English Language Teacher's Multimedia Knowledge in Teaching Using Technology

Daniel Ginting[1], Teguh Sulistyo[2], Nining Ismiyani[3], Murpin Josua Sembiring[1], Raida Asfihana[4], Arfan Fahmi[5], Gusti Ayu Made Rai Suarniti[6], & Yani Sri Mulyani[7]

[1] Universitas Ma Chung, Indonesia

[2] Universitas PGRI Kanjuruhan, Malang, Indonesia

[3] Universitas Tanjungpura, Indonesia

[4] Universitas Islam Negeri Antasari, Banjarmasin, Indonesia

[5] Institute Teknologi Sepuluh Nopember, Indonesia

[6] Universitas Warmadewa, Indonesia

[7] Universitas Bina Sarana Informatika, Indonesia

Correspondence: Daniel Ginting, Universitas Ma Chung, Indonesia.

Received: April 16, 2022 Accepted: July 22, 2022 Online Published: July 25, 2022

doi:10.5430/wjel.v12n6p184 URL: https://doi.org/10.5430/wjel.v12n6p184

Abstract

The present study investigates English as a Foreign Language (EFL) teacher's multimedia knowledge and practices in remote teaching during the COVID-19 pandemic. Firstly, it focuses on determining whether some teachers' demographics (gender, nationality, academic qualification, type of institution, perceptions) correspond to teachers' multimedia knowledge. Secondly, it reveals the teacher's practices in implementing multimedia in EFL classrooms. This present study surveyed 120 participants (Male=33 and Female=87) from Indonesia (N=108) and outside Indonesia (N=12). They answered a questionnaire to identify their demographic information and took a literacy test to examine their multimedia knowledge. The findings indicate that of the demographics, only gender correlates significantly to teacher's multimedia knowledge. It was also found that teachers have worked hard to bridge the gaps of remote teaching by implementing multimedia regardless of the barriers they have met. It implies that multimedia should be applied not only in remote teaching but also in face-to-face and blended learning due to the power of multimedia in language learning.

Keywords: multimedia knowledge, demographic, remote teaching; COVID-19 Pandemic

1. Introduction

The COVID19 outbreaks have forced teachers to provide remote teaching and forced students to join online classes using digital platforms more often than the traditional teaching mode. Teaching students in a temporary shift from normal modes of teaching because of threats like the COVID19 is generally called emergency remote teaching (Bozkurt & Sharma, 2020). During the current pandemic, teachers teach students online. This teaching mode is intended to ensure that students continue learning while at the same time ensuring they are all in good health. Heckart et al. (2020) and Hu et al. (2021) reported that some schools had conducted remote teaching quite well. However, some other researchers (Morgan, 2020; Ginting et al., 2020; Skulmowski et al., 2020; Brown & Krzic, 2021; Starkey et al., 2021; Sumardi & Nugrahani, 2021) mention that many teachers and students still face difficulties, such as the students' presence, digital problems such as internet connectivity, infrastructure, and system, interaction, interest, and commitment, literacy problems, such as the inability of distance education to improve student's skills in written expression and inadequate synchronous/online class count and duration, and poor parent-student-teacher cooperation.

A pandemic is a trigger and serves as a potent reminder to all educators about technology's critical role and benefits in education. For example, Aydin and Erol (2021) mention that multimedia materials allow bidirectional interaction and improve inter-institutional cooperation to solve digital problems. Bond (2021), Sulistyo et al. (2021), and Azubuike et al. (2021) suggested that multimedia with a variety of sophisticated features can promote engagement in

student learning. Ginting et al. (2021) and Gonzalez-Frey et al. (2021) emphasize that multimedia is a vital aspect of encouraging and improving the quality of online classes in terms of communication among students and faculty members, and flexible assignments, virtual interaction, and support during online instruction.

Do teachers already have sufficient knowledge to design media according to appropriate pedagogical principles? This question becomes even more crucial as educators worldwide have shifted to teaching students online. Truthfully, teachers' dependence on technology will always continue. Whether or not learning is successful is determined by the multimedia quality teachers design and present to the students. From the perspective of the cognitive load theory of multimedia learning (CLT), multimedia refers to a tool making us easy to learn something through words and pictures (Sweller, 1994). Moreover, Kalyuga et al. (1998) mention that good media stimulates students' brains to integrate new information with prior knowledge without overloading students' working memory. The learning process in which learners reconstruct their knowledge as a network of connected facts and concepts and use this knowledge construct to make sense of new information (Egan & Schwartz, 1979; Anderson & Bower, 1983; Ginting et al., 2022) only occurs when teachers have good media. Thus, producing good media depends on the teacher's knowledge of multimedia. Several studies showed the advantages of multimedia in enhancing language teaching and learning at all levels of education: primary school (Li & Ni, 2011; Arrow & Finch, 2013; Gürkan, 2019; Li, 2017), secondary school (Wekke & Hamid, 2013; Jozwik et al., 2021; Kranthi, 2017; Luthfiyyah et al., 2021) and higher education settings (Sayeski et al., 2015; Schneider, 2015; Al-swalha & Suliman, 2017; Blevins, 2018; Çetin, 2021). Thus, these studies imply that multimedia enhances students' learning achievement and provides teachers with better teaching strategies.

Previous research on multimedia has shown a significant relationship to the quality of learning. However, nearly all of these studies were carried out before the pandemic. Therefore, a critical question arises: do teachers know how to design and teach multimedia during a pandemic properly? Do they have sufficient knowledge of multimedia principles appropriately? Research on teachers' multimedia knowledge in the English language teaching context, especially in the pandemic literature study, is still under-researched. Thus, this gap justifies the need for further study. This study's results imply recommendations for policymakers in preparing relevant teacher professional development programs. In the context of 21st-century education, teachers are expected to have the pedagogical and content knowledge and embrace technological knowledge.

The present study aims to investigate EFL teachers' multimedia knowledge during the COVID-19 pandemic in remote teaching practices as formulated below:

a. Is the multimedia knowledge of the female English teachers significantly different from that of the male English teachers?
b. Is the multimedia knowledge of English teachers from Indonesia significantly different from that of English teachers outside Indonesia?
c. Is the multimedia knowledge of the English teachers with doctoral degrees significantly different from that of the English teachers with a master's degree and the English teachers with a bachelor's degree?
d. Is the multimedia knowledge of English teachers in higher education significantly different from that of English teachers in elementary or secondary school?
e. Is the multimedia knowledge of the English teachers with a "positive" perception significantly different from that of the English teachers with a "negative" perception?
f. Is there a relationship between gender, nationality, education, work, and perception with multimedia knowledge?

2. Method

The research designs

The present study employed a survey design to investigate English as a Foreign Language (EFL) teachers' multimedia knowledge and practices in remote teaching during the COVID-19 pandemic. In order to collect the data, the researchers administered a questionnaire focusing on the demographics of the respondents and a literacy test to examine their multimedia knowledge.

The initial part of the questionnaire was related to demographic information from respondents, such as gender, nationality, education, and current jobs. Meanwhile, the second part of the questionnaire measured their multimedia knowledge. The last part explored their perceptions about remote teaching class management. The questionnaire quality test was run before the questionnaire was distributed.

The instrument

The multimedia literacy test consisted of nine multiple-choice questions representing nine multimedia principles: coherence, redundancy, time contiguity, spatial contiguity, personalization, multimedia, multimodality, and signaling. The test required no prior knowledge of CLT even though it was based on CLT principles. However, respondents found the best answers while taking the test, in contrast to a test of already existing knowledge. Each question consisted of four options; each correct answer was given a score of 1, and each incorrect answer scored 0. The total score range was between 0-9. The higher the score, the higher the teachers' level of knowledge about multimedia knowledge/literacy.

The validity test was conducted to show how closely the measuring instrument states what it should measure. In this study, face validity was used by comparing the contents of the measuring instrument with the appropriate material and by conducting discussions and consultations with two independent experts (Sugiyono, 2006). The content validity is carried out by calculating the correlation between the instrument item scores and the total r score (coefficient correlation to total), with a significant level (p) <0.05 (Lin, Wang, Li, & Huang, 2007). Based on the correlation between the score of the instrument item and the total score (coefficient correlation to total), the range of r values (coefficient correlation to total) is between 0.313**–0.658**. All questions had r p<0.05. Based on the reliability analysis, the value of Cronbach Alpha is 0.7, which means this instrument has an appropriate level of consistency.

