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Digital Competence: Unveiling English Teachers' Perception and Level in Sarawak's Rural Primary Schools

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Abstract

Covid-19 pandemic has expedited the global transformation towards digitalization, making digital competence a fundamental requirement needed to effectively navigate in digital world. This study aimed to identify the perceptions and level of digital competence among English teachers in rural primary schools in Baram, Sarawak. Utilizing a quantitative approach, 156 English teachers from all 65 primary schools participated in the survey. The respondents were chosen via purposive sampling. The questionnaires were administered online via Google Form. Data were analysed based on descriptive statistics with SPSS software version 27. Findings revealed a high level of teachers' perception towards digital competence (M=3.16, SD = 0.671), revealing a positive outlook. Teachers' digital competence levels predominantly fall within the B1 (Integrator) level, indicating an intermediate competence. Analysis of each dimension also revealed that Dimension 2 (digital resources) obtained the highest (M=2.54, SD=0.736) while Dimension 6 (facilitating learners' digital competence) records the lowest score (M=1.63, SD=0.790). These findings revealed that there is a commendable progress observed through teachers' integration of digital tools into their teaching practices. However, there is still a need for an effective continuous professional development program that tailored specifically to address teachers' facilitation of learners' digital competence.

Keywords: Digital Competence, Perception, Level, English Teachers, Rural Schools

Introduction

The global outbreak of the Covid-19 pandemic has caused unprecedented situations across the globe. Following the outbreak, the education sector in 184 countries around the world had to enforce widespread school closures at its height in April 2020, and by mid-April, 94%

of learners around the world had their schooling disrupted (ACAPS, 2020). Such scenario has increased the demand for sustainable alternative solutions as well as accelerated the widespread adoption of digitalization as the reliance on these digital technologies continues to grow. In times of the pandemic, the integration of Information and Communication Technology (ICT) and digital skills of the participants involved were at a high level (Chavez, et al., 2020). It was also reported that in order for students to become relevant with virtual education, they were required to utilize and master the technological tools needed.

Furthermore, the development of a future-ready workforce equipped with digital skills and competences is crucial as it in line with the demands of the Forth Industrial Revolution (4IR). Along with the ongoing technological advancements, the emergence of the digital, physical, and biological technologies has transformed the way we live, work, and interact. In the context of 4IR, it encompasses emerging technologies such as artificial intelligence (AR), robotics, Internet of Things, big data, and automation (Mhlanga & Moloi, 2020). Additionally, the World Economic Forum (WEF) estimated that around 65% of students entering primary schools today will eventually work in profession that have not come into existence yet (Yusuf, Walters & Sailin, 2020). Therefore, in order to stay relevant, the educational landscape is expected to be transformed in order to nurture workforce that is capable of fostering innovation, embracing digital technologies, as well as contributing to economic growth (Qureshi et. al., 2021). To do so, teachers' role needs to align with this evolution by shifting from the conventional approach into a more innovative teaching. The approach should focus more on students' learning where teachers act as the facilitator of learning, rather than solely providers of information. To deal with students who are "digital natives" and accustomed to technology from a young age, teachers are also required to be "digitally competent", thus highlighting the vital role of digital competence among teachers.

In the context of Malaysian education system, the important role of digitalisation has been recognized as significant in the "Malaysian Education Blueprint (2013-2025)". Leveraging the use of ICT and digital tools have been emphasized as one of the educational shifts in the education transformation. To realise this vision, the blueprint has highlighted the important role of teachers in becoming technologically proficient, as well as nurturing digital environment for students. The dynamic change towards digitalisation became even more apparent following the Covid-19 outbreak, as the schooling across the world was disrupted. Similar to other countries, teachers in Malaysia were compelled to shift to remote and online learning with limited preparation and training. Although teachers generally demonstrated positive acceptance towards online learning were positive, they were faced with several challenges such as the availability of devices, reliable Internet connections, insufficient preparation, low digital competence, and short instructional time (Alakrash and Razak, 2021; Ishak et al., 2022; Mazlan et al., 2022). Although the pandemic has accelerated the digitalization process via online education, the "new normal" has created the unforeseen challenges as teachers and students were forced to utilize digital technologies without proper preparation. The issue of teachers' competency in effectively utilizing digital tools has consistently garnered attention and raised concerns ever since the pandemic. Despite various past studies have been done in other countries, Benali et al (2018); Dias-Trindade & Moreira (2020); Karunaweera & Lee (2021); García-Delgado et al (2023), research on teachers' digital competence in Malaysia remains relatively scarce, thus highlighting the significance of this undertaken study, particularly among English teachers.

Literature Review

Digital Competence and English Language Learning

Digital competence was traditionally defined as the ability of effectively utilize information technology (IT) within specific contexts (Rizza, 2014). However, with the rapid advancement of information technology, the definition has expanded to encompass various relevant aspects. Digital competence refers to the skills, knowledge and attitudes involved during the utilization of digital technology, either for learning, work, or social involvement in a confident, critical, and responsible manner (Vuorikari et al., 2022). In order to be deemed "digitally competent," individuals should be able to demonstrate the ability to adapt to the ever-changing technologies, such as advancements in artificial intelligence (AI), as well as capable of critically evaluating and applying the knowledge to new situations (Ministy of Education and Higher Education Canada, 2019). It is important to note that, being a "digitally competent" individual goes beyond possessing the technical skills of using digital tools. It covers the required knowledge to deal with digital tools, as well as the appropriate skills and attitudes.

This emerging trend towards digitalization and online learning implies the needs for teachers to revise their teaching approaches. As online learning differs greatly from the face-to-face interaction in the classroom, teachers are required to reimagining the teaching and learning process and equip themselves with the necessary digital skills (Ramalingam, et al., 2021). Advanced facilities, such as computer laboratories, smart classrooms, and science laboratories only become beneficial once teachers and students alike know how to effectively utilize the technology and equipment in meaningful ways (Ministry of Education Malaysia, 2013). This highlights the importance of developing teachers' digital competence before they can empower students' learning via integration of ICT in the classroom.

As aforementioned, in Malaysia, the MOE has recognized the importance of leveraging ICT for effective education. They further highlighted in the blueprint the needs to focus more to the underserved groups of rural and under-enrolled schools as the ICT usage was found to be limited (Ministry of Education Malaysia, 2013). The limited usage in the rural and under-enrolled schools happened due to several factors such as insufficient training and supporting services, limited ICT infrastructure and teachers lack of competencies in dealing with the digital tools (Ministry of Education Malaysia, 2013). These findings align with previous research by Wang et al (2020) who observed significant variations in teachers' usage of ICT. Teachers in the rural schools were more reliant on the resources provided at the national and country level, while teachers in urban schools tended to rely on self-produced resources and live streaming. This discrepancy has resulted in a digital divide between schools in rural and urban areas as teachers possessed different personalized instructional resources, which could potentially impact students' learning experiences.

