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Teachers' pedagogical attitude on using digital lesson contents in teaching and learning in Zanzibar secondary schools

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Abstract. Digital curricula have been emphasized to improve the quality of education at all levels of education. Implementing a new curriculum depends on teachers' attitudes to integrate it during teaching and learning. This study investigated the attitudes of teachers and factors that affect them towards using digital lesson content in Zanzibar, the case of Wete District. One hundred fifty-four secondary school teachers responded to the questionnaire. The SPSS version 25 was used to run the Chi-squared test and descriptive statistics to analyse the data. The overall attitude was calculated by finding the questions' mean value per Likert level. The study found that teachers' pedagogical attitude is positive, but implementing digital lesson content in Zanzibar is still challenging. It was also observed that the attitude was significantly associated with gender (p=0.0084), whereby female respondents had higher positive attitudes (68.82%) compared to male respondents (47.44%). The paper concludes that most teachers have a positive attitude towards using digital lesson content in teaching in secondary schools. However, they lack enough relevant digital resources that support digital lesson content. Based on that, policymakers, curriculum developers, and other education stakeholders should take serious action to improve the quality of education practice in Zanzibar. Therefore, this paper recommends that the availability of digital lesson content and in-service training may encourage teachers' pedagogical attitude to integrate digital materials into their everyday teaching process.

Keywords: digital lesson contents, pedagogical attitude, teaching and learning, curriculum materials

1. Introduction

The concept of pedagogical attitude is the condition in which teachers and students appear as active subjects based on respective positions [3]. In this context, a pedagogical attitude refers to a teacher's response to integrating digital lesson contents (DLCs) while teaching to improve student learning ability. *Digital lesson content* is defined as all materials based on integrating educational content in a digital way that leads to the achievement of the same or better results [23]. In this context, digital lesson contents are all digital materials integrated to encourage active teaching and learning in secondary education. Due to the improvement of science and technology, educational curricula may adapt to global changes to compete in the world economy. It is noted that teachers' pedagogical attitudes towards innovation are

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inevitable because they are among the primary agents of implementing new curricula. The teachers' pedagogical attitude improves the quality of the teaching and learning process and makes the lesson accessible and well-understood by the students. It is known that effective teaching and learning usually depend on teachers' pedagogical attitude towards the subject matter and teaching and learning materials.

1.1. An overview on using digital lesson contents in teaching and learning

Teachers' pedagogical attitude towards integrating curriculum materials is obligatory in the effective teaching and learning process [33]. Teachers' pedagogical attitudes and use of digital lesson contents impact quality education [26]. The education curriculum adapts to global change to fit with economic liberation and competition worldwide. In the early 21st century, digital lesson contents have been acknowledged as crucial for teaching and learning because they involve different senses in the learning process [1, 11, 18]. In Latin America, digital lesson content is a critical component in improving teaching and learning style for young learners because they make them see and hear simultaneously [32]. In Pakistan, using digital lesson contents is helpful for both teachers and students because it makes the class more engaging and effective; it saves time, increases active participation, results in higher permanent understanding, and makes the lesson exciting and understandable [25, 31]. For this reason, language teachers also use digital tools like electronic boards, projectors, and audio and video devices to improve the quality of teaching and learning descriptive writing [9].

Various studies report that teachers' pedagogical attitude significantly influences students' understanding of the teaching and learning process. For example, studies conducted by Lin, Chen and Liu [15] and Ju and Mei [13] show that digital lesson contents increase permanent understanding, learners' attention, and motivation, encourage teaching and learning instructions, increase teachers confidence and leads to better teaching and learning outcome. In the UK, teachers' attitude towards using digital lessons supports students in improving their active participation. This indicates that teachers' pedagogical attitudes towards using digital lesson content in teaching and learning are crucial for supporting secondary school students to achieve the intended goal.

Various studies in various countries report factors that affect teachers' pedagogical attitudes toward using digital lesson content in teaching and learning. For example, in Ukraine, Germany, and Malaysia, teachers' pedagogical attitudes are affected by the shortage of digital lesson contents for teaching and learning, poor learning environment, and lack of support [22, 26, 29]. In Spain, a study conducted by Badia et al. [4] observed that digital literacy and digital training are the major factors that affect teachers' pedagogical attitudes. In Slovenia, a study conducted by Štemberger and Čotar Konrad [34] discovered that the low level of professional competence of teachers affects teachers' pedagogical attitudes to using digital lesson content for teaching. The study by Gilbert, Ismail and Manyilizu [10] found a shortage of training as one factor affecting teachers' attitudes toward using digital lesson content for teaching and learning. The study conducted in Tanzania by Ndibalema [20] reported a lack of teachers' training from educational colleges regarding digital lesson contents as a significant factor affecting teachers' attitudes in using digital lesson contents for teaching and learning.