The respondents

The respondents comprised thirty-three (27.5%) male English teachers and eighty-seven (72.5%) female English teachers. Of the one hundred and twenty participants, one hundred and eight respondents come from Indonesia, four people from Cape Verde, and one from each of the following: Sri Lanka, Russia, Syria, Libya, Thailand, Burkina Faso, Serbia, and Senegal. In terms of employment, thirty people (25%) work as English teachers in primary schools, and sixty-two (52%) work as English teachers in secondary schools. Meanwhile, twenty-four (20%) work as professors in universities. We paid attention to the informed consent procedure. We got permission from them to collect the data; we protect their privacy by not sharing their private information publicly. This study has some limitations, for example, in determining research variables to study, such as gender, teachers' education, perceptions of online learning, nationality, and obtaining the research samples. Other variables such as age and the longevity of the profession are not included. Another limitation is that this study did not examine how far teachers were implementing blended learning before the pandemic. Carrying out a cross-sectional study, the authors collected data using a Google form questionnaire distributed to respondents through teachers and English lecturers from within and outside the country between March 30 and May 2021. Thus, the conclusions of this paper must be taken with caution.

3. Results and Discussions

The present study sought to determine whether male and female English teachers differ significantly in multimedia knowledge. Table 1 shows the multimedia knowledge of each gender (Male = 33 and Female = 87), and females obtained a higher mean score than males.

Table 1. The Multimedia Knowledge of Each Gender

No	Gender	N	Mean	SD
1	Male (1)	33	3,42	1,46
2	Female (2)	87	4,02	1,81

Meanwhile, Figure 1 indicates a significant difference in multimedia knowledge between male and female teachers.

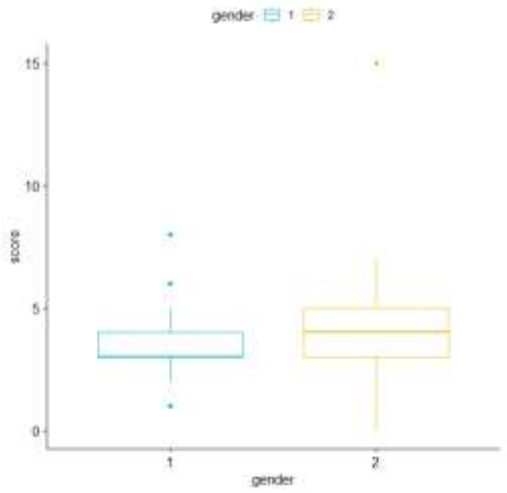


Figure 1. Male and female teachers' multimedia knowledge

A Mann-Whitney computation revealed a statistically significant difference between female and male English teachers since the value obtained is 0.031, lower than 0.05. Female teachers have higher multimedia knowledge in remote teaching practices. This finding is in line with some studies (Al-swalha & Suliman, 2017; Hamzah et al., 2014), which revealed that multimedia is affected by gender and academic qualification. Conversely, Altawallbeh et al. (2015) and Hina et al. (2017) mention that gender does not differ in multimedia knowledge. This finding suggests that teachers need to upgrade their multimedia knowledge and practices in remote teaching modes since they strive to embrace new technologies to overcome limitations arising from the tyranny of distance (Trajanovic et al., 2010; Cai, 2012; Karipi, 2019) to add student-student and teacher-student connectedness (Sulistyo et al., 2021).

Next, this study investigates the multimedia knowledge of EFL teachers from Indonesia (N=108) and other countries (N=12), as seen in Table 2 and Figure 2.

Table 2. Multimedia knowledge based on nationalities

No	Nationality	N	Mean	SD
	Indonesian (1)	108	3,86	1,74
	Non-Indonesian (2)	12	3,83	1,80

Table 2 indicates that the mean score difference is minimal or statistically equal. There is no significant difference in multimedia knowledge between EFL teachers from Indonesia and outside Indonesia, as shown in Figure 2.

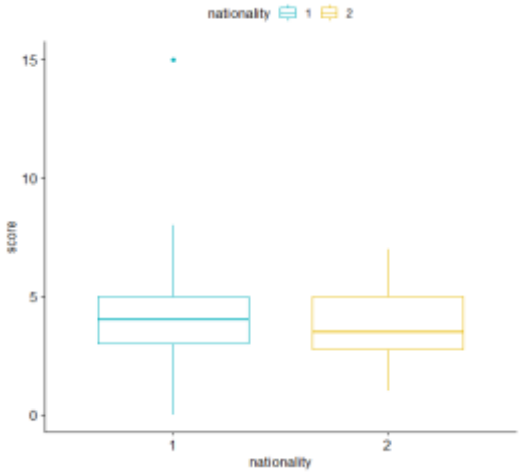


Figure 2. Indonesian and Non-Indonesian EFL teachers' multimedia knowledge

Figure 2 illustrates the computation result using Mann-Whitney, showing no statistically significant difference between the multimedia knowledge of EFL teachers from Indonesia and outside Indonesia. The value obtained is 0.996, indicating no statistical difference between the two mean scores because they are higher than 0.05. The pandemic seems to force all teachers around the world to apply remote teaching so that they adjust themselves to the

new everyday lives of teaching in Namibia, as stated by Karipi (2019), Hong Kong (Hu et al., 2021), Turki (Aydin & Erol, 2021), Indonesia (Sulistyo et al., 2021) and other countries. Despite internet connectivity and infrastructure, the pandemic has forced all teachers to strive to be digitally literate (Aydin & Erol, 2021; Sulistyo et al., 2021; Gonzalez-Frey et al., 2021). This rapid change might be the main reason why there is no significant difference between multimedia knowledge in some countries. Thus, regardless of the nationalities of the EFL/ESL teachers, multimedia media should be the tools used in the classroom since multimedia has the potential to support teaching and learning processes in both face-to-face and online modes (Ruscher et al., 2010; Mantiri, 2014; Aydin & Erol, 2021).

The third survey question dealt with the academic qualifications of participants. Three levels were used: undergraduate, master, and doctoral. Table 3 shows the result of the mean scores of the three levels.

Table 3. The EFL teachers' multimedia knowledge is based on teachers' academic qualification

No	Academic Qualification	N	Mean	SD
1	Undergraduate (1)	31	3,55	1,39
2	Magister (2)	66	3,94	2,01
3	Doctor (3)	23	4,04	1,26

Table 3 shows that the majority of the teachers (N=66) have master's degrees, followed by undergraduate (N=31) and doctoral degrees (N=23). The mean scores of the three groups indicate that the doctoral group has a higher mean score than the other two. Somehow, the computation result using the Kruskal-Wallis rank-sum test does not show a significant difference, as presented in Figure 3.

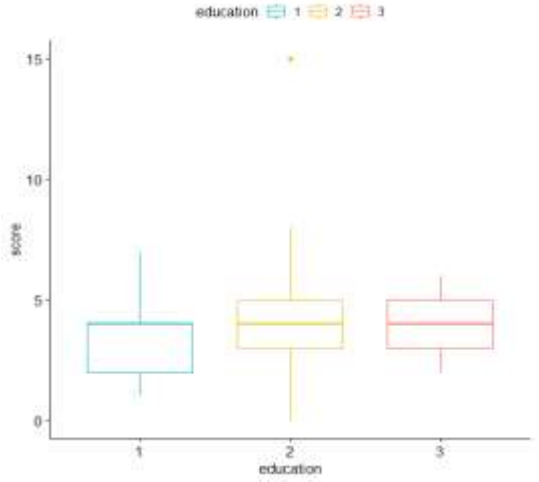


Figure 3. The computation of the Kruskal-Willis rank-sum test on academic qualification

Figure 3 shows that a value of 0.4812 was obtained from the computation of the participants' academic qualifications and multimedia knowledge. It is higher than the 0.05 significance level. It indicates no significant difference among the three levels of participants. It implies that levels of education do not correlate to the teachers' competencies in understanding and applying multimedia in remote teaching. This finding is in harmony with the results of other studies (Hamzah et al., 2014; Hina et al., 2017). It is strongly assumed that teachers' digital literacy increased similarly across academic qualifications due to the sudden change in the teaching-learning process from face-to-face to remote teaching because of the pandemic. Thus, teachers were forced to be more digitally literate since multimedia was a promising avenue for instruction (Sayeski et al., 2015; Aydin & Erol, 2021), so multimedia knowledge was needed (Wekke & Hamid, 2013).

The fourth question of the present study dealt with teachers' multimedia knowledge and the type of institution where they are teaching (see Table 4).

Table 4. Teachers' multimedia knowledge and type of institution

No	Institution	N	Mean	SD
1	Tertiary (1)	15	3,07	1,39
2	Secondary (2)	32	4,03	2,51
3	Primary (3)	73	3,95	1,32

Table 4 shows that most of the respondents teach at elementary school (N=7), followed by secondary school (N=32) and tertiary or university level (N=15). The mean scores imply that they have similar multimedia knowledge. The

statistical computation is presented in Figure 4.