Consequently, developing teachers' digital competence is seen as crucial, as it could influence teachers' behavioural intention to integrate ICT in the classroom, particularly in the rural schools. Existing studies have consistently demonstrated that teachers with higher levels of digital competence are more inclined to incorporate ICT into their instructional practices. The findings of these studies Demissie et al (2022); Antonietti et al (2022); Rahimi & Tafazoli (2022) indicated a positive correlation between teachers' perception of their digital competence and their intention to adopt technology in the classroom. When teachers are proficient in using ICT, they would have a deeper understanding on how to use digital tools effectively, such as selecting appropriate technologies, designing engaging learning activities, as well as providing constructive feedback to the students. As teachers become more

competent and confident in their abilities to navigate and utilize digital tools, their motivation to integrate ICT into their teaching and learning is heightened.

In the context of English language learning, the relationship between digitalisation and English language learning is frequently associated to each other (Bucur & Popa, 2017). By integrating language, learning content and digital skills, learners were able to improve their digital competency, language proficiency as well as mastery of the content (Pitarch & Mora, 2021). Yunus et al (2013) revealed that the usage of blog has helped to promote ESL learners' writing skill. Similarly, the integration of Computer Assisted Language Learning (CALL) method and Quizziz (e-learning) has facilitated the acquisition of English vocabularies for language learners (Huei et al., 2021; Yunus et al., 2016; Ström & Fröjd, 2021). Other findings from Alakrash & Razak (2021); Stefanovic & Klochkova (2021); Hidayat et al (2022) also indicate that digital tools promote better understanding, autonomous learning, and increased learner motivation, hence highlighting the significance of teachers' digital competence.

Digital Competence of Educators (DigCompEdu)

To assess and support the development of digital competence, various international frameworks and models have been introduced worldwide. One of the most commonly used and modelled frameworks is the "European Digital Competence Framework for Citizens," or known as DigComp which was first introduced in the year of 2013. From its first publications, DigComp has undergone a few updated versions and the latest version of the framework is called "DigComp 2.2," which was published recently in 2022. DigComp also provided other specified frameworks such as "DigCompConsumers" for consumers in the digital marketplace, "DigCompEdu" for educators across all levels of education and "DigCompOrg" which is specialised to support the development of digital competence in organisations.

The European Framework for Digital Competence of Educators or also known as "DigCompEdu" was published by the European Commissions' Joint Research Centre in response to the increasing needs for educators to have a set of digital competences specifically tailored to the teaching profession (Redecker & Punie, 2017). The framework, which was developed for educators in particulars, consists of 22 educator-specific digital competences, organized in six dimensions as illustrated in Figure 4. The six dimensions entails different areas of: (1) Professional engagement, (2) Digital resources, (3) Teaching and learning, (4) Assessment, (5) Empowering learners and (6) Facilitating learners' digital competence. The framework also acts as a guideline for educators across all level of educations to leverage the digital technologies to its utmost potential in improving the quality of education. As digital technologies have become ubiquitous and pervasive in our life, this framework is seen relevant with the current needs.

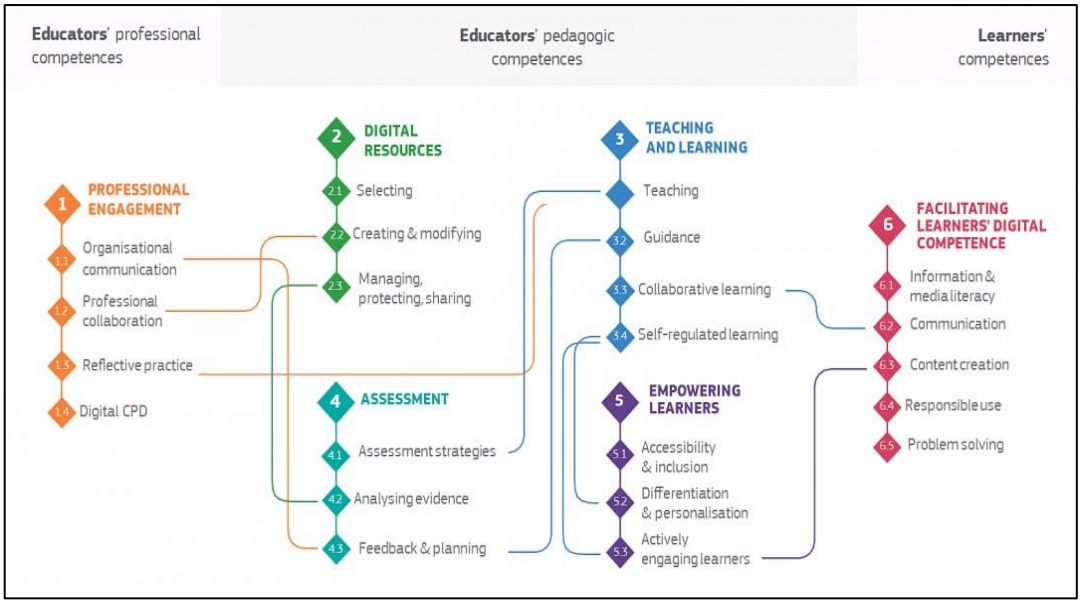

Figure 1: The DigCompEdu Framework (Redecker & Punie, 2017)

The Framework additionally outlines a progression model to assist educators in evaluating and improving their level of digital competence. It describes the six phases that an educator's digital competence normally progresses through in order to assist them in taking further actions. The competence stages are linked to the six proficiency levels specified in the Common European Framework of Reference for Languages (CEFR), ranging from A1 to C2. As the CEFR taxonomy is widely recognized and used, its adoption will aid educators' understanding of their personal level of digital competence by providing a common language. As aforementioned, there are six proficiency levels for the digital competence, which consists of: (1) Newcomer or A1, (2) Explorer or A2, (3) Integrator or B1, (4) Expert or B2, (5) Leader or C1 and (6) Pioneer or C2. The DigCompEdu progression model is further illustrated in Figure 2 below.