Different initiatives for supporting teachers using digital lesson content have been taken

outside Tanzania in various countries. There are many digital literacy frameworks that various organizations and nations have designed to suit their local populations and transform learners for considering contextual factors [5]. In the UK, the European digital competence framework was established for citizens to accumulate digital competence in content creation and problem-solving in teaching. In China, the ICT competence standard for teachers is used to evaluate and measure the development of teachers' ICT attitude and competence [40]. In Zanzibar, the educational and ICT policies emphasize using digital lesson content to enhance teaching and learning to get quality education [27]. The Zanzibar government has distributed smart TVs, projectors, and computers in Unguja and Pemba. Then, it has trained teachers for six months, two days per week, on using technology for teaching and learning in Mathematics, Science, and English subjects [27, 42]. This demonstrates that initiatives have been made to use DLCs in teaching in secondary schools. Previous studies show that teachers' pedagogical attitudes are affected by various factors such as lack of in-service training and low level of competence; however, the present study was focused on investigating teachers' pedagogical attitudes and demographic variables that may affect using digital lesson contents (as curriculum materials) for teaching and learning in Zanzibar ordinary secondary schools.

1.2. Research questions

1. What are the teachers' pedagogical attitudes toward using digital lesson content for teaching and learning in secondary schools?
2. What is the effect of teachers' working experience, age, gender, and educational level on their pedagogical attitude?

2. Theoretical framework

This study adapted the Technology Acceptance Model (TAM) proposed by Davis [8]. The model consists of five variables: perceived ease of use, perceived usefulness, attitudes towards use, behavioural attention to use, and actual use [2]. These aspects directly relate to the study's main objectives, which elucidate how attitudes and perceived usefulness and ease of use of digital lesson contents are used in the teaching and learning process. It also serves as a clear guideline for the researcher to investigate the interrelationship between attitude and the use of digital lesson content among secondary school teachers. These aspects influence their decision on how and when to use the new technology [16]. The model helps investigate secondary school teachers' attitudes and acceptance of using technology for teaching and instructional use of teaching and learning [17]. It is also helpful to find out why teachers use digital lesson content for secondary schools in Tanzania, particularly in Zanzibar.

3. Methodology

3.1. Research design

A case study design was used in this study because it needs in-depth information about teachers' pedagogical attitudes toward using DLCs. The case study also allowed the researcher to

investigate the issue in a natural setting [7]. The case study provided the researcher with detailed information about the teachers' pedagogical attitude towards using DLCs for teaching and learning in Zanzibar secondary schools.

3.2. Participants

One hundred fifty-four (154) secondary school teachers were purposively selected from 6 selected schools. The study involved 154 respondents, of which 78 were males, and the rest 76 were females. The study had chosen all teachers from six respected schools in Wete District in Pemba-Zanzibar because secondary schools have been distributed Smart TVs, projectors, and computers [35]. The respondents were given one week to fill out the questionnaire before it was collected for analysis.

3.3. Research instrument and measures

A 5-point Likert scale questionnaire was used as a research instrument. The questionnaires were distributed to the respondents as a primary instrument. The 5-point Likert scale questionnaires were designed to accumulate enough information related to the study's objective. Also, this instrument makes it easy to seek teachers' attitudes toward using digital lesson content for teaching and learning. In order to get the outcome variable, "The teachers' pedagogical attitudes on using DLCs for teaching and learning", 31 Likert scale questions were asked. The scale ranged from 1 (strongly disagree) to 5 (strongly agree). The mean composite score was computed from those 31 questions; the score was then dichotomized into (0 = Low attitude, 1 = High attitude), and the Chi-squared association test was used to assess the factors associated with attitude. Those respondents who scored 4 or 5 were considered to have positive attitudes, while those who scored less than four were regarded to have negative attitudes. The independent variables of this study are social demographic characteristics of the respondents, which include age in years, gender of the respondents, years of using DLCs, teaching experience, and academic qualification. The overall attitude was calculated by finding the mean value of all the questions per each Likert level as described by the following formula: $mean = (q_1 + q_2 + q_3 + \cdots + q_n)/n$. Eventually, those with a mean greater or equal to 3 were termed high attitude, while those with a mean less than or equal to 2 were termed low attitude level.