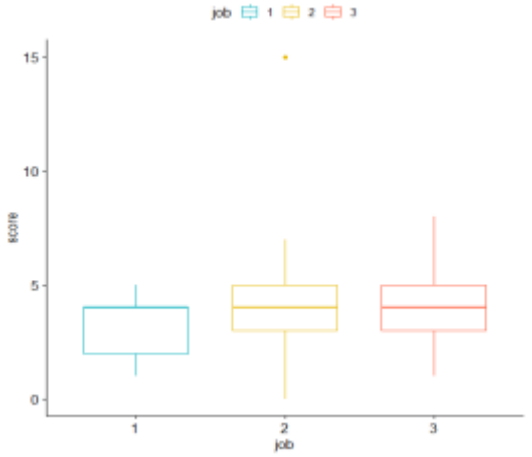


Figure 4. The computation of the Kruskal-Willis rank-sum test on the type of institution

The statistical computation in Figure 4 proves no statistical difference among the participants' mean scores based on their institution or level of education. The value obtained from the Kruskal-Willis rank-sum test on the participants' institution is 0.1402, which is higher than 0.05. Thus, it is concluded that the participants' institution does not correlate significantly to the participant's multimedia knowledge level.

Karipi (2019) suggests that distance educators are more familiar with new technologies or multimedia to minimize the limitations of remote teaching. Last, teachers' perceptions of multimedia knowledge were also investigated. The majority (103) view remote teaching positively, and the remainder (N=16) have negative perceptions (see Table 5). Meanwhile, the statistical computation in Figure 5 indicates whether teachers' perceptions of multimedia correlate to their multimedia knowledge.

Table 5. Teachers' perceptions towards multimedia knowledge

No	Perception	N	Mean	SD
	Negative (1)	16	4	1,46
	Positive (2)	103	3,83	1,79

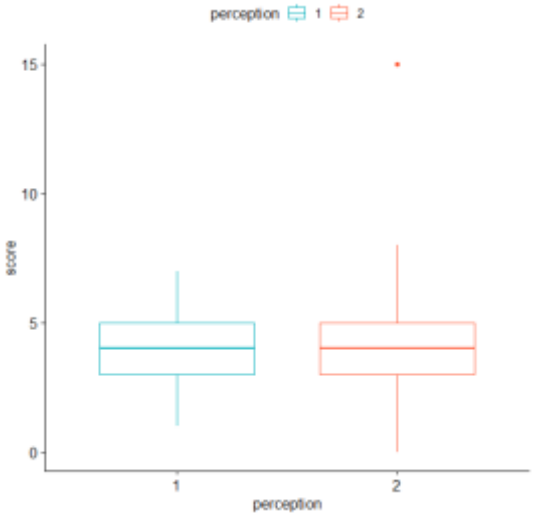


Figure 5. Teachers' perceptions of multimedia

Even though the negative perception group has a higher mean score, there is statistically no significant difference between the two groups. They still have similar multimedia knowledge since the value obtained is 0.5579, which is higher than 0.05. It is concluded that they have equal multimedia knowledge when applying remote teaching modes, whatever their perceptions of multimedia. The rapid change of teaching modes forced teachers to equip themselves with multimedia knowledge resulting in different perceptions of remote teaching. It is in line with a study that reports

teachers have different behaviors regarding remote teaching (Dijkema et al., 2019). However, Hina et al. (2017) reported that their experiences influence teachers' perceptions of teaching.

Teachers should be prepared in the teaching and learning process regardless of gender, academic qualification, nationality, type of institution, and perceptions towards multimedia. Teachers who used technology and practiced blended learning before the pandemic had easier transitions to remote teaching for both themselves and their students, and most teachers learned remote teaching strategies and tools while they were teaching remotely. The study suggests that in-service teacher training and support and remote professional development programs would enable teachers to develop the knowledge and skills to teach with technology in any format or situation, including online, remote, or blended settings (Trust & Whalen, 2020).

Besides investigating the demographic factors of the teachers in remote teaching, the present study also highlights the implementation of multimedia in remote teaching. First, this survey asks the teachers about the design and delivery of instruction in teleconferences. The majority (61.7%) chose D: combining method A and method B by integrating music and animation when explaining the materials using PowerPoint presentations (see Figure 6). Meanwhile, 7.5% chose method A in which teachers explain the topics using PowerPoint presentations accompanied by background music. Ten percent of all respondents choose method B, which is to explain the topics using animation. Many teachers thought that background music and animated objects made their presentations attractive, thus motivating and engaging students in learning. According to the teachers, background music will likely generate a relaxing atmosphere. Meanwhile, providing animated objects such as famous cartoon characters or moving animals keeps their students entertained and engaged in learning.

It is interesting to note that method A, method B, and the combination of both methods hinder students from learning new material. While listening to the teacher's explanation simultaneously, background music or animated objects will likely result in students' split attention (Kalyuga, Chandler, & Sweller, 1999). Background music and animation create an extraneous load that drains students' cognitive energy because those two extrinsic elements do not benefit schema acquisition (de Jong, 2010). The extraneous cognitive load is associated with diverting cognitive resources on activities irrelevant to performance and learning. In addition to the background music and animation, external design-related factors imposing extraneous cognitive load may take various forms such as direct instruction, exploratory environments, use of various modes (verbal and pictorial), and modalities (Kalyuga, 2009). However, Kalyuga (2009) said that the extraneous load is not a problem if the topic of instruction is not too complex. That is, students, understand enough about the topic and have low interactivity. On the other hand, the extraneous load becomes a severe problem if the topic of instruction is entirely new to students.

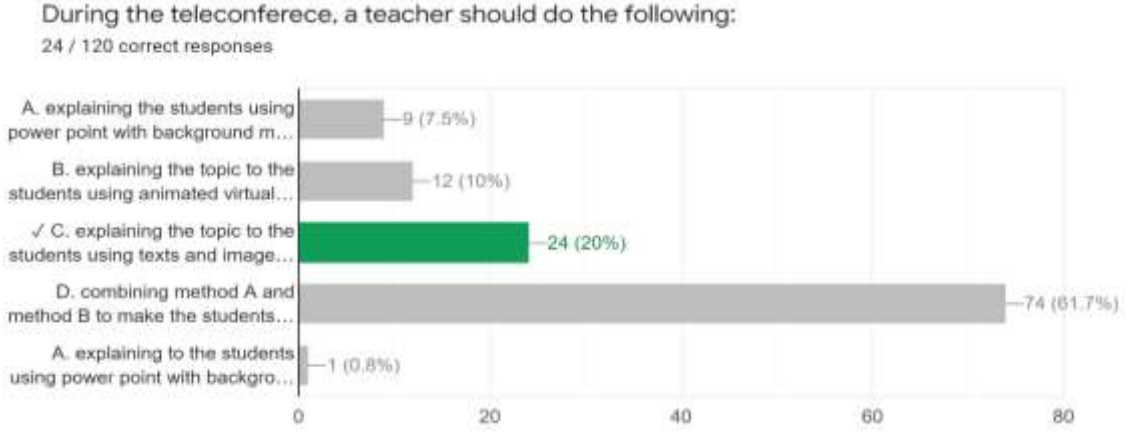


Figure 6. Teachers' knowledge of the coherence principle

(method C). Instead of using extrinsic elements to distract attention, these teachers explain new topics to their students using PowerPoint presentations containing relevant text and pictures. Being relevant means that the instructional materials in texts, pictures, and narrated explanations contain coherent elements that promote learning. Faced with these materials, students exert their cognitive capacity for necessary processing or generative load. This way, the students organize the essential material and integrate it with prior knowledge (Kalyuga, Chandler, & Sweller, 1998).

This survey asked the teachers about the design of PowerPoint presentations when explaining the occurrence of lightning (Figure 7). To answer this second question, the teachers give various responses. The minority (6.6%)

mention that none of the methods are suitable for explaining lightning events. Meanwhile, 14.2% think all methods are suitable. Quite interestingly, the majority of teachers (70.8%) have chosen method B; they thought that presenting multimodalities such as images (visual), added with some additional texts, and narrated explanations from the teachers (auditory) made students understand lightning events easily. Meanwhile, only 7.5% of respondents chose method A: providing an auditory explanation by presenting an image and short texts.

This study found diversity in teachers' knowledge of teaching using multimedia. This second question leads to whether or not it is essential to add relatively long additional text to the picture about the lighting occurrence. The image of the lightning and explanations from the teacher are informative enough to help students understand the lightning process. In other words, the respective sources of visuals (images or words) are fully intelligible on their own. Thus, placing additional similar texts as the teacher's narrated explanation would make the presentation redundant (Chandler & Sweller, 1991). Such texts only turn into an extraneous load, distracting the students' attention. In this situation, the learners pay attention to the teachers' explanations, the image of lightning, and the long texts altogether. This activity splits the learners' attention and results in a high cognitive load (Sweller, Chandler, Tierney, & Cooper, 1990; Sweller & Chandler, 1994). However, providing redundant information is quite effective for novices who do not have prior knowledge about a particular topic and those with impaired hearing (Kalyuga, Chandler, & Sweller, 1998). Additional information seen as extraneous load depends on the students' prior knowledge. The more knowledgeable they are with particular topics, the more likely they will view the additional information as an interfering variable that distracts learning.