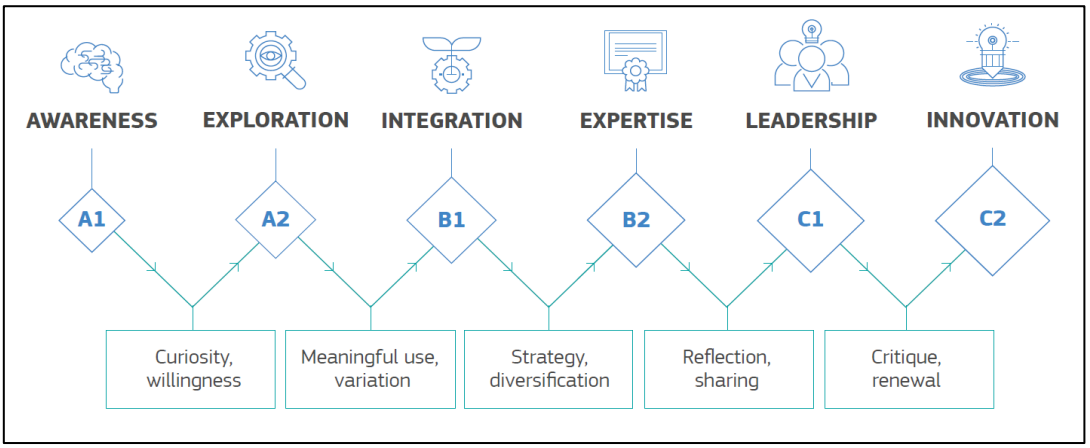

Figure 2: The DigCompEdu progression model (Redecker & Punie, 2017)

As for this study, the DigCompEdu is adopted due to several reasons. The framework was specifically developed for educators across all levels of education, starting from early childhood to higher and adult education (Redecker & Punie, 2017). It also includes vocational training, special needs education, as well as non-formal learning contexts. Moreover, the DigCompEdu framework was recognized as the most adequate to be used as theoretical

support for delivering a MOOC on Teacher Digital Literacy (Cabero-Almenara, Romero-Tena & Palacios-Rodríguez, 2020). Similar study was done to compare and assess the feasibility of DigCompEdu framework and Common Framework for Teaching Digital Competence (INTEF) and results showed that DigCompEdu was the most recommended by experts (Cabero-Almenara et. al, 2020). Besides, the framework also allows educators to assess their own personal level of digital competence and identify the areas that they are still lacking at. Based on these gaps, educators would be able to take further actions based on the outlined competences in the framework. This continuous learning could foster a continuous professional development of educators, thus making their instructional practice to become more effective and meaningful.

In view of the above and taking as a basis the European Framework for Digital Competence of Educators (DigCompEdu) this study attempts answer the following research questions:

1. What is the perception towards digital competence of English teachers in rural primary schools in Baram, Sarawak?
2. What is the level of digital competence of English teachers in rural primary schools in Baram, Sarawak?

Methodology

In answering the aforementioned research questions, a quantitative approach was employed by the researcher. A quantitative approach involves the measurement and analysis of phenomena through the collection and interpretation of quantifiable data (Atmowardoyo, 2018; Rashid & Sipahi, 2021). One of the categories under quantitative methods is survey research (Rashid & Sipahi, 2021). Creswell (2009) stated that survey research analyses a sample of a population in order to yield a quantitative or numerical description of trends, attitudes, or views within that population, which aligns with the objectives of this undertaken study.

Research Participant

For this study, English teachers who are teaching in all 65 primary schools located in Baram district were involved. The 156 participants were chosen via purposive sampling. As the research focuses on English teachers in rural primary schools, the selection of these participants is deemed relevant as they fulfilled the criteria outlined. Purposive sampling or judgement sampling refers to the process in which the researcher uses his or her judgement or a particular purpose while selecting the participants (Rahi, 2017). Out of the 196 teachers approached, 156 sets of completed questionnaires were received, resulting in a commendable response rate of 79.59%.

Research Instrument

A survey questionnaire was used as an instrument for the data collection and the items were adapted from the “DigCompEdu” self-assessment tool (Appendix A). Participants were able to identify their own level of digital competence based on the accumulated scores obtained at the end of the questionnaire.

The competency level is as illustrated in Table 1 below.

Table 1
Description of the competency level and scores

LEVEL	DESCRIPTION	SCRORE
A1	Newcomer	0 - 20 points
A2	Explorer	21 - 33 points
B1	Integrator	34 - 49 points
B2	Expert	50 - 65 points
C1	Leader	66 - 80 points
C2	Pioneer	more than 80 points

Research Procedure

Before the pilot study was administered, permission from the Ministry of Education was obtained via the Educational Research Application System (eRAS 2.0), as detailed in Appendix B, as well as formal approval at the state level from the Sarawak State Education Department (Appendix C). Subsequently, a formal request, including a consent letter was submitted to the Baram District Education Office for approval before collecting the data from teachers in Baram district (Appendix D). Along with the consent letter, title and purpose of the study were specified, as well as ways on how the privacy and confidentiality of the participants is ensured. The questionnaire was administered via Google Form (online platform) to the participants. They were provided with a link to get access to the questionnaire. In accordance with ethical considerations, the participants' identity remained anonymous and confidential. Any identifying information such as names or other sensitive personal details, was not requested in the questionnaire.

Data Analysis

Data analysis was done by following the quantitative approach. The responses were extracted from the Google Form and transferred to the Statistical Package for the Social Sciences (SPSS) version 27 software. Then, descriptive statistical analysis was conducted, with the calculation of frequency, percentage, mean and standard deviation.

Reliability

Reliability in research implies the consistency and stability of a measuring instrument when administered over time and under different conditions (Mellinger, 2020; Sürücü & Maslakçi, 2020). Establishing the reliability of an instrument is significant in ensuring the data gathered from a study is dependable and can be trusted. Therefore, to establish the reliability of this instrument to be used in Malaysian context, the researcher conducted a pilot study which involved 30 participants. The value of Cronbach's alpha obtained from the instrument was 0.915, which indicates high reliability.

Validity

In order to establish the content validity of a study, researchers will typically go to a panel of judges or experts to seek for validation (Creswell, 2014). Hence, three panel experts were consulted in this study to seek for validation. In the process of selecting experts for instrument validation, it is important to choose individuals who are well-versed about the study area, either based on their academic background or work experience (Fernández-Gómez, et al., 2020). Therefore, the three experts were chosen based on their expertise and experience

related to the study area. After validation process, the researcher made few amendments accordingly. Details of the experts' qualification are as shown in Table 2 below.

Table 2
Panel of experts for validation

Expert	Field of expertise	Teaching Experience
A	Doctor of Philosophy in Computer Science	31 years
B	Doctor of Philosophy in TESL	18 years
C	Master's Degree in TESL (Head of English Panel)	8 years

Findings

Participants' Demographics

Table 3 below presents the demographic profile of the respondents involved.