3.4. Validity and reliability

To ensure validity, questionnaires were evaluated in terms of their language, quality, and clearness for checking any contributions or duplications. To maintain validity, the questionnaire was created and shared with three other experts (2 from The University of Dodoma and one from The State University of Zanzibar) to measure the content before it was administered to the participants. The experts' opinions were regarded to improve validity before going to the field. To maintain the reliability of research instruments, participants from two schools were used to test tools (as pilots) before collecting data. Also, Cronbach's Alpha was used to test the internal consistency, and it was 0.74, which indicates that the questionnaire was reliable. The researcher considered all the research ethics, such as getting clearance from relevant authorities, consent, confidentiality, and participants' freedom before collecting data.

3.5. Data analysis procedure

The data were analysed by basic descriptive statistics (frequency, percentage, mean and standard deviation) through a Chi-squared test with the help of SPSS version 25. The basic descriptive statistics were used to describe the sample and the characteristics of the respondents.

4. Research findings

4.1. Teachers' pedagogical attitude on using digital lesson contents in teaching in secondary schools

The study investigated teachers' pedagogical attitudes toward using digital lesson content in teaching and learning in secondary schools. Table 1 presents teachers' responses on pedagogical attitudes toward using digital lesson content in secondary school teaching.

Table 1: Teachers' pedagogical attitude towards using digital lesson contents (DLCs).

Variable	Strongly disagree, *N* (%)	Disagree, *N* (%)	Neutral, *N* (%)	Agree, *N* (%)	Strongly agree, *N* (%)	Mean±Std
I feel comfortable with the idea of DLCs for teaching	30 (19.48)	25 (16.23)	30 (19.48)	56 (36.36)	13 (8.44)	2.98±1.29
Using DLCs for teaching stresses me out	18 (11.69)	31 (20.13)	24 (15.58)	57 (37.01)	24 (15.58)	3.25±1.27
Using digital DLCs in descriptive writing makes me sceptical	7 (4.55)	29 (18.83)	34 (22.08)	63 (40.91)	21 (13.64)	3.40±1.08
The use of DLCs encourages my teaching	9 (5.88)	24 (15.69)	30 (19.61)	57 (37.25)	33 (21.57)	3.53±1.16
Using DLCs will change the way of teaching	23 (14.94)	26 (16.88)	30 (19.48)	52 (33.77)	23 (14.94)	3.17±1.30
The DLCs are very conducive to students' learning	6 (3.90)	23 (14.94)	31 (20.13)	73 (47.40)	21 (13.64)	3.52±1.03
The DLCs help students improve their critical thinking ability	13 (8.44)	24 (15.58)	29 (18.83)	50 (32.47)	38 (24.68)	3.49±1.25
The DLCs create students' concentration on the focus content	16 (10.39)	30 (19.48)	22 (14.29)	39 (25.32)	47 (30.52)	3.46±1.37
The DLCs are good for teaching because it does not create technical problems	13 (8.44)	31 (20.13)	24 (15.58)	44 (28.57)	42 (27.27)	3.46±1.31
The DLCs help teachers while teaching effectively	6 (3.90)	21 (13.64)	26 (16.88)	61 (39.61)	40 (25.97)	3.70±1.12
The DLCs save time and effort for teaching descriptive writing	17 (11.04)	31 (20.13)	28 (18.18)	52 (33.77)	26 (16.88)	3.25±1.27
I think there is a need to use digital lesson content for teaching	17 (11.04)	34 (22.08)	28 (18.18)	47 (30.52)	28 (18.18)	3.23±1.29