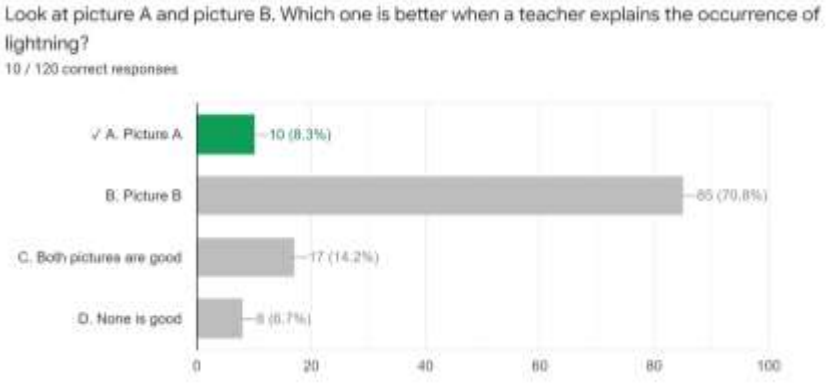


Figure 7. Teachers' knowledge of the redundancy effects

The third question in this survey asked teachers how to hold the students' retention to focus on a particular object, a piston. Surprisingly enough, the majority of the teachers (53.8%) chose picture A: showing all components of machine tools added to the detailed information such as brake fluid in the tube, smaller piston in the wheel cylinder, brake shoe, brake drum, brake pedal, and piston in the master cylinder (Figure 8). Meanwhile, only 34.5% chose image B, which explains the working of the piston by highlighting the image of the piston and giving the corresponding text that reads, "This is the piston in the master cylinder."

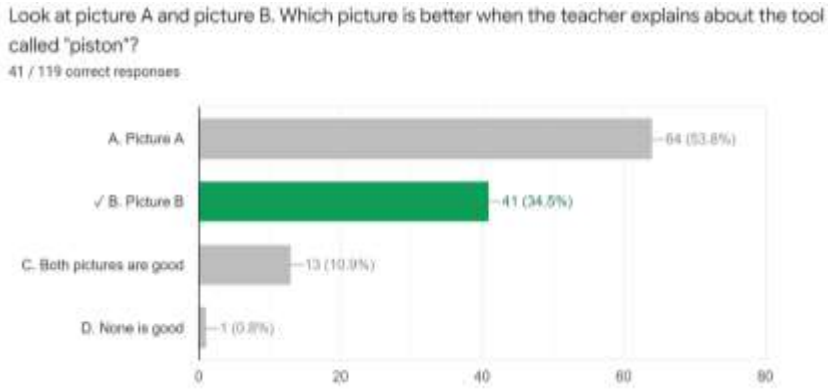


Figure 8. Teachers' knowledge of the signaling effects

The respondents have indeed found it difficult to avoid detailed information in lessons. For the ESP class, explaining

materials related to technical systems such as machinery, electronics, and electrical engineering often involves many complex components. For that reason, picture A looks detailed because of the corresponding texts with each part of the engine. However, providing too detailed information will likely result in cognitive overload because the details become extraneous material.

Respondents generally showed a reasonably good knowledge of spatial contiguity (Figure 9). Most (70%) of the respondents chose figure A, representing spatial contiguity: locating the corresponding texts next to the part of the brain image (check question 4 in the appendix). When the corresponding text is placed close to the image, it is easier for the brain to process information (Kalyuga, 2009). When pictures and corresponding words are spatially close together on a page or screen, students do not use their cognitive capacity too much to search the page or screen visually. This technique helps students to remember the interdependence of text and pictures at the same time.

On the other hand, if the positions of the printed text and corresponding images are far from each other, students are likely to use their cognitive capacity to search, scan, and combine the images and text at the same time, which hinders them in perceiving the essence of the information. Moreno and Mayer (1999) had mentioned that students performed better on a transfer test when the on-screen text was placed next to the corresponding element in the animation than when it was placed at the bottom of the screen. By contrast, separating the brain image from the printed texts creates split attention since students successively search and match words and pictures. This searching and matching process consumes cognitive capacity.

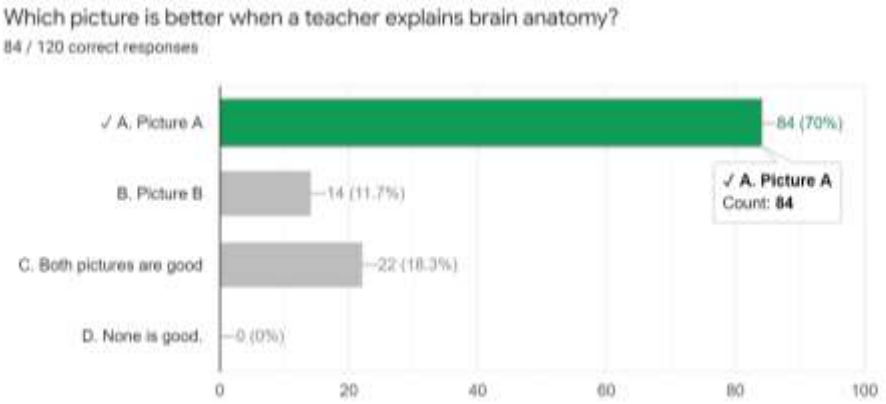


Figure 9. Teachers' knowledge of the spatial contiguity effects

Respondents were also asked about the instructional modality they use in remote teaching (check question 5 in the appendix). Their responses were quite diverse (Figure 10). For example, 3.3% chose podcasts, 3.3% preferred sharing PowerPoint presentations, and 20.8% shared both materials individually. Meanwhile, the majority, 72.5%, chose to distribute PowerPoints accompanied by narrating explanations. Most teachers in this study designed teaching media with multimodality (e.g., visual and auditory), which promoted student learning much better than media with a single modality. The teachers found that designing media with multimodality (e.g., PowerPoint with a teacher's narrated explanation) is relevant and appropriate in remote teaching, especially when the students encounter complex and unfamiliar materials presented quickly (Kalyuga, 2009). For novices, the presentation of the text (images and text) accompanied by an explanatory narration from the teacher is effective in helping them to understand complex new concepts. Intrinsic load from the high interactivity of the elements from the new concepts is reduced because some of the cognitive processing from the visual channel (text/image) can be off-loaded to the verbal channel (teacher's narrated explanation), which is free from overload. On the other hand, novices are likely to find learning complex if unfamiliar sources of information are put in isolation (Low & Sweller, 2005).

However, proficiency or expertise in a particular domain considerably influences the modality's dependence. In other words, multimodality is useful for low-knowledge students still struggling to learn new concepts. Moreno (2002) stated that verbal guidance helps reduce cognitive load for students with low prior knowledge. On the other hand, text alone is enough for capable students to learn or understand new concepts. This discussion concludes that teachers must comprehensively understand their students' abilities to adjust their multimedia designs. Although multimedia design with multimodality benefits novices, that is not always the case with advanced students. Multimodality can become an extraneous load that hinders learning. As a result, the teacher must manage to design multimedia useful for students. To teach new concepts, multimedia design with multimodality is feasible for enhancing learning. However, as students' learning progress increases, teachers must encourage students to learn and

solve problems independently.

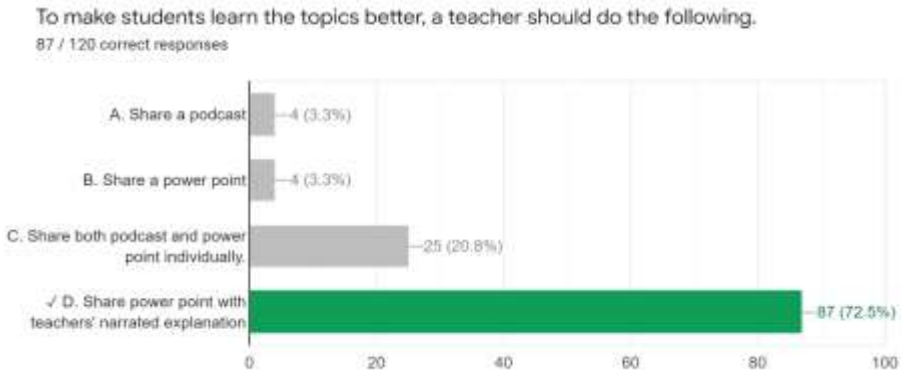


Figure 10. Teachers' knowledge of the multimodality effects

This study examined teacher's ability to use segmenting techniques in remote teaching. Segmenting breaks the explanation into bite-sized chunks whose presentation is controlled by the learner. This way, the learner can mentally represent one portion of the system before moving on to the next. It is impossible to make the to-be-learned system more straightforward, but it is possible to help the learner understand it by breaking the presentation into smaller chunks.

The majority of teachers (69.2%) understood the principle of segmenting (Figure 11). They thought sharing video recordings and providing opportunities for students to ask questions represented the segmenting technique. Watching videos and asking the teacher is an excellent way to close information gaps that are likely to occur while learning new topics.