Table 3
Respondents' demographic profile

Background	Respondents	Frequency	Percentage (%)
Gender	Male	61	39.1
	Female	95	60.9
Age	21 - 30 years old	62	39.7
	31 - 40 years old	57	36.5
	41 - 50 years old	27	17.3
	More than 50 years old	10	6.4
Academic qualification	Diploma	8	5.1
	Bachelor	127	81.4
	Master	21	13.5
	PhD	0	0
Teaching experience	1 - 5 years	59	37.8
	6 - 10 years	45	28.8
	11 - 15 years	25	16.0
	More than 15 years	27	17.3
Perceived level of digital competence as a teacher	Newcomer (A1)	8	5.1
	Explorer (A2)	43	27.6
	Integrator (B1)	50	32.1
	Expert (B2)	34	21.8
	Leader (C1)	18	11.5
	Pioneer (C2)	3	1.9

Examining the data presented above, there were more female teachers (60.9%) than male teachers (39.1%). Majority of the teachers were relatively young: (39.7%) were 21-30 years old, (36.5%) were 31-40 years old; (17.3%) were 41-50 years old and only (6.4%) are older than 50. In terms of academic qualification, majority of the teachers were of the bachelor's degree group (81.4%), followed by the master's degree (13.5%). A smaller subset (5.1%) holds

a diploma while none of the participating teachers reported holding a PhD. Additionally, majority of the teachers (37.8%) had less than 5 years of teaching experience; 28.8% had between 6 and 10 years of experience as teachers; 16.0% had 11 to 15 years of experience and 17.3% with more than 15 years of teaching experience. As for their perceived level of digital competence, a significant majority of the participating teachers perceived their level within the A2 to B2 range (from explorer to expert respectively), with a notable proportion of 32.1% at the B1 level (integrator).

Table 4 below provides the frequency and percentage for each type of digital tool utilized by the respondents.

Table 4

Types of digital tools utilized by respondents

Types of digital tools	**Frequency**	**Percentage (%)**
Presentations	142	91.0
Watching videos/listening to audios	153	98.1
Creating videos / audios	67	42.9
Online learning environments	78	50.0
Digital quizzes or polls	87	55.8
Interactive apps or games	81	51.9
Digital posters, mind maps, planning tools	63	40.4
Blogs or wikis	15	9.6
Others	3	1.9
I have not yet used any digital tools	1	0.6

From Table 4 above, it is evident that the utilization of both videos and audios stands out as the predominant choice, followed by the usage of presentations in the teaching and learning. Both types of digital tools garnered responses with a total percentage of more than 90%. Digital quizzes or polls received the third highest percentage of 55.8% (n=87), while 51.9% (n=81) of the respondents employ interactive apps or games, which signifies the rise of interactive methodologies. Notably, 0.6% (n=1) have not yet used any digital tools, while 1.9% (n=3) responded to the "Others" category. These findings collectively highlight the diverse landscape of digital tools integration in education with variations in adoption rates among the participating teachers in this study.

RQ1: What is the perception towards digital competence of English teachers in rural primary schools in Baram, Sarawak?

Table 5 presents the descriptive analysis of the teachers' perceptions towards their digital competence.

Table 5
Teachers' perception towards digital competence

ITEM	STATEMENT	Frequency Percentage				Mean (M)	Standard Deviation (sd)
		1	2	3	4		
P1	I enjoy using digital devices in my teaching and learning.	0 (0.0%)	7 (4.5%)	76 (48.7%)	73 (46.8)	3.42	0.580
P2	I have basic knowledge about the operation of digital devices in teaching and learning.	1 (0.6%)	8 (5.1%)	92 (59.0%)	55 (35.3%)	3.29	0.590
P3	I am aware of various types of digital devices.	0 (0.0%)	8 (5.1%)	79 (50.6%)	69 (44.2%)	3.39	0.586
P4	I understand what digital competence is.	1 (0.6%)	18 (11.5%)	79 (50.6%)	58 (37.2%)	3.24	0.676
P5	I am willing to learn more about digital technologies.	0 (0.0%)	0 (0.0%)	62 (39.7%)	94 (60.2%)	3.60	0.491
P6	I feel threatened when others talk about digital technologies.	55 (35.3%)	64 (41.0%)	31 (19.9%)	6 (3.8%)	1.92	0.839
P7	I feel that I am behind my fellow students in using digital technologies.	65 (41.7%)	51 (32.7%)	38 (24.4%)	2 (1.3%)	1.85	0.833
P8	I think it is important for me to improve my digital competence.	0 (0.0%)	2 (1.3%)	50 (32.1%)	104 (66.7%)	3.65	0.504
P9	I think that my teaching and learning can be enhanced by using digital tools and resources.	0 (0.0%)	1 (0.6%)	53 (34.0%)	102 (65.4%)	3.65	0.493
P10	I think that training in technology-enhanced language learning should be included in language education programmes.	1 (0.6%)	3 (1.9%)	61 (39.1%)	91 (58.3%)	3.55	0.571
	Overall					3.16	0.305

**Note (N = 156), 1: Strongly Disagree, 2; Disagree, 3: Agree, 4: Strongly agree*

Based on Table 5 above, teachers' perception towards digital competence is at a high level, with the overall mean of 3.16 (*SD* = 0.305). This indicates that the participating English teachers in primary schools in Baram exhibits a positive perception towards digital competence.

Two items scored the highest mean. Item P8, (M=3.65, SD=0.504), revealed that a significant majority of the respondents, 32.1% (n=50) agreed and 66.7% (n=104) strongly agreed with this statement. Likewise, item P9 also obtained the highest mean (M=3.65, SD=0.493). 34.0%

(n=53) of the respondents agreed and 65.4% (n=102) of the participants strongly agreed with this statement. The second highest mean (M=3.60, SD=0.491) is portrayed in item P5, which reflects the respondents' willingness for ongoing professional development in regards to digital technologies. Additionally, item P10 scored the third highest mean (M=3.55, SD=0.571) with 39.1% (n=61) and 58.3% (n=91) respondents agree and strongly agree with this statement. Item P10 reflects the respondents' belief of the importance of preparing teachers with the necessary skills and knowledge in incorporating technology effectively in language education.

RQ2: What is the level of digital competence of English teachers in rural primary schools in Baram, Sarawak?

In addressing the second research question, 22 items categorized into six different dimensions were provided to gauge the respondents' level of digital competence. Following their self-assessment, the respondents' level of digital competence was obtained.

The descriptive statistics detailing the respondents' digital competence levels are presented in Figure 3 below.