Continued on next page

Table 1 – continued from previous page

Variable	Strongly disagree, *N* (%)	Disagree, *N* (%)	Neutral, *N* (%)	Agree, *N* (%)	Strongly agree, *N* (%)	Mean±Std
I appreciate rather using digital materials by hand than with non-digital lesson contents	8 (5.19)	29 (18.83)	35 (22.73)	57 (37.01)	25 (16.23)	3.40±1.12
I have the intention to use DLCs for future learning	11 (7.14)	40 (25.97)	28 (18.18)	51 (33.12)	24 (15.58)	3.24±1.20
The DLCs do better than harm	8 (5.19)	20 (12.99)	35 (22.73)	54 (35.06)	37 (24.03)	3.60±1.14
The DLC activities help learners to understand concepts better	15 (9.74)	33 (21.43)	29 (18.83)	46 (29.87)	31 (20.13)	3.29±1.28
DLCs make learning activities interesting	13 (8.44)	23 (14.94)	18 (11.69)	64 (41.56)	36 (23.38)	3.56±1.24
DLC activities help learners to understand better	18 (11.69)	31 (20.13)	23 (14.94)	48 (31.17)	34 (22.08)	3.32±1.33
Using DLCs motivate learners	18 (11.69)	28 (18.18)	22 (14.29)	58 (37.66)	28 (18.18)	3.32±1.29
It is easy to get improvised materials for outdoor activities	22 (14.29)	22 (14.29)	22 (14.29)	43 (27.92)	45 (29.22)	3.44±1.41
Using DLC helps learners to achieve the learning outcomes	15 (9.74)	29 (18.83)	25 (16.23)	50 (32.47)	35 (22.73)	3.40±1.29
Using DLC makes the learners active	13 (8.44)	26 (16.88)	27 (17.53)	55 (35.71)	33 (21.43)	3.45±1.24
The DLCs facilitate learning by doing approach	11 (7.14)	29 (18.83)	23 (14.94)	62 (40.26)	29 (18.83)	3.45±1.20
Using DLC helps teachers to be more innovative	10 (6.49)	28 (18.18)	27 (17.53)	55 (35.71)	34 (22.08)	3.49±1.21
Using DLC makes teachers incompetent to the lesson contents	14 (9.09)	28 (18.18)	28 (18.18)	46 (29.87)	38 (24.68)	3.43±1.29
Using DLC encourages classroom interaction	19 (12.34)	27 (17.53)	18 (11.69)	51 (33.12)	39 (25.32)	3.42±1.36
The DLCs help learners improve long-term memory	13 (8.44)	28 (18.18)	20 (12.99)	61 (39.61)	32 (20.78)	3.46±1.24
The DLCs help teachers to be flexible while teaching	12 (7.79)	29 (18.83)	24 (15.58)	48 (31.17)	41 (26.62)	3.50±1.28
Using DLC makes teachers confident while teaching	14 (9.09)	27 (17.53)	25 (16.23)	58 (37.66)	30 (19.48)	3.41±1.24
The use of DLCs facilitates learners writing ability	13 (8.61)	33 (21.85)	32 (21.19)	48 (31.79)	25 (16.56)	3.26±1.22
Using DLC makes me comfortable in teaching every time	14 (9.09)	31 (20.13)	23 (14.94)	50 (32.47)	36 (23.38)	3.41±1.24
Overall attitude	2 (1.30)	38 (24.68)	25 (16.23)	75 (48.70)	14 (9.09)	3.40±1.00

The data from the first question demonstrate that teachers had an average positive pedagogical attitude towards using DLCs for teaching (figure 1). It was shown that many teachers probably felt comfortable with the DLCs in teaching and learning (36.36%). Also, it was observed that many respondents believed that DLCs were possibly helping teachers in terms of teaching effectively rather than other methods (39.61%). The findings further revealed that most respondents agreed that DLCs may be conducive to students' learning because they make the lessons easier to

understand (47.40%). In addition, many respondents agree that DLCs could make learning activities interesting to the learners (41.56%).

Moreover, an extensive number of the respondents agreed with the concept that DLCs probably facilitate a more learning-by-doing approach (40.26%). Again, most respondents agreed that DLCs are expected to improve learners' long-term memory (39.61%). The overall teachers' pedagogical attitudes toward using DLCs were about 48.70, whereas those who disagreed were 24.68%

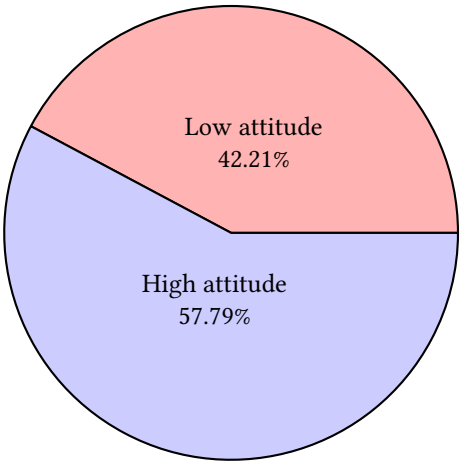

Figure 1: Teachers' pedagogical attitude towards using digital lesson contents.