Furthermore, respondents admitted that they usually share videos through their YouTube channels before holding a teleconference. If the material is too difficult, the teacher makes several videos to explain the topic; complex material creates much interaction from the elements of the concept. The more interactions of the various elements, the more likely students will experience cognitive overload (Kalyuga, 2009).

In this study, teachers said that their videos were generally no more than ten minutes long. If they do not understand a specific part of the video, they can play that part again. The teacher allows students to ask questions through various channels such as instant messenger groups or teleconferences to improve students' understanding. With videos, students understand the material at their own pace. This discussion concludes that a segmenting technique is vital for students struggling to build mental models of relatively new material. Too fast and long material hinders students from understanding lessons (Mayer & Moreno, 2003). Therefore, when students can process one segment well, the following information will be easier to process than complex material that is not segmented. When retention of the new concept is guaranteed (temporal contiguity), all video segments prepared by the teacher are available and accessible to the students at any time.

Reducing part of the instructional materials from the intrinsic load is indeed necessary. However, designing more adaptive multimedia for students' thinking skills/maturity is much more critical. For high-knowledge learners, the material with a high degree of element interactivity does not enhance learning. They need to be challenged with more complex materials.

Some strategies to adapt the instructional design in this context include identifying instructional procedures optimal for learners with different levels of expertise, designing appropriate means for balancing the degree of instructional guidance, and designing diagnostic instruments to measure levels of learner expertise (Kalyuga, 2014).

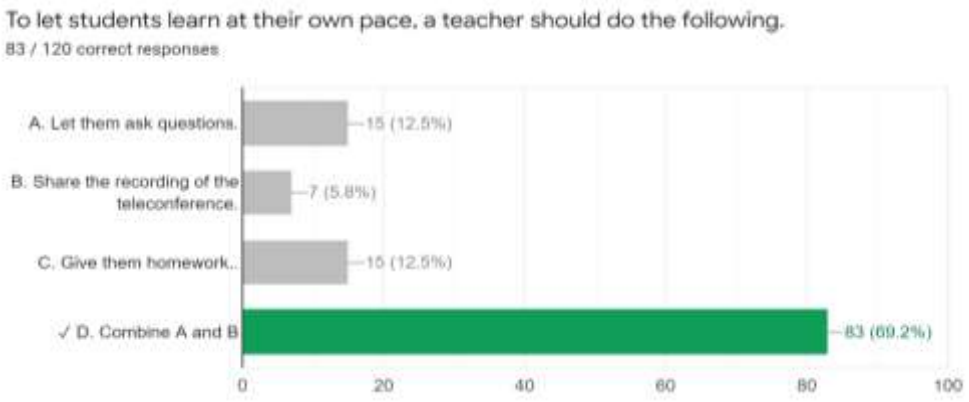


Figure 11. Teachers' knowledge of the segmenting effects

This study also asked respondents about providing feedback to their students using digital apps. This study found that almost half of all respondents (44.2%) chose method D: giving quizzes on digital platforms, setting up auto-explanation from the app, and telling the students the quiz results (Figure 12). Viewed from the perspective of temporal contiguity (Sweller, 1994), this method is indeed quite helpful for students to get the information they want. By receiving machine auto-feedback, students instantly know why they have made mistakes or why they have made correct answers. As a result, they do not have to wait for answers after the quiz ends. Some apps such as Socrative and Formative have such an auto-feedback that teachers manage to prepare formative quizzes. However, this auto-machine-based feedback has limitations regarding the scope of explanation, and it depends on how the teacher provides information. From the authors' observation, numerous teachers often give little explanation to the auto feedback in the apps.

By contrast, the other half (46.7%) chose method B in providing feedback: giving quizzes, telling students the results, and explaining the results. The teachers deliberately did not give machine auto feedback when giving quizzes. They felt that machine auto-feedback is only suitable for non-graded tests. This technique enables the students to practice their low order of thinking, such as remembering and understanding new concepts. However, auto feedback should be turned off in graded tests and let the students complete the tests. Otherwise, the students will likely become demotivated with instant auto feedback if they make mistakes. Delaying providing feedback after the quiz is much more effective. First, the students have many opportunities to ask their teachers. Second, the teachers gave a lengthy explanation to the students about some weak areas in the quiz.

Feedback, in general, can be understood as a method that teachers use to help students understand lessons and guide them on how to improve their learning. Thus, feedback aims to encourage continuous improvement of performance towards learning objectives.

The feedback issue in this present study becomes interesting when teachers use digital platforms in remote teaching. Providing simple corrective automatic feedback in apps can be considered the lowest level of feedback interactivity, but it is conducive for novices (Kalyuga, 2009). Although the scope of information in automated feedback is relatively narrow, novices can learn from it and continue improving their skills until they become proficient in a particular domain. Even though novices receive auto feedback at their own pace, they often fail to achieve a certain level of competence, especially in complex domains. For that reason, Moreno and Mayer (2007) assert that explanatory feedback, rather than only simple corrective feedback, is much more helpful in encouraging learning for novices. Explanatory feedback is likely to provide practical external guidance for learners with lower levels of prior knowledge. Koedinger and Aleven (2007) also reach a similar conclusion about the usefulness of extended feedback when responding to learner problem-solving errors. The explanatory feedback is effective because it provides external instructional guidance to fill in the gaps in students' internal long-term memory structures. In short, the value of the teacher's explanation is that it is interactive so that the teacher can locate and correct the individual student's actual misunderstanding.

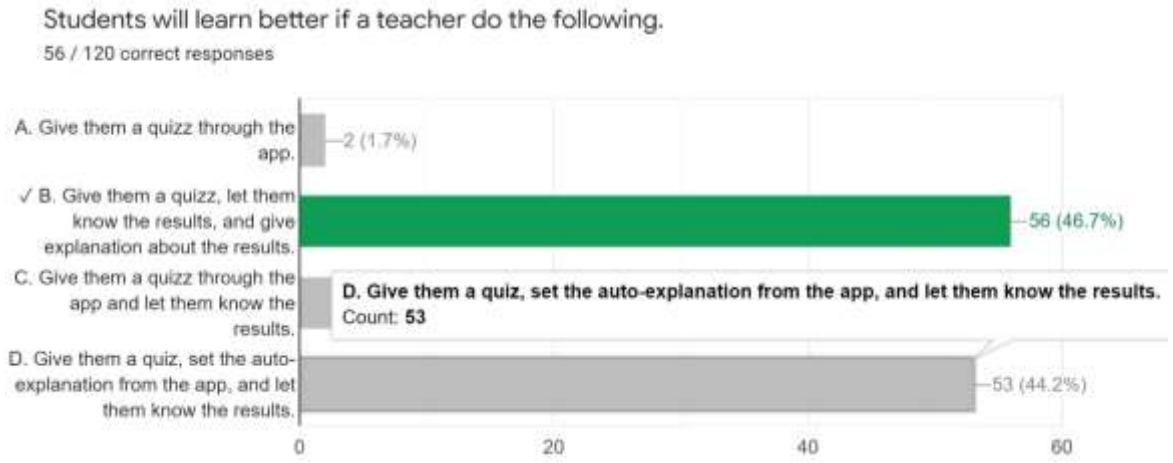


Figure 12. Teachers' knowledge of the feedback effects

This study found that most teachers (75%) already know enough about personalized techniques (Figure 13). Personalization is a strategy that teachers use to provide more realistic experiences, similar to face-to-face situations in traditional classrooms. Online students often feel trapped by feelings of remoteness or alienation and cannot interact freely as in traditional classrooms. To achieve this goal, the teachers in this study made several efforts, such as turning on the web camera, calling their students by name, and using personalized language when teaching online.

According to the majority, striving for a personalized impression in the remote teaching class is essential. Kaluga said that the personalized approach created an authentic learner-centered experience for learners. Consequently, teachers need to consider interacting through multiple content sources (synchronous and asynchronous), presentation formats (turning on the webcam), and delivery means (using informal language, calling students by name). In a personalized online class, teachers speak in an informal, conversational style, addressing the students as if they were both sharing the learning experience. On the other hand, in a non-personalized version, teachers use a formal monologue style and address students as observers. Moreno and Mayer (2000, 2004) observed that personalized messages are more likely to lead to meaningful learning than those that use non-personalized messages. The personalization principle promotes more active processing of the new information by having students relate the material to themselves, thus creating more profound memories of the learning experience. When students feel they are active participants in online classes rather than observers of the learning environment, they become more engaged in learning. According to Pintrich and Schunk (2002), a personalized approach affects motivation and students' cognitive resources to be assigned to the learning task. This finding concludes that personalized techniques can influence students to spend more effort on the task. Since multimedia is designed to approach the direct experience of interaction between teachers and the students, the latter will likely feel involved in authentic experiences and be motivated to engage in learning.