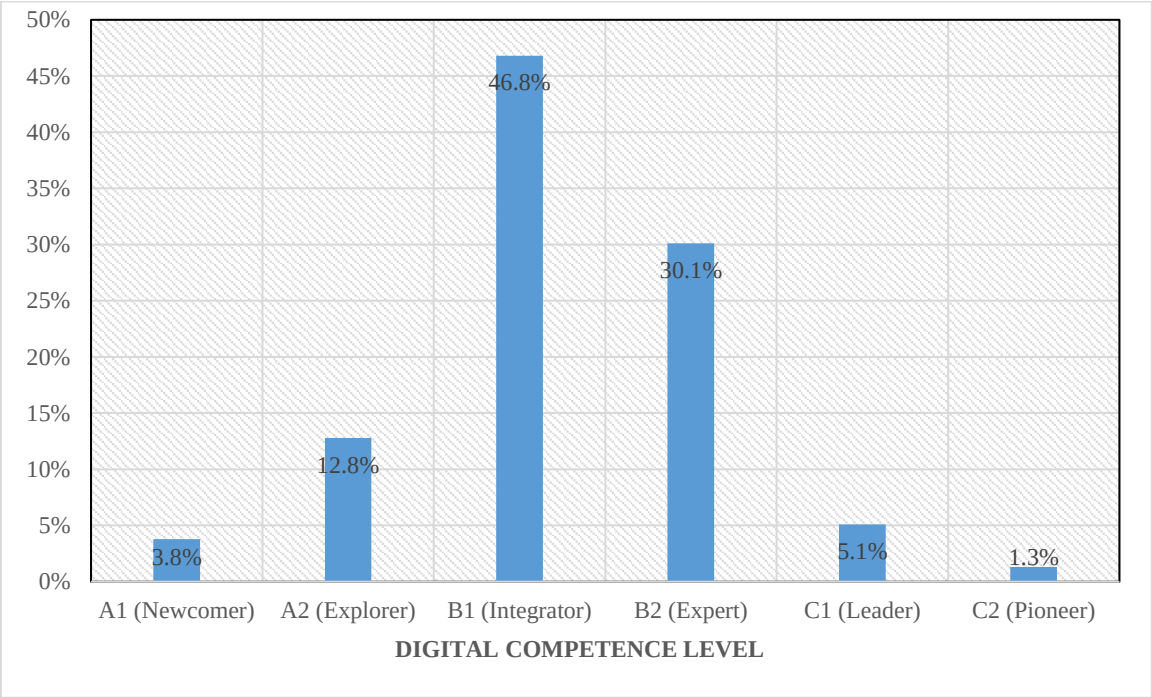

Figure 3: Teachers' digital competence level

Based on the depicted data in Figure 3 above, majority of the participating English teachers, totalling 46.8% (n=73), falls within the B1 (Integrator) competency level, indicating an intermediate level of digital competence. Following closely are the respondents in B2 level (experts) with the second highest percentage of 30.1% (n=47), followed by A2 level (explorers) with a percentage of 12.8% (n=20). In contrast, the C2 (Pioneer) competency level, despite being the highest level of competence, encompasses only 1.3% (n=2) of the respondents. Additionally, 5.1% (n=8) are in the C1 (Leader) level and 3.8% (n=6) are within the A1(Newcomer) competency band, with the latter being the lowest in the competency framework. In summary, the data suggests a prevalent moderate level of digital competence among the participating English teachers.

Table 6 below depicts the descriptive statistics detailing the items utilized in this study in assessing the teachers' level of digital competence.

Table 6
Descriptive statistics of teachers' digital competences

DIMENSION	STATEMENT	M	SD
1 PROFESSIONAL ENGAGEMENT	A1. I use different digital channels to communicate with learners and colleagues whenever appropriate	2.35	0.877
	A2. I use digital technologies to work together with colleagues inside and outside my school	2.59	0.864
	A3. I actively develop my digital competence for teaching and learning	2.29	0.842
	A4. I am aware of and participate in online training opportunities	2.37	0.895
2 DIGITAL RESOURCES	B1. I use different Internet sites and search strategies to find and select digital resources	2.79	0.858
	B2. I create my own digital resources and modify existing ones to adapt them to my needs	1.68	1.010
	B3. I effectively protect personal data (e.g., exams, learners' grades, learners' personal information)	3.15	1.017
3 TEACHING AND LEARNING	C1. I carefully consider how, when, and why to use digital technologies in classroom with my learners, to ensure they are used with added value	2.69	0.935
	C2. I monitor learners' behaviour and interactions in the collaborative digital environments we use	2.52	0.947
	C3. When my students work in groups, they use digital technologies to learn and effectively accomplish learning tasks	1.65	0.995
	C4. I use digital technologies to allow learners to monitor their own learning	1.54	0.959
4 ASSESSMENT	D1. I use digital assessment tools to monitor student' progress	1.82	1.019
	D2. I analyse all data or information available to me to identify learners who need additional support	2.10	.945
	D3. I use digital technologies to provide effective feedback	1.81	0.864
5 EMPOWERING LEARNERS	E1. I consider and address potential difficulties when I create digital assignments for my students	2.17	1.028
	E2. I use digital technologies to offer learners with personalised learning opportunities	1.86	0.905
	E3. I use digital technologies to allows learners to actively participate in class or online	1.88	0.953
6	F1. I teach learners how to check if the information is reliable and to identify fake news	2.01	1.038

FACILITATING LEARNERS' DIGITAL COMPETENCE	F2. I design learning tasks which require learners to use digital means to communicate and collaborate with each other or with an outside audience	1.42	0.916
	F3. I set up assignments which require learners to create digital content (e.g., videos, audios, photos, blogs etc.)	1.08	0.930
	F4. I teach learners how to use digital technology safely and responsibly	2.01	1.035
	F5. I encourage learners to use digital technologies creatively to solve concrete problems	1.65	0.975
	Overall	2.06	0.616

Examining the findings presented in Table 6 above, the overall mean score of the respondents' digital competence is 2.06 (SD=0.616). In general, this mean score suggests that, on average, the respondents positioned themselves slightly above the centre value, showing a trend towards occasional interaction or an intermediate degree of digital competence. The item with the highest mean score (M=3.15, SD=1.017) is item B3 under Dimension 2. Notably, this item is the only item surpassing a mean of 3.00. The second highest mean is also found in the second dimension, which is item B1 (M=2.79, SD=0.858). The third highest mean (M=2.69, SD=0.935) is associated with item C1 which falls under the third dimension of teaching and learning. On the other hand, within Dimension 6, Item F3 obtained the lowest mean (M=1.08, SD=0.930).

The mean and standard deviation for each dimension is also tabulated in Table 7 below for further analysis.