4.2. The effect of teachers' gender, age, educational level, experience on using DLCs and working experience

The study's second objective was to find out the effect *of teachers' working experience, experience on using DLCs, age, gender, and academic qualification* towards using DLCs in teaching and learning. Chi-square was performed to measure the variables affecting teachers' pedagogical attitudes toward using digital lesson content in teaching and learning. Table 2 reveals such findings.

5. Discussion

The study found that most teachers have a positive attitude toward using digital lesson content in teaching and learning due to their experiences with using it in teaching and learning. These findings align with the study conducted in the UK by Leong, Zainol Abidin and Saibon [14], Winter et al. [38] and Noraddin and Kian [21] in Malaysia, who observed that teachers were ready to use digital lesson contents because it encouraged effective teaching and learning. This is because teachers' readiness creates a student-centred learning process. Similarly, the study conducted by Boonmoh, Jumpakate and Karpklon [6] in the USA affirmed that teachers' positive

Table 2
Factors affecting teachers' pedagogical attitude towards the use of DLCs.

Variable	Low attitude, *N* (%)	High attitude, *N* (%)	Chi-square	P-value
Age in years			1.5127	0.2187
$\leq$ 35 35 (47.30)	39 (52.70)			
36 and above	30 (37.50)	50 (62.50)		
Gender of the respondents			6.9494	0.0084
Male	41 (52.56)	37 (47.44)		
Female	24 (31.58)	52 (68.42)		
Years of using DLCs			0.1821	0.6696
$\leq$ 5	35 (40.70)	51 (59.30)		
6 and above	30 (44.12)	38 (55.88)		
Teaching Experience			0.5650	0.4522
$\leq$ 10 28 (45.90)	33 (54.10)			
11 and above	37 (39.78)	56 (60.22)		
Academic qualifications			2.0400	0.3606
Diploma	18 (35.29)	33 (64.71)		
Degree	31 (48.44)	33 (51.56)		
Masters	16 (41.03)	23 (58.97)		

perception towards using DLCs was reducing barriers for students while teachers were teaching. Similarly, the study conducted by Mailizar, Almanthari and Maulina [17] in Indonesia and by Wu [39] in the UK found that teachers' positive perceptions encouraged teachers' confidence in teaching. This indicates that good perception facilitates the teacher's preparation for the lesson to develop contextual confidence to integrate DLCs during teaching and learning, unlike the teacher with a negative perception.

Again, the study by Salam, Hossain and Rahman [30] in Bangladesh observed attitude in three categories: readiness, interest, and perception. A positive attitude influences teachers to use digital lesson content for teaching and learning. This indicates that teachers need to be aware of the DLCs, which helps them get a positive attitude in using DLCs to cope with the world campaign "Education for All (EFA)". Teachers' pedagogical attitudes should be improved because their attitudes automatically improve students' interest and understanding in learning through DLCs. The above findings also indicate that teachers' readiness to use DLCs and positive perceptions improve students' motivation and interest in learning. Therefore, there is a need for the education policy of Tanzania (Zanzibar) to use digital lesson contents for enhancing teaching and learning to improve the quality of education [36].

In contrast, the study conducted by Ndibalema [20] in Tanzania and Johnson et al. [12] in the USA found that teachers were not ready to use DLCs for teaching. Again, the study conducted by Yastibas and Cepik [41] in Turkey shows the negative interest for teachers in using digital lessons for teaching and learning. This is because DLCs need cost and time for design. Furthermore, the study by Johnson et al. [12] discovered that negative perceptions of teachers on using DLCs were affecting teaching and learning in daily teaching activities and students' ability in their daily learning. The study observed that teachers dislike using digital lesson content because it wastes time and determines teachers' ability to integrate them into the

classroom. This implies that effective teaching and learning determine the relationship between teachers' ability and readiness to integrate the teaching and learning process.