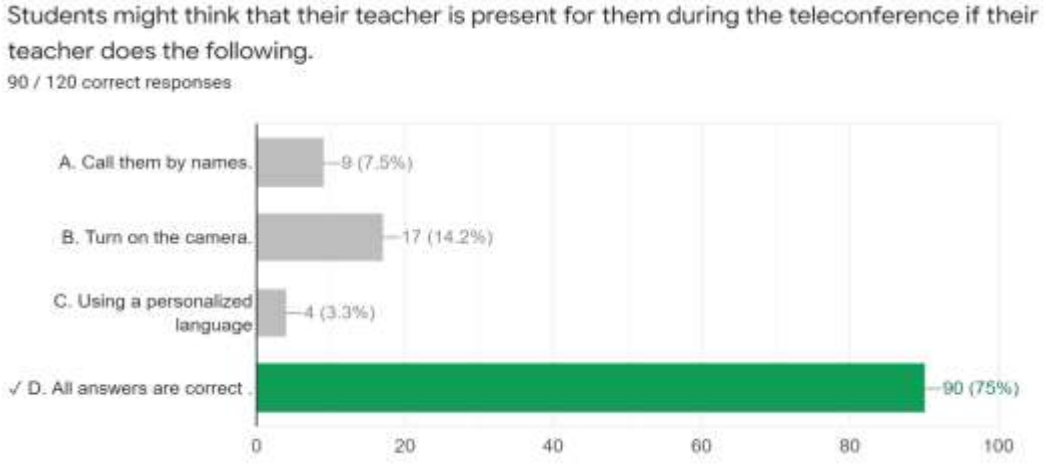


Figure 13. Teachers' knowledge of the personalized effects

4. Conclusions

The COVID-19 Pandemic has empowered teachers to be more digitally literate because they have had to administer online teaching and become familiar with its characteristics. As a result, their multimedia knowledge has automatically improved. Multimedia seems to bridge the absence of face-to-face teaching and the learning process since they are physically away. Of the five teachers' demographic factors, the only gender corresponds significantly to their multimedia knowledge, and gender characteristics may have caused the level of their multimedia knowledge. One of the reasons is that female teachers dominate the research samples. English teachers are often associated with a gender-based profession in which women are more dominant than men. In addition to self-directed learning (learning from YouTube, etc.), another factor is that female teachers also have a high intensity in social learning activities such as attending webinars during a pandemic or having peer discussions with their colleagues. The other four demographics, nationality, academic qualification, type of institution, and perception, can be neglected.

Apart from the demographics, the roles of multimedia and technology tend to be more critical in the EFL teaching and learning process. This fact implies that, regardless of whether teachers' demographics correlate with multimedia knowledge, they must adapt to a new paradigm and equip themselves with multimedia skills. The acceleration of digital literacy and multimedia knowledge for EFL teachers is necessary to stimulate innovations and variations in English language teaching (ELT).

This study has limitations, such as the coverage of teachers' nationalities and the number of respondents, and further research should be conducted by including more teachers from more countries. Additional variables should be used for teachers' multimedia knowledge, such as age or profession longevity. The instrument needs to be refined and expanded to measure teacher's multimedia knowledge more accurately. Moreover, the broader participation of samples might result in more conclusive data. Finally, involving students' perceptions and barriers in joining remote teaching modes is strongly suggested.

References

Al-swalha, A. S. M., & Suliman, A. (2017). Training needs of faculty members in Al-Huson College for employing multimedia in teaching. *Journal of Education and Practice*, *8*(12), 102-111. Retrieved from http://ezproxy.lib.uconn.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1140620&site=ehost-live

Altawallbeh, M., Thiam, W., Alshourah, S., & Fong, S. F. (2015). Do the instructors differ in their behavioral intention to adopt e-learning based on age, gender, and internet experience? *Journal of Education and Practice*, *6*(18), 41–50. http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1079742&site=ehost-live

Anderson, J. R., & Bower, G. (1983). *Human associative memory.* Washington, DC: Winston.

Arrow, A. W., & Finch, B. T. (2013). Multimedia literacy practices in beginning classrooms and at home: The differences in practices and beliefs. *Literacy*, *47*(3), 131-141. https://doi.org/10.1111/lit.12006

Aydin, E., & Erol, S. (2021). The views of Turkish language teachers on distance education and digital literacy during the COVID-19 pandemic. *International Journal of Education and Literacy Studies*, *9*(1), 60. https://doi.org/10.7575/aiac.ijels.v.9n.1p.60

Azubuike, O. B., Adegboye, O., & Quadri, H. (2021). Who gets to learn in a pandemic? Exploring the digital divide in remote learning during the COVID-19 pandemic in Nigeria. *International Journal of Educational Research Open*, *2–2*(October 2020), 100022. https://doi.org/10.1016/j.ijedro.2020.100022

Blevins, B. (2018). Teaching digital literacy composing concepts: Focusing on the layers of augmented reality in an era of changing technology. *Computers and Composition*, *50*, 21-38. https://doi.org/10.1016/j.compcom.2018.07.003

Bond, M. (2021). Schools and emergency remote education during the COVID-19 pandemic: A living rapid systematic review. *Asian Journal of Distance Education*, *15*(2), 191-247. https://doi.org/10.5281/zenodo.4425683

Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to the CoronaVirus pandemic. *Asian journal of distance education*, *15*(1), i-vi.

Brown, S., & Krzic, M. (2021). *Lessons learned teaching during the COVID-19 pandemic: Incorporating change for future large science courses*. https://doi.org/10.1002/nse2.20047

Cai, H. (2012). E-learning and English teaching. *IERI Procedia*, *2*, 841-846.

https://doi.org/10.1016/j.ieri.2012.06.180

Çetin, E. (2021). Digital storytelling in teacher education and its effect on the digital literacy of pre-service teachers. *Thinking Skills and Creativity*, *39*, 100760. https://doi.org/10.1016/j.tsc.2020.100760

Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction. *Cognition and Instruction, 8*(1), 293-332. https://doi.org/10.1207/s1532690xci0804_2

Chi, M. T., Glaser, R., & Rees, E. (1982). Expertise in problem-solving. In R. Sternberg, *Advances in the psychology of human intelligence* (pp. 7-76). Hillsdale, NJ: Erlbaum.

de Jong, T. (2010). Cognitive load theory, educational research, and instructional design: some food for thought. *Instructional Science, 38*(2), 105-134. https://doi.org/10.1007/s11251-009-9110-0

Dijkema, S., Doolaard, S., Ritzema, E. S., & Bosker, R. J. (2019). Ready for take-off? The relation between teaching behavior and teaching experience of Dutch beginning primary school teachers with different educational backgrounds. *Teaching and Teacher Education*, *86*, 102914. https://doi.org/10.1016/j.tate.2019.102914

Egan, D. E., & Schwartz, B. J. (1979). Chunking in recall of symbolic drawings. *Memory & Cognition, 7*(1), 149-158. https://doi.org/10.3758/BF03197595

Ginting, D., Djiwandono, P. I., Woods, R., & Lee, D. (2020). Is autonomous learning possible for Asian students? The story of a mooc from Indonesia. *Teaching English with Technology*, *20*(1), 60-79.

Ginting, D., Fahmi, Utimadini, N. J., Barella, Y., & Khatimah, H. (2022). The Interplay of motivation and quality of instructions in the self-paced program: a MOOC for administration staffs, *World Journal of English Language*, *12*(1), 198-210. https://doi.org/10.5430/wjel.v12n1p198

Ginting, D., Fahmi., Barella, Y., Linarsih, A., & Hamdani, B. (2021). Foreign language students' voices on blended learning and fully online classes during the COVID-19 pandemic. *World Journal of English Language*, 11(2), 62-70. https://doi.org/10.5430/wjel.v11n2p62

Ginting, D., Woods, R., Nuswantara, K., Sukaton, O. Z., & Jiuangga, V. V. (2021). Teachers voice: their experiences in emergency remote teaching amid Covid-19 pandemic. *Mextesol Journal*, *45*(4), 1-15

Gonzalez-Frey, S., Garas-York, K., Kindzierski, C., & Henry, J. (2021). College students' attitudes towards remote instruction during the coronavirus pandemic: Future directions. *Excelsior: Leadership in Teaching and Learning*, *13*(2), 96-112. https://doi.org/10.14305/jn.19440413.2021.13.2.02

Gürkan, S. (2019). Effect of annotation preferences of the EFL students on their level of vocabulary recall and retention. *Journal of Educational Computing Research*, *57*(6), 15-30 https://doi.org/10.1177/0735633118796843

Halim, M. S. A. A., & Hashim, H. (2019). Integrating web 2.0 technology in ESL classroom: A review on the benefits and barriers. *Journal of Counselling and Educational Technology*, *2*(2), 19-26. https://doi.org/10.32698/0421

Hamzah, M. I., Rinaldi, & Razak, K. A. (2014). Multimedia usage among Islamic education lecturers at higher education institutions. *International Education Studies*, *7*(13), 157-165. https://doi.org/10.5539/ies.v7n13p157

Harp, S. F., & Mayer, R. E. (1998). How seductive details do their damage: A theory of cognitive interest in science learning. *Journal of Educational Psychology, 90*(1), 414-434. https://doi.org/10.1037/0022-0663.90.3.414

Heckart, K., Seitz, Z., Reiter, J., Ingold, J., Francis, A., & Hitchcock, C. (2020). Teaching remotely during the Coronavirus pandemic Social Education Staff. *Journal Social Education*, *84*(3), 146-151.