Table 7
Descriptive statistics of teachers' digital competences based on dimensions

	DIMENSION	MEAN	STANDARD DEVIATION
1.	Professional engagement	2.40	0.674
2.	Digital resources	2.54	0.736
3.	Teaching and learning	2.10	0.784
4.	Assessment	1.91	0.808
5.	Empowering Learners	1.97	0.822
6.	Facilitating learners' digital competence	1.63	0.790
	Overall	2.06	0.616

Analysing the findings presented above, Dimension 2 stands out prominently, focusing on how teachers select, evaluate, and modify digital resources to accommodate learners' needs, achieving the highest mean (M=2.54, SD=0.736). Dimension 1 follows closely with the second highest mean (M=2.40, SD=0.674) which addresses teachers' professional engagement with digital technologies. Coming third is Dimension 3 (M=2.10, SD=0.784), which centred around the teaching and learning process with integration of digital technologies. In contrast, Dimension 6, pertaining to how teachers facilitate learners' digital competence, records the lowest mean score of 1.63 (SD=0.790). This aligns with the earlier findings presented in Table 6, in which two items with the lowest means scores were found in Dimension 6. Overall, the respondents in this study exhibit average levels across all six dimensions, without notable

excellence in any specific dimension as indicated by the mean scores ranging from 1.63 to 2.54.

Discussion

English teachers' perception towards digital competence

A notable shift in the educational paradigms have become more evident, with technology continues to play an increasingly crucial role in shaping teaching and learning practices, particularly in the wake of Covid-19. The conventional way of learning has transformed, as digitalization becomes more prominent, compelling teachers to reimagining their pedagogical strategies to meet the current demands in education. The integration of digital tools has become prominent, thus highlighting the needs for developing digital competence among teachers. In light of the findings presented earlier, generally, the participating teachers in this study exhibit a positive perception towards digital competence, as reflected in the high overall mean score (M=3.16, SD=0.305). The finding of this study resonates with other studies done previously (Ishak et al. 2022; Katsarou 2021) which emphasized the importance of embracing digital tools among teachers for enhanced pedagogical practices.

Dwelling in-depth into these items, a significant majority of the respondents, 32.1% (n=50) agreed and 66.7% (n=104) strongly agreed on the importance of developing their digital competence (M=3.65, SD=0.504). This underscores their acknowledgement of the necessity for staying abreast of technological advancements, aligning with the transformative demands of the 4IR. Together with the transformation brought by the 4IR, there is a pivotal emphasis on the needs to nurture a workforce that is capable of propelling innovation, embracing digital technologies, as well as contributing to economic growth (Qureshi et al., 2021). Notably, the World Economic Forum (WEF) predicts a significant majority, with around 65% students entering primary schools today will eventually pursue professions that are currently non-existent (Yusuf et al., 2020). Consequently, the role of teachers in realising these transformations has gained considerable significance, as they are required to mould these future generations in meeting the aforementioned demands.

Concerning the belief in the enhancement of teaching and learning via digital tools, the positive perception demonstrated by the teachers suggested that they acknowledged the transformative potential of digital tools, particularly in English language learning (M=3.65, SD=0.493). The integration of digital tools and ICT in English language learning has been substantiated to yield benefits to both teachers and learners. Positive outcomes were seen through learners' improvement of digital competence, vocabulary acquisition, as well mastery of language content when language, learning content and digital skills were integrated together (Pitarch & Mora, 2021; Ström & Fröjd, 2021). Additionally, the integration of digital tools enabled language learners to acquire English vocabularies subconsciously Ström and Fröjd (2021), as well as fostering better understanding, autonomous learning, and heightened learners' motivation (Alakrash & Razak, 2021; Stefanovic & Klochkova, 2021; Hidayat et al., 2022). These previous studies collectively highlight the transformative potential of digital tools in enhancing learning, underscoring the growing importance of digital competence among teachers in order to effectively leverage these digital tools in teaching and learning.

Furthermore, the positive perceptions among the participating teachers suggest their readiness for pedagogical innovation via the integration of digital tools in teaching and learning. This is reflected from the finding, in which 39.7% (n=62) teachers agreed and 60.2% (n=62) strongly agreed to learn more about digital technologies (M=3.60, SD=0.491). Having

a positive perception, particularly towards digital tools can significantly impact one' behaviour (Yunus et al., 2016). In the context of this study, positive perception towards digital competence would affect teachers' behaviour in developing their digital competence, as well as integrating the digital tools in their teaching and learning. As they perceive that the digital tools as useful and easy to use, the intention to adapt and adopt ICT in the class will be increased (Kallas & Pedaste, 2022; Lilian, 2022). Therefore, it is important to foster an optimistic attitude towards technology among teachers, as mindset that sees digital tools as valuable assets can be beneficial.

English teachers' level of digital compe
tence

Findings of this study indicated that majority of the participating English teachers, totalling 46.8% (n=73), falls within the B1 (Integrator) level, followed by the experts in B2 level with the percentage of 30.1% (n=47). Overall, this finding suggests that the English teachers in this study exhibit an intermediate level of digital competence. The finding of this study echoes with prior studies (Benali et al., 2018; Dias-Trindade & Moreira, 2020; Karunaweera & Lee, 2021; García-Delgado et al., 2023). According to Redecker and Punie (2017), the B1 level, also known as the "Integrators" are described to have the following characteristics:

> Integrators experiment with digital technologies in a variety of contexts and for a range of purposes, integrating them into many of their practices. They creatively use them to enhance diverse aspects of their professional engagement. They are eager to expand their repertoire of practices. They are, however, still working on understanding which tools work best in which situations and on fitting digital technologies to pedagogic strategies and methods. Integrators just need some more time for experimentation and reflection, complemented by collaborative encouragement and knowledge exchange to become Experts. (Redecker & Punie 2017, p.30)

As presented in Table 6, three items scored the highest mean score: Item B3, 'I effectively protect personal data (e.g., exams, learners' grades, learners' personal information)' (M=3.15, SD=1.017), Item B1, 'I use different Internet sites and search strategies to find and select digital resources' (M=2.79, SD=0.858) and Item C1, 'I carefully consider how, when, and why to use digital technologies in classroom with my learners, to ensure they are used with added value' (M=2.69, SD=0.935). These items align with the definition for B1 competency level. The respondents are actively exploring digital technologies in diverse contexts and for varied purposes. They also show an ongoing process of discerning the most effective tools for specific situations for optimal application, as indicated in item C1.

Upon detailed examination of the dimensions, the respondents displayed average competency, without any notable excellence in any specific dimension (refer Table 7). This is evident from the mean scores, which ranging from 1.63 to 2.54, with none of the dimension surpassing the mean of 3.00. Looking closely into the three dimensions with the highest mean scores (digital resources, professional engagement, teaching and learning), these dimensions encompass the competences that lie at the core of digital teaching (Redecker & Punie, 2017). These involve tasks such as identifying and selecting suitable digital resources, modifying and utilizing them for instructional practices, safeguarding sensitive digital content and engaging with digital technologies for ongoing professional development. It shows teachers' active

experimentation with digital technologies across diverse purposes and contexts, aligning with their attainted competency level.

