning. To ascertain the level of consistency of the instrument, after the validation, a pilot study was conducted and reliability index of 0.98 was obtained. After the pilot study, 11 copies of the questionnaire were administered by the researchers and filled copies retrieved immediately. The collected data were analyzed using descriptive statistics. The descriptive statistic used to answer the research questions include percentages and bar chart.

4. RESULTS

This section provides results based on the research questions raised.

Research question 1: How could the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session be categorized into digital native and digital immigrants based on their dates of birth?

Fig. 1 shows the categorization of the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session be categorized into digital native and digital immigrants based on their dates of birth. From the chart, it could be seen that 92%, representing the majority of the respondents are digital immigrants. Only 8% are digital native learners (born after 1980).

Research question 2: What are the attitudes of the postgraduate diploma in education students offering CSI 702 in the 2019/2020 academic session towards the use of screencast for instructional process?

Table 1 shows that 95%, representing the majority of the respondents, strongly agreed that they learned through the screencast with less stress. 98% strongly agreed that they learned anywhere, anytime with the help of the screencast. 70% believed that the screencast makes the course more interesting. 90% of them felt the presence of a teacher when learning via the screencast, and 88% submitted that they learned more with the kind of multimedia provided by the screencast. 79% and 74% representing majority of the respondents respectively rejected the statements that state of their ICT literacy discouraged them from using the screencast, and that they have nothing to do with the screencast.

From the same Table 1, 72% of the respondents strongly agreed that the screencast motivated them to put more effort in learning. 66%, representing the majority of them rejected the statement that learning via the screencast is a waste of time. The table shows that 56% of the

respondents strongly agreed with the statement that learning via the screencast is more engaging than via textbooks. Results from the table showed that the screencast provided them with the opportunity to learn at their paces. The skills one could gain from learning via the screencast is worthwhile, this was the position of 92% of the respondents.
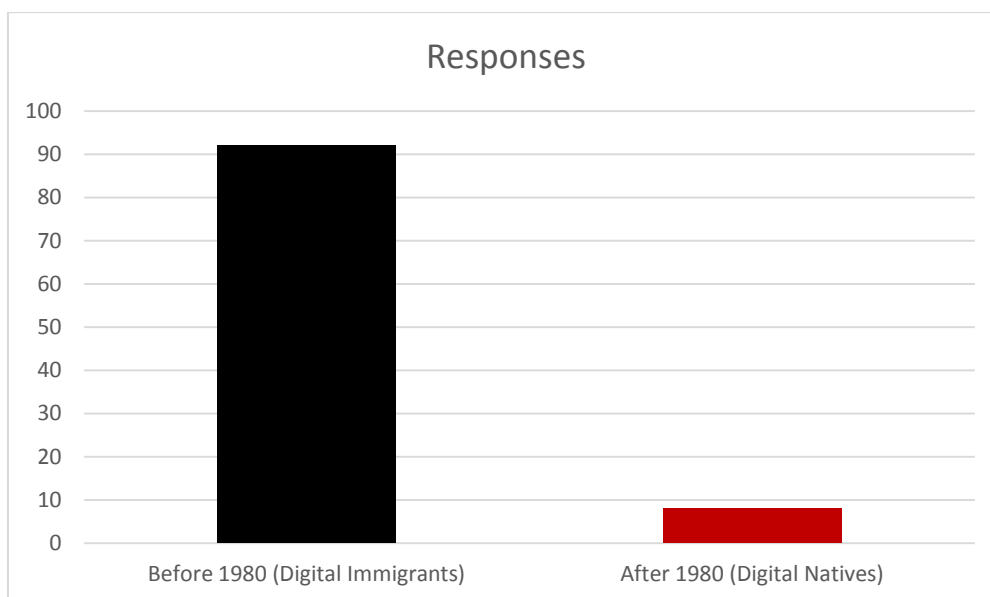

Fig. 1. Categorization of respondents into Digital Immigrants and Digital Natives

Table 1. Postgraduate students' attitude towards the use of screencast for learning process

S/N	Item	SA%	A%	D%	SD%
1	If all technologies for learning are like the screencast, I like learning via technology	100	0	0	0
2	I learn with less stress with screencast	95	5	0	0
3	With screencast, I learn anywhere, anytime	98	2	0	0
4	Screencast makes course more interesting	70	25	5	0
5	I feel the presence of teacher when learning via screencast	90	10	0	0
6	I learn more with multimedia which screencast provides	88	10	2	0
7	The state of my ICT literacy discourages me from using screencast	0	0	21	79
8	I would not have anything to do with screencast	0	1	25	74
9	The screencast motivates me to put more effort in learning	72	22	6	0
10	Learning via screencast is a waste of time	0	0	34	66
11	Learning via the screencast is more engaging than via textbooks	56	30	14	0
12	Screencast gives me the opportunity to learn more at my own pace	99	1	0	0
13	Screencast skill is worthwhile	92	8	0	0
14	I feel comfortable to learn using screencast	100	0	0	0
15	With screencast, I can control the pace at which I learn	78	20	2	0
16	Screencast provides better learning experiences than face to face instructional process	66	34	0	0
17	I just don't like screencast	0	0	15	85
18	Screencast is useful in dissemination of information	65	25	10	0
19	I would want other courses I offer be taught via screencast	94	6	0	0
20	Screencast is a total distraction	1	1	3	95
21	I have phobia for ICT equipment	99	1	0	0
22	Screencast enhances students' learning	97	3	0	0

According to the table, 66% and 65% of respondents strongly agreed that screencasts provided better learning experiences than face-to-face instruction and that they are a useful technology for information dissemination. All the respondents unanimously rejected the statement that they dislike the screencast used for the learning process (85% strongly disagreed, and 15% disagreed). 94% representing the majority of the respondents strongly agreed that they would want other courses they offer be taught via a screencast. All the respondents rejected the opinion that the screencast is a distraction. While 99% of the respondents strongly agreed that they have phobia while using ICT gadgets, 94% of them still believed that the screencast enhances students' learning.