Hina, Q. A., Chaudhary, A. Q., & Nudrat, S. (2017). Impact of gender, qualification, and experience on mentoring practices in public sector Universities of Islamabad. *Bulletin of Education and Research*, *39*(3), 183-201.

Hu, X., Chiu, M. M., Leung, W. M. V., & Yelland, N. (2021). Technology integration for young children during COVID-19: Towards future online teaching. *British Journal of Educational Technology*, *November 2020*, 1-25. https://doi.org/10.1111/bjet.13106

Jozwik, S. L., Freeman-Green, S., Kaczorowski, T. L., & Douglas, K. H. (2021). Effects of peer-assisted multimedia vocabulary instruction for high school English language learners. *Reading and Writing Quarterly*, *37*(1), 82-100. https://doi.org/10.1080/10573569.2020.1723153

Kalyuga, S. (2009). *Managing cognitive load in adaptive multimedia learning.* New York, NY: Information Science

Reference. https://doi.org/10.4018/978-1-60566-048-6

Kalyuga, S. (2014). The expertise reversal principle in multimedia learning. In R. E. Mayer (Ed.), Cambridge handbooks in psychology. In R. Mayer, *The Cambridge handbook of multimedia learning* (pp. 576-597). Oxford: Cambridge University Press. Doi: https://doi.org/10.1017/CBO9781139547369.028

Kalyuga, S., Ayres, P., Chandler, P., & Sweller, J. (2003). Expertise reversal effect. *Educational Psychologist, 38*(1), 23-31. https://doi.org/10.1207/S15326985EP3801_4

Kalyuga, S., Chandler, P., & Sweller, J. (1998). Levels of expertise and instructional design. Human Factors. *40*(1), 1-17. https://doi.org/10.1518/001872098779480587

Kalyuga, S., Chandler, P., & Sweller, J. (1999). Managing split-attention and redundancy in multimedia instruction. *Applied Cognitive Psychology, 13*(1), 351-357. https://doi.org/10.1002/(SICI)1099-0720(199908)13:4<351::AID-ACP589>3.0.CO;2-6

Karipi, E. (2019). Experiences of the Namibian College of open learning tutors in using multimedia resources in distance education. *African Educational Research Journal*, *7*(1), 14-21. https://doi.org/10.30918/aerj.71.18.092

Koedinger, K. R., & Aleven, V. (2007). Exploring the assistance dilemma in experiments with cognitive tutors. *Educational Psychology Review, 19*(1), 239-264. https://doi.org/10.1007/s10648-007-9049-0

Kranthi, K. (2017). Technology-enhanced language learning (TELL). *International Journal of Business and Management Invention ISSN (Online, 6)* (2), 2319-8028.

Li, G. (2017). From absence to affordances: Integrating old and new literacies in school-based instruction for English learners. *Journal of Adolescent and Adult Literacy*, *61*(3), 241-246. https://doi.org/10.1002/jaal.662

Li, G., & Ni, X. (2011). Primary EFL teachers' technology use in China: Patterns and perceptions. *RELC Journal, 42*(1), 69-85. https://doi.org/10.1177/0033688210390783

Lin C., J., Wang, H., Li, T., & Huang, L. (2007). Reliability and validity of nurse's job satisfaction scale and nurse's professional commitment. *Mid Taiwan J Med, 12*(1), 65-75.

Luthfiyyah, R., Hafifah, G. N., Ivone, F. M., & Tresnadewi, S. (2021). Technology use in secondary level of English language teaching: A literature review. *JEES (Journal of English Educators Society), 6*(1), 79-89. https://doi.org/10.21070/jees.v6i1.1020

Mantiri, F. (2014). Multimedia and technology in learning. *Universal Journal of Educational Research*, *2*(9), 589-592. https://doi.org/10.13189/ujer.2020.081278

Mautone, P. D., & Mayer, R. E. (2001). Signalling as a cognitive guide in multimedia learning. *Journal of Educational Psychology, 93*(1), 377-389. https://doi.org/10.1037/0022-0663.93.2.377

Mayer, R. E. (1997). Multimedia learning: Are we asking the right questions? *Educational Psychologist, 32*(1), 1-19. https://doi.org/10.1207/s15326985ep3201_1

Mayer, R. E. (2001). *Multimedia learning*. New York, NY: Cambridge University Press. https://doi.org/10.1017/CBO9781139164603

Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist, 38*(1), 43-52. https://doi.org/10.1207/S15326985EP3801_6

McNamara, D., Kintsch, E., Songer, N. B., & Kintsch, W. (1996). Are good texts always better? Interactions of text coherence, background knowledge, and levels of understanding in learning from text. *Cognition and Instruction, 14*(1), 1-43. https://doi.org/10.1207/s1532690xci1401_1

Mojica, C. P., & Castañeda-Peña, H. (2017). A learning experience of the gender perspective in English teaching contexts. *PROFILE Issues in Teachers' Professional Development*, *19*(1), 139. https://doi.org/10.15446/profile.v19n1.56209

Moreno, R. (2002). Who learns best with multiple representations? Cognitive theory predictions on individual differences in multimedia learning. *World Conference on Educational Multimedia, Hypermedia and Telecommunications 2002*, (pp. 1380-1385).

Moreno, R., & Mayer, R. E. (2000). A coherence effect in multimedia learning: The case for minimizing irrelevant sounds in the design of multimedia instructional messages. *Journal of Educational Psychology, 92*, 117-125., *92*(1), 117-125. https://doi.org/10.1037/0022-0663.92.1.117

Morgan, H. (2020). Best practices for implementing remote learning during a pandemic. The clearinghouse, *A Journal of Educational Strategies, Issues and Ideas*, *93*(3), 135-141. https://doi.org/10.1080/00098655.2020.1751480

Paas, F., Renkl, A., & Sweller, J. (2004). Cognitive load theory: Instructional implications of the interaction between information structures and cognitive architecture. *Instructional Science, 32*(1), 1-8. https://doi.org/10.1023/B:TRUC.0000021806.17516.d0

Renkl, A., Atkinson, R., & Grobe, C. S. (2004). How fading worked solution steps works – A cognitive load perspective. *Instructional Science, 32*(1), 59-82. https://doi.org/10.1023/B:TRUC.0000021815.74806.f6

Ruscher, J. B., Wallace, D. L., Walker, K. M., Bell, L. H., Ruscher, J. B., Wallace, D. L., … Bell, L. H. (2010). *Group processes & intergroup relations interactions*. https://doi.org/10.1177/1368430210364629

Sayeski, K. L., Kennedy, M. J., de Irala, S., Clinton, E., Hamel, M., & Thomas, K. (2015). The efficacy of multimedia modules for teaching basic literacy-related concepts. *Exceptionality*, *23*(4), 237-257. https://doi.org/10.1080/09362835.2015.1064414

Schneider, J. J. (2015). I text, but I don't teach with it: An essay on i-literacy in teacher education. *Action in Teacher Education*, *37*(2), 120-137. https://doi.org/10.1080/01626620.2014.969850

Schnotz, W. (1993). On the relation between dual coding and mental models in graphics comprehension. *Learning and Instruction, 3*(1), 247-249. https://doi.org/10.1016/0959-4752(93)90008-N

Schnotz, W., & Bannert, M. (2003). Construction and interference in learning from multiple representations. *Learning and Instruction, 13*(1), 141-156. https://doi.org/10.1016/S0959-4752(02)00017-8

Skulmowski, A., Günter, |, & Rey, D. (2020). *COVID-19 as an accelerator for digitalization at a German University: Establishing hybrid campuses in times of crisis*. https://doi.org/10.1002/hbe2.201

Starkey, L., Shonfeld, M., Prestridge, S., & Cervera, M. G. (2021). Special issue: COVID-19 and the role of technology and pedagogy on school education during a pandemic. *Technology, Pedagogy, and Education*, *30*(1), 1-6. https://doi.org/10.1080/1475939X.2021.1866838

Sugiyono. (2006). *Statistika untuk penelitian.* Bandung: Alfabeta.