In contrast, Dimension 6, deals with how teachers facilitate learners' digital competence, records the lowest mean score (M=1.63, SD=0.790). The lower score may be attributed to the more advanced nature of this dimension, requiring teachers to foster an environment in which learners can creatively and responsibly use digital technologies for information, communication, content creation and problem-solving (Benali et al., 2018; García-Delgadoe et. Al., 2023). Given that the participating teachers in this study are currently at the B1 level (integrators), their engagement of these digital tools is primarily centred on their own professional and pedagogic competences, with less emphasis on learners' competences.

These findings provide a crucial insight into the evolving dynamics of teachers' engagement with digital technology. There is a commendable progress observed through teachers' integration of these digital tools into their teaching practices, which signifies their positive inclination towards digital adoption. However, it is also important to recognize the identified gap, which in this study is the teachers' lack of facilitation for students' digital competence. Therefore, there is a need for an effective continuous professional development (CPD) program, specifically tailored and personalised to address the identified gaps. The CPD program must also be ongoing, collaborative, and contextualized, with more focus on practical and experimental training. Besides, teachers should actively design learning activities that empower students to create digital content and engage in collaborative communication. This includes development of multimedia content, such as videos, audios, photos, presentations, and blogs. By doing so, it does not only contribute to their digital competence but also fosters creativity and cultivate a digital culture, both for students and teachers.

Conclusion

Rapid advancement of technology in this 21st century learning has transformed the landscape of how people learn and acquire knowledge. This dynamic landscape has shifted drastically after the Covid-19 pandemic, in which both teachers and learners were forced to equip themselves with digital skills and competencies in order to stay relevant. Hence, this study was carried out with the purpose of examining the perception of English teachers in regards to their digital competence, as well as actual level of digital competence that they possess. Findings revealed that the participating teachers exhibit a positive perception towards digital competence as they viewed it as significant. They acknowledged the transformative potential of digital tools in enhancing language learning, as well as expressed their willingness to learn more about digital tools. In terms of their digital competence, these teachers are currently navigating at the B1 or known as the "integrator" level. While this level shows a commendable competency, they could progress to a higher level with experimenting more with digital tools.

While this study has revealed meaningful insights into teachers' digital competence, it is crucial to acknowledge its limitations. As aforementioned, the current study only focused exclusively on English teachers teaching in rural schools Baram district. Therefore, results could not be generalised to the entire English teacher's population. For future research, it is recommended to consider expanding the sample size by involving more teachers from other districts, as well teachers teaching various subjects. Besides, the scope of the study can be broadened by incorporating urban schools as well. By doing so, a comparative analysis can be conducted to identify any significant differences of teachers' digital competence level in rural

versus urban schools. This analysis could also provide insights on the unique challenges, opportunities, as well as the relevant strategies needed to improve digital competence among teachers across various settings. Besides, future research could be done to explore the challenges that teachers face in developing their digital competence. These valuable insights would be able to help the administration as well as the policymakers to provide relevant interventions to help teachers to develop their digital competence into a higher level, thus enhancing the quality of teaching and learning.

References

ACAPS. (2020). *Global analysis Covid-19: Impact on education.* ACAPS.

Alakrash, H. M., & Razak, N. A. (2021). Technology-Based Language Learning: Investigation of digital technology and digital literacy. *Sustainability, 13*(12304), 1-17. doi:https://doi.org/10.3390/su132112304

Antonietti, C., Cattaneo, A., & Amenduni, F. (2022). Can teachers' digital competence influence technology acceptance in vocational education? *Computers in Human Behavior*, 1-9.

Atmowardoyo, H. (2018). Research methods in TEFL studies: Descriptive research, case study, error analysis, and R & D. *Journal of Language Teaching and Research, 9*(1), 197-204. doi:http://dx.doi.org/10.17507/jltr.0901.25

Benali, M., Kaddouri, M., & Azzimani, T. (2018). Digital competence of Moroccan teachers of English. *International Journal of Education and Development using Information and Communication Technology (IJEDICT), 14*(2), 99-120.

Bucur, N.-F., & Popa, O.-R. (2017). Digital competence in learning English as a foreign language - opportunities and obstacles. *The 12th International Conference on Virtual Learning ICVL 2017* (pp. 258-263). Romania: Prahova County Center for Educational Assistance and Resources.

Cabero-Almenara, J., Gutiérrez-Castillo, J. J., Palacios-Rodríguez, A., & Barroso-Osuna, J. (2020). Comparative European DigCompEdu Framework (JRC) and Common Framework for Teaching Digital Competence (INTEF) through expert judgement. *Linguagem e Tecnologia, 14*(1), 1-13.

Cabero-Almenara, J., Romero-Tena, R., & Palacios-Rodríguez, A. (2020). Evaluation of Teacher Digital Competence Frameworks through expert judgement: the use of the expert competence coefficient. *Journal of New Approaches in Educational Research, 9*(2), 275-293. doi:https://doi.org/10.7821/naer.2020.7.578

Chavez, J. M., Hernandez, Y. U., Aparcana, R., Osores, J. V., Alcoser, S. D., & Lozano, R. A. (2020). Integration of ICTS and digital skills in times of the pandemic Covid-19. *International Journal of Higher Education, 9*(9), 11-20. doi:10.5430/ijhe.v9n9p11

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, Mixed Methods Approaches* (3rd Edition ed.). California: SAGE Publications Ltd.

Creswell, J. W. (2014). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research* (4th ed.). Edinburgh: Pearson Education Limited.

Demissie, E. B., Labiso, T. O., & Thuo, M. W. (2022). Teachers' digital competencies and technology integration in education: Insights from secondary schools in Wolaita Zone, Ethiopia. *Social Sciences & Humanities Open*, 1-9.