Furthermore, the current findings related to study results by Ramadass and Shah [26], who observed that most teachers had positive attitudes towards using digital lesson contents for teaching the English language in Malaysia. This indicates that teachers must bring awareness about digital lesson content to save time and increase students' interest and permanent understanding. Therefore, it may support both teachers and students during teaching and learning and improve the quality of education as proposed by education policy in Zanzibar, 2006 [28]. It was also noted that one of the ICT policies in education in Zanzibar is 'to have curricula which require the usage of ICT in the teaching and learning processes [28, p. 4]. The findings from the study indicate that most teachers were probably interested in using technologies in education, but until now, the curricula materials are non-digital. It assumed that the availability of digital resources is crucial for supporting the ICT policy in Zanzibar to compete in the global economy.

The findings from the second objective show that teachers' positive pedagogical attitude is caused by the following factors: professional experience in using digital lessons, age, gender, and educational qualifications. Thus, these factors may influence teachers' attention and readiness to use digital lesson content for teaching. These findings are in line with the studies conducted in Ukraine by [19, 22] who found that professional experiences, teachers' perspective, gender, age, status of the institution, and professional activities affect teachers' pedagogical attitude in using digital lesson contents for teaching. The study conducted by Sailer et al. [29] in Germany identified the availability of digital instruments and frequency of using digital lessons as essentials in affecting teachers' pedagogical attitudes when it comes to using digital lessons for teaching. Moreover, a study conducted in Spain by Badia et al. [4], Papanikolopoulou Arco [24] identified teaching areas, digital literacy, education ICT training, and the internet as essential predictors for teachers' perception towards using digital lesson contents. Similarly, the study by Winter et al. [38] in the UK observed that the availability of technological equipment in the class, in-service training, and experience facilitate teachers' use of digital lessons for teaching. The implication is that teachers' positive attitude is possibly significant for improving teachers' awareness and readiness to use digital lesson content in the classroom to attain quality education.

However, the study conducted in Tanzania by Ndibalema [20] found that lack of training for teachers from their teacher educational colleges in terms of using DLCs is one factor that affects teachers' pedagogical attitude towards using DLCs for teaching. Also, the study conducted in Slovenia by Štemberger and Čotar Konrad [34] revealed that teachers' low level of professional competence affects their attitude towards using DLCs in teaching. Moreover, the study conducted in Sweden by Walan [37] observed that the availability of technological equipment and sufficient time for learning new programmes and preparing lessons are among the factors that affect teachers' attitudes toward using DLCs in teaching. This indicates that various indicators affect teachers' pedagogical attitudes toward using DLCs for teaching. However, serious and frequent training, availability of digital resources, and national ICT policy in Zanzibar would be needed to sustain the quality of education. Both education policy and ICT policy in Zanzibar focus on drawing attention to the education system's weakness and challenges, especially in the wake of ongoing liberalization and globalization process [27, 28]. This implies that availability policies alone may not transform curriculum; however, teachers' positive pedagogical attitude

and readiness are significant for better learning achievement.

6. Conclusion and recommendations

This study investigated teachers' pedagogical attitudes towards using digital lesson content for teaching ordinary secondary schools in Zanzibar. It was found that most teachers have a positive attitude towards using digital lesson content. Also, the data showed that experience appears to be the most significant factor associated with attitude toward using digital lesson content for teaching, followed by gender and age. However, teachers miss enough relevant digital resources that support digital lesson content for teaching and learning. This shows that the availability of DLCs plus experience may influence teachers' attitudes toward using them in the classroom.

Moreover, age and gender are among other factors that may influence teachers' pedagogical attitudes toward using DLCs for teaching and learning. Therefore, the current study concludes that there is a need for in-service training to upgrade them to integrate DLCs for supporting their students' achievements. In addition, the study expects that responsible members such as policymakers, curriculum developers, and other educational stakeholders should take serious action to improve the quality of education in Zanzibar. However, the study recommends the need for teachers to be aware and ready to implement curriculum changes in order to cope with 21st-century development. Also, the study suggests a need to initiate digital lesson content to improve teachers' cognitive and emotional skills to encourage their pedagogical attitude toward using digital lessons for teaching and learning in secondary schools. The scope of this study is limited to teachers' gender, age, academic qualification, experience in using DLCs, and working experience concerning the pedagogical attitude towards using DLCs in the teaching and learning process. Further study could involve a larger sample size and other education stakeholders such as school leadership, academic master/mistress, and curriculum developers on how they could predict teachers' pedagogical attitudes towards using DLCs in teaching and learning in secondary schools.

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