Sulistyo, T., Anjani, W. E., Marhaban, S., Rofiqoh, R., & Puspitasari, Y. (2021). Online learning in ELL: Barriers and perceptions of Indonesian students. *International Journal of Humanities and Social Science*, *8*(1), 49-54. https://doi.org/10.14445/23942703/ijhss-v8i1p107

Sumardi, S., & Nugrahani, D. (2021). Adaptation to emergency remote teaching: Pedagogical strategy for pre-service language teachers amid COVID-19 pandemic. *Turkish Online Journal of Distance Education*, *22*(2), 81-93. https://doi.org/10.17718/tojde.906553

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*(1), 295-312. https://doi.org/10.1016/0959-4752(94)90003-5

Sweller, J. (1999). *Instructional design in technical areas.* Camberwell, Australia: ACER Press.

Sweller, J. (2005). Implications of cognitive load theory for multimedia learning. In R. E. Mayer, *The Cambridge handbook of multimedia learning* (pp. 19-30). New York, NY: Cambridge University Press. https://doi.org/10.1017/CBO9780511816819.003

Sweller, J., & Chandler, P. (1994). Why is some material difficult to learn? *Cognition and Instruction, 12*(3), 185-233. https://doi.org/10.1207/s1532690xci1203_1

Sweller, J., Chandler, P., Tierney, P., & Cooper, M. (1990). Cognitive load and selective attention as factors in the structuring of technical material. *Journal of Experimental Psychology: General*, *119*(1), 176-192. https://doi.org/10.1037/0096-3445.119.2.176

Trajanovic, M., Domazet, D. S., & Misic-ilic, B. (2010). Distance Learning and Foreign Language. *May 2014*.

Waller, D. (2000). Individual differences in spatial learning from computer-simulated environments, *Journal of Experimental Psychology: Applied*, *6*(1), 307-321. https://doi.org/10.1037/1076-898X.6.4.307

Wekke, I. S., & Hamid, S. (2013). Technology on language teaching and learning: A research on Indonesian pesantren. *Procedia - Social and Behavioral Sciences*, *83*, 585-589. https://doi.org/10.1016/j.sbspro.2013.06.111

APPENDIX

Teachers' Multimedia Literacy Questionnaire

Dear Sir/Madam,

I am researching teachers' practice in using multimedia during remote teaching. This survey is intended to gather information about teachers' knowledge and perspectives on the use of multimedia during remote teaching. I am fully concerned with the informed consent issue. We fully guarantee your privacy and are just free to attend this survey. Just in case you have questions about this issue, send me a message to my email.

I appreciate your help and attention to this survey. Thank you very much.

Author

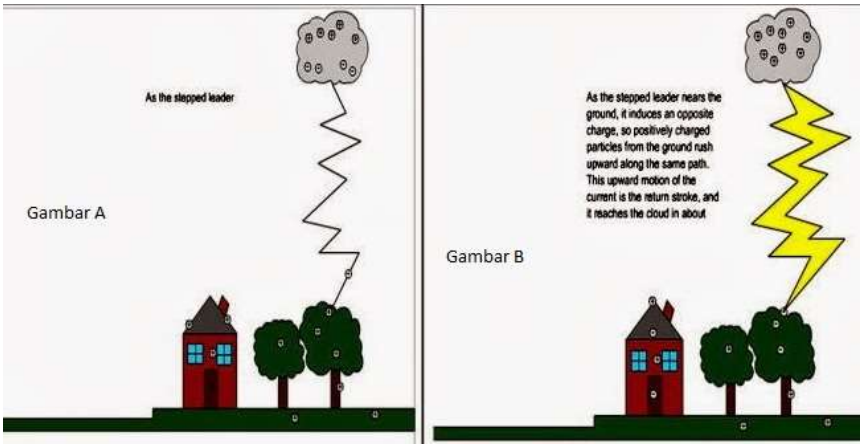
Demography

1. Name:
2. Gender
   a. Male
   b. Female
3. Nationality:
4. Education
   a. Undergraduate
   b. Master
   c. Doctor
5. Institutions:
   a. Primary
   b. Secondary
   c. Tertiary (college)

Teaching using multimedia

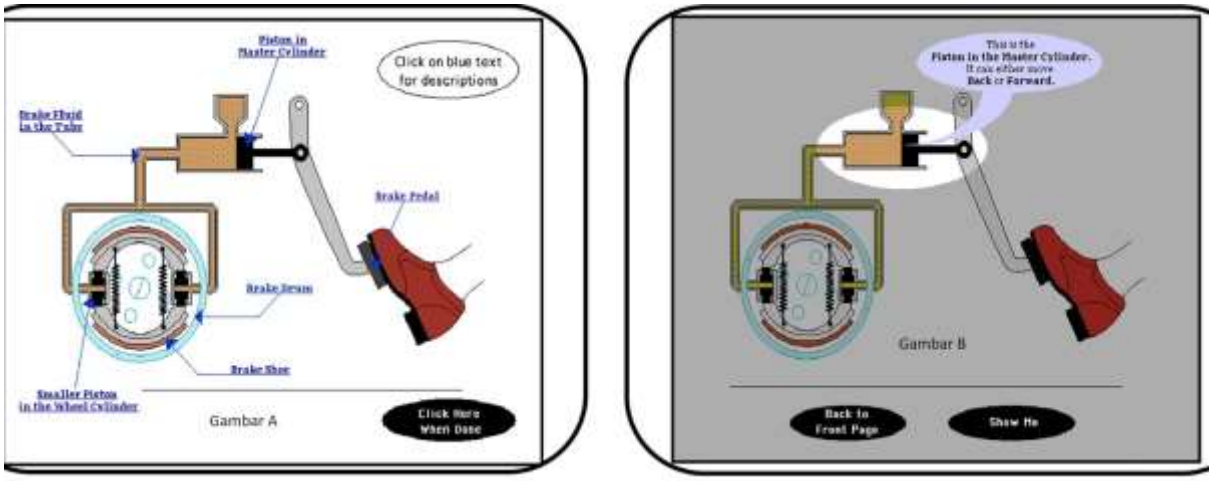
1. During the teleconference, a teacher should do the following:
   a. explaining to the students using PowerPoint with background music so that they become interested in the teleconference
   b. explaining the topic to the students using animated virtual background to get them interested in the teleconference.
   c. explaining the topic to the students using texts and images only.
   d. combining method A and method B makes the students interested in the topic.

2. Look at picture A and picture B. Which one is better when a teacher explains the occurrence of lightning?



a. Picture A
b. Picture B
c. Both pictures are good
d. None is good

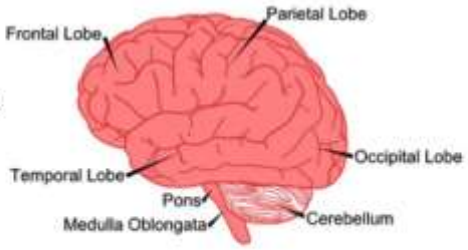
3. Look at picture A and picture B. Which picture is better when the teacher explains about the tool called "piston"?



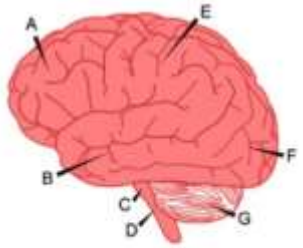
a. Picture A
b. Picture B
c. Both pictures are good
d. None is good

4. Which picture is better when a teacher explains brain anatomy?

Gambar A



Gambar B



A - Frontal Lobe
B - Temporal Lobe
C - Pons
D - Medulla Oblongata
E - Parietal Lobe
F - Occipital Lobe
G - Cerebellum

a. Picture A
b. Picture B
c. Both pictures are good
d. None is good

5. To make students learn the topics better, a teacher should do the following.
   a. Share a podcast
   b. Share a power point
   c. Share both podcast and power point individually.
   d. Share power point with teachers' narrated explanation

6. To get students' attentions to the certain points during the teleconference, a teacher should do the following.
   a. Show movies and interesting pictures.
   b. Raise teachers' voice volume
   c. Use the virtual pointer
   d. Combine A, B and C.
   e. Combine B and C.

7. To allow students to learn at their own pace, a teacher should do the following.
   a. Let them ask questions.
   b. Share the recording of the teleconference.
   c. Give them homework.
   d. Combine A and B

8. Students will learn better if a teacher do the following.

a. Give them a quiz through the app.
b. Give them a quiz, let them know the results, and give explanation about the results.
c. Give them a quiz through the app and let them know the results.
d. Give them a quiz, set the auto-explanation from the app, and let them know the results.

9. Students might think that their teacher is present for them during the teleconference if their teacher does the following.
   a. Call them by names.
   b. Turn on the camera.
   c. Use a personalized language
   d. All answers are correct.

Teachers' views on remote teaching

1. I enjoy teaching my students in remote teaching method.

   a. Strongly disagree b. Disagree c. Agree d. Strongly agree

2. My students become competent through the remote teaching class I am teaching.

   a. Strongly disagree b. Disagree c. Agree d. Strongly agree

3. I can manage my remote teaching class quite well.

   a. Strongly disagree b. Disagree c. Agree d. Strongly agree

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).