Dias-Trindade, S., & Moreira, J. A. (2020). Asssessment of high school teachers on their digital competences. *Magis, Revista Internacional de Investigación en Educación, 13*, 1-21. doi:10.11144/Javeriana.m13.ahst

Fernández-Gómez, E., Martín-Salvador, A., Luque-Vara, T., Sánchez-Ojeda, M. A., Navarro-Prado, S., & Enrique-Mirón, C. (2020). Content validation through expert judgement of an instrument on the nutritional knowledge, beliefs, and habits of pregnant women. *Nutrients*, 1-13. doi:10.3390/nu12041136

García-Delgado, M. Á., Rodríguez-Cano, S., Delgado-Benito, V., & Lozano-Álvarez, M. (2023). Emerging technologies and their link to digital competence in teaching. *Future Internet, 15*(140). doi:https://doi.org/10.3390/fi15040140

Hidayat, D. N., Lee, J. Y., Mason, J., & Khaerudin, T. (2022). Digital technology supporting English learning among Indonesian university students. *Springer Open, 17*(23), 1-15. doi:https://doi.org/10.1186/s41039-022-00198-8

Huei, L. S., Yunus, M. M., & Hashim, H. (2021). Strategy to Improve English Vocabulary Achievement during COVID-19 Epidemic. Does Quizizz Help?. Journal of Education and e-Learning Research, 8(2), 135-142.

Ishak, N., Din, R., & Othman, N. (2022). Teachers' perceptions and challenges to the use of technology in teaching and learning during Covid-19 in Malaysia. *International Journal of Learning, Teaching and Educational Research, 21*(5), 281-308. doi:https://doi.org/10.26803/ijlter.21.5.15

Kallas, K., & Pedaste, M. (2022). How to improve the Digital Competence for E-Learning? *Applied Science, 12*(6582), 1-12. Retrieved from https://doi.org/10.3390/app12136582

Karunaweera, A., & Lee, K. (2021). Measuring digital competence: An exploratory study mapping digital competence profiles of Sri Lankan English language teachers. *Asia Pacific Journal of Educators and Education, 36*(1), 93-112. doi:https://doi.org/10.21315/apjee2021.36.1.

Katsarou, E. (2021). The effects of computer anxiety and self-efficacy on L2 learners' self-perceived digital competence and satisfaction in higher education. *Journal of Education and e-Learning Research, 8*(2), 158-172. doi:https://doi.org/10.20448/JOURNAL.509.2021.82.158.172

Lilian, A. (2022). Motivational beliefs, an important contrivance in elevating digital literacy among university students. *Heliyon*, 1-10. Retrieved from https://doi.org/10.1016/j.heliyon.2022.e11913

Mazlan, Z. Z., Mohamad Ali, M. b., & Munakase, M. (2022). Unpacking Malaysian teacher's preferences in using technology during Covid-19 pandemic. *International Technology and Education Journal, 6*(1), 1-13.

Mellinger, C. (2020). Methodological considerations for survey research: validity, reliability and quantitative analysis. *Linguistica Antverpiensia, New Series: Themes in Translation Studies*, 172-190.

Mhlanga, D., & Moloi, T. (2020). COVID-19 and the digital transformation of education: What are we learning on 4IR in South Africa? *Education Sciences, 10*(180), 1-11. doi:10.3390/educsci10070180

Ministry of Education. (2013). Malaysia Education Blueprint (2013-2025).

Ministy of Education and Higher Education Canada. (2019). *Quebec Digital Competency Framework.* Quebec, Canada: Ministy of Education and Higher Education Canada.

Pitarch, R. C., & Mora, M. A. (2021). Developing language, content, and digital competence through international telecollaborative project work. *Teaching English with Technology, 21*(1), 29-47.

Qureshi, M. I., Khan, N., Raza, H., Imran, A., & Ismail, F. (2021). Digital technologies in education 4.0. Does it enhance the effectiveness of learning?: A systematic review. *iJIM, 15*(4), 31-46.

Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences, 6*(2), 1-5.

Rahimi, A. R., & Tafazoli, D. (2022). The role of university teachers' 21st-century digital competence in their attitudes toward ICT integration in higher education: Extending the theory of planned behavior. *The JALT CALL Journal, 18*(2), 238-263. Retrieved from https://doi.org/10.29140/jaltcall.v18n2.632

Ramalingam, S., Wan Yusof, W. B., Mohd Yusof, A. B., Salamat, Z. B., Zulkifeli, M. B., Mohd Yusof, A. B., & Ahmad Noor, M. B. (2021). Remote teaching & digital platform during pandemic: Teacher education and teacher competence effects among teachers and principles in Malaysia. *Advances in Social Sciences Research Journal (ASSRJ), 8*(5), 457-472. Retrieved from http://dx.doi.org/10.14738/assrj.85.10246

Rashid, M. H., & Sipahi, E. (2021). The importance of quantitative research in language testing and assessment: In the context of social works. *Linguistics and Culture Reviews, 5*(S1), 317-330. doi:https://doi.org/10.37028/lingcure.v5nS1.1413

Redecker, C., & Caena, F. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators. *Eur J Educ, 54*, 356–369. Retrieved from https ://doi.org/10.1111/ejed.12345

Redecker, C., & Ghomi, M. (2019). Digital Competence of Educators (DigCompEdu): Development and evaluation of a self-assessment instrument for Teachers' Digital Competence. *Proceedings of the 11th International Conference on Computer Supported Education (CSEDU 2019)* (pp. 541-548). Seville: European Commission, Joint Research Centre (JRC),. doi:10.5220/0007679005410548

Redecker, C., & Punie, Y. (2017). *European Framework for the Digital Competence of Educators.* Luxembourg: Joint Research Centre.

Rizza, C. (2014). Digital Competences. *Springer Science and Business Media Dordrecht*, 1-6. doi:10.1007/978-94-007-0753-5_731

Stefanovic, S., & Klochkova, E. (2021). Digitalisation of teaching and learning as a tool for increasing students' satisfaction and educational efficiency: using smart platforms in EFL. *Sustainability, 13*(4892), 1-14. doi:https://doi.org/10.3390/su13094892

Ström, J., & Fröjd, E. (2021). *The effects of digital tools on EFL/ESL learners' vocabulary acquisition/learning.* Master Thesis, Malmo University, Stockholm.

Sürücü, L., & Maslakçi, A. (2020). Validity and reliability in quantitative research. *Business and Management Studies: An International Journal (BMIJ)*, 2694-2726.

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The Digital Competence Framework for Citizens.* Luxembourg: European Union.

Yunus, M. M., Salehi, H., & Amini, M. (2016). EFL Teachers' Cognition of Teaching English Pronunciation Techniques: A Mixed-Method Approach. *English Language Teaching, 9*(2), 20-42.

Yunus, M. M., Tuan, J. L. K., & Salehi, H. (2013). Using blogs to promote writing skill in ESL classroom. arXiv preprint arXiv:1305.6358.

Yusuf, B., Walters, L. M., & Sailin, S. N. (2020). Restructuring educational institutions for growth in the Fourth Industrial Revolution (4IR): A systematic review. *iJET, 15*(3), 93-109. Retrieved from https://doi.org/10.3991/ijet.v15i03.11849