5. DISCUSSION OF FINDINGS

According to the findings of this study, practically all of the respondents, with the exception of a few, fit into the category of "digital immigrants." This is because, according to the findings, 92 percent of postgraduate diploma in education students enrolled in CSI 702 in the 2019/2020 academic year were born before 1980. This conclusion is consistent with the current researchers' hypothesis.

The majority of respondents strongly agreed that they learnt with less stress using screencasts, that they learned anywhere, anytime with the help of screencasts, that screencasts make courses more fascinating, and that they felt the presence of a teacher when learning via screencasts. The same proportion of respondents stated that the screencast's multimedia provided them with more information.

According to the responders, one of the benefits of the screencast is that it pushed them to put in more effort in their learning. The instructional method in the twenty-first century is expected to allow learners to actively participate in the teaching-learning process. This study discovered that learning using screencasts is more engaging to the postgraduate students than studying through textbooks. The screencast provided them with the opportunity to learn at their own paces; the skills gained from learning via the screencast are valuable; the screencast provided better learning experiences than face-to-face instructional processes; and it is a useful technology for information dissemination, according to the respondents. This supports Lloyd and Robertson's [9] conclusion that, as

compared to traditional teaching strategies (face to face) such as lecture method, screencast is an effective and efficient tool for enhancing student learning, particularly for higher order conceptual statistical information.

Despite the fact that the respondents in the survey are digital immigrants who admit to having a fear of utilizing ICT devices, they nevertheless believe that additional courses they provide should be taught by screencast. This is because they are convinced that the screencast will help pupils learn more effectively. This shows that the instructional screencast is a tool that can be used by people of all ages and backgrounds. Malhotra, [7], agreed with this conclusion, stating that the usage of multimedia technology improves learning efficiency and effectiveness regardless of age.

According to Prensky [11], digital immigrants have a difficult time adjusting to the usage of technology. Contrary to that allegation, the digital immigrants in this study have disputed the claims that their lack of ICT literacy prevents them from using screencasts and that learning via screencast is a waste of time and thus a diversion. It may be extrapolated from this finding that digital immigrants (respondents) have favorable sentiments toward the usage of screencast for learning. This is in line with the finding of Marriott and Teoh [10] who reported that undergraduates' attitudes were positive towards screencast and receiving screencast feedback, and Gambari and Hassan [5] who reported that undergraduates had positive attitudes toward the adoption of screencast.

6. CONCLUSION

Potential users' perceptions of new technologies are heavily influenced by their attitude toward technology use. Simply said, attitude refers to a person's thinking or predisposition to respond in a certain way as a result of their experiences and temperament. Whether consciously or unconsciously, an individual's attitude influences their actual behavior. The study revealed that respondents had positive opinions toward using screencasts for learning. However, the "new normal" in the education sector necessitates the employment of technology to aid in the educational process. As a result, digital immigrants have little choice but to embrace the use of technology for learning.

7. RECOMMENDATIONS

Because the study and literature have demonstrated that screencasts can be an effective technology tool for learning in the twenty-first century, regardless of age, the result recommends that:

1. Lecturers, especially in the higher institutions of learning, should adopt the use of screencast in their instructional process. This would help flip the classroom, and economically manage lecture time.
2. Researchers should carry out more studies to explore the effects of instructional screencasts on students' academic performance, especially at tertiary levels of education.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. An Y, Mindrila D. Strategies and tools used for learner-centered instruction. International Journal of Technology in Education and Science. 2020;4(2):133-143.
2. Akçayır M, Dündar H, Akçayır G. What makes you a digital native? Is it enough to be born after 1980? Computers in Human Behavior. 2016;60:435-440. DOI:https://doi.org/10.1016/j.chb.2016.02.089
3. Halton C. Digital Native. Retrieved from Investopedia; 2021. Available:https://www.investopedia.com/terms/d/digital-native.asp
4. IGI Global. What is Digital Immigrant. Retrieved from IGI Global; 2021. Available:https://www.igi-global.com/dictionary/digital-natives/7645
5. Gambari AI, Hassan SA. Effects of instructional screencast on the performance of national open university undergraduates in educational technology in Kwara state, Nigeria. Bulgarian Journal of Science and Education Policy. 2017;11(1):132-159.
6. Li C, Lalani F. The COVID-19 pandemic has changed education forever. This is how . Retrieved from World Economic Forum; 2020. Available:https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/
7. Malhotra N. Asynchronous video: A powerful way to teach, present, and communicate with students. Retrieved from Faculty Focus; 2021. Available:https://www.facultyfocus.com/articles/online-education/online-course-delivery-and-instruction/asynchronous-video-a-powerful-way-to-teach-present-and-communicate-with-students/
8. Groenewald R. A quick and easy guide on how to screencast in education. Retrieved from Fractus Learning; 2021. Available:https://www.fractuslearning.com/how-to-screencast-education-guide/
9. Lloyd SA, Robertson CL. Screencast tutorials chance student learning of statistics. Teaching Psychology. 2012;39:67-71.
10. Marriott P, Teoh LK. Delivering screencast feedback on assessment to large cohorts. Ladis Multi-Conference on Computer Science and Information Systems. 2011;1:329-336.
11. Prensky M. From digital natives to digital wisdom: Hopeful essay for 21st century learning. Califonia, United States of America: Library of Congress Cataliging-in-Publication Data; 2012.

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