

## Article

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### **Online Writing Assessment in the Wake of COVID-19: Insights from the Digital Classroom**

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#### **ABSTRACT**

The COVID-19 pandemic has created considerable challenges for higher education across the globe. Drastic measures such as university closures have accelerated a shift to online learning and digital assessment. Malaysian universities have also transitioned to remote learning and digital testing in the wake of the pandemic. In the midst of this major paradigm shift, many questions regarding the effectiveness of online tests from the perspective of university students have not been addressed. The present study explores Malaysian university students' insights of doing online writing tests versus pen-paper tests. One of the aims of the study was to determine whether students used online resources as mediation tools when attempting an online writing test. Data were gathered anonymously using an online survey of 193 respondents. Using content analysis, it was found that majority of the respondents expressed a preference for online writing tests as opposed to conventional pen-paper tests. Students also reported using online resources as mediation tools to aid writing during digital writing assessments. In general, respondents revealed that the online environment which allows them access to digital tools makes writing easier and less demanding. The respondents also opined that convenience, ability to manage time, conducive environment and affordance of digital resources make online testing an attractive option for writing assessment. The findings suggest that test setters and educators should consider the impact of online writing environments and digital tools when designing online writing tests. Further interpretations and useful pedagogical implications are discussed.

**KEYWORDS: Online Assessment, Online Writing Test, Online Learning, Distance Learning, Digital Assessment.**

#### **INTRODUCTION**

The COVID-19 pandemic has fundamentally affected teaching and learning activities in many universities across the globe. In an effort to break the chain of transmission during the global crisis,

governments took drastic measures such as imposing total lockdowns and social distancing measures. Parallel to this chain of events, education systems from elementary to higher education had to shift to online teaching-learning platform (Mishra et al., 2020). Indeed, during this period of academic chaos, digital classrooms appeared to be the key to maintaining continuity and sustainability in education. It is this huge paradigm shift that launched an era of technological transformation and digitalization of academic activities which later became the new normal.

Although online teaching and learning is far from novel, the total migration to virtual classrooms is unprecedented. Prior to the pandemic, online learning appeared in the form of blended learning (BL) and was usually applied in distance education. Parsad et al. (2008) define BL as a “combination of online and in-class instruction with reduced in-class seat time for students” (p.1). BL is said to be evolutionary as it coalesces the accessibility, success and association with information technology (Dziuban et al., 2018). Several universities that implemented BL even reported that Open and Distance Learning (ODL) is more useful and effective compared to traditional classroom learning (Abuhassna, 2020; Adams et al., 2020; Azizan, 2010; Haron et al., 2012).

Despite various studies advocating BL and ODL, they are not without flaws (Dewan et al., 2019; Dumford & Miller, 2018; Muir et al., 2019; Robinson & Hullinger, 2008). Moving from traditional classrooms to online platforms without guidance, training, or planning at the onset of the pandemic proved to be problematic. Over the course of the pandemic years, there were many teaching and learning challenges faced by educators and students alike. On the part of the educator, problems included ineffective real time communications, technology incompetence, low rate of interactivity (Bahar et al., 2020), poor internet connection, limited availability of educational resources, poor learners’ attendance (Noor et al., 2020) and lack of learner-teacher interaction (Arkorful & Abaidoo, 2015). On the part of the learners, challenges included technological competency, learner motivation, learner technical support (Hoang & Le, 2021). Learning online for some students living on the outskirts has been disrupted due to the lack of access to digital devices and poor connectivity.

In second language (L2) writing, while teachers are advised to treat formative assessment as the central pillar of classroom writing assessment (Lee, 2017), the use of online formative assessment in writing classrooms is under-explored (White, 2019), especially from the students’ perspective. Although much research has tackled the issue of online assessment in EFL teaching, very little research has been devoted to the issue of online writing assessment from students’ perspectives in the Malaysian context. Little is known about students’ insights on online writing tests especially during crises like COVID-19 or whether they used online resources as mediation tools to aid writing. This study seeks to fill this void by investigating 193 (ELL) university students’ experience with online writing assessment and their use of online resources as mediation tools during digital writing assessments in a public institution in Sabah. The findings can shed useful light on the implementation of writing assessment in a digital environment.

## **LITERATURE REVIEW**

### ***Traditional Writing Assessment***

Traditional assessment is often referred to as a conventional approach to testing. Generally, written documents, such as quizzes, tests or exams in the form of multiple-choice tests, true/false tests, short answers, and essays, are typically used as an approach to traditional assessments. In the context of traditional writing assessments, a writing test is usually done in a face-to-face setting

where students are given a specific amount of time to complete a written task for example 60 to 120 minutes. According to Bailey (1998), they are indirect, inauthentic, and standardised. Hence, most of these tests are one-shot, speed-based, and norm-referenced, which means that the learners' performance is measured at a particular time.

Traditional writing assessments which come in the form of short answers texts and essays are typically used in the physical classroom. This form of testing has dominated classroom assessment due to several reasons. Several studies establish that traditional writing tests are effective assessment tools as they are considered flexible and able to measure higher order learning skills (Quansah, 2018 & Sawaki, 2021). Another key benefit of traditional writing assessment is that it eases administrators and admission professionals to analyse and compare student scores. Indeed, quantifiable responses based on standardised testing produce an assessment that is easy to score. Furthermore, test setters can also categorise questions to determine which skills or areas students excel in and which they have difficulty with. In terms of practicality, instructors can compare students' written performance across a large and diverse group of students.

Despite its dominance, the traditional writing test has its own drawbacks. Firstly, they are not very practical as it is very difficult and time consuming to score students' essays. Additionally, subjectivity might be an issue in scoring (Simonson et al., 2000). Since traditional writing tests are one-shot, speed-based, and norm-referenced, test scores do not reveal students' progress. Likewise, they cannot tell what particular difficulties the student faced during the test. Bailey (1998) also mentions that there is no feedback provided to learners in this type of assessment. The projects are mainly individualised, and the assessment procedure is decontextualised. In the same way, Simonson et al. (2000) stated that traditional assessment often focuses on the learner's ability of memorisation and recall, which are lower levels of cognition skills.

### Computer-Based Writing Assessment

The migration from face-to-face (f2f) teaching to online mode during the Covid-19 pandemic has certainly accelerated the adoption of computer-based assessments. Remote learning meant that classroom assessments had to be done remotely too. During the onset of the global health crisis, this mode of testing was championed by higher learning institutions as it was deemed convenient and easy to administer. As argued by Sawaki (2021), computer technology in language assessment has been treated as a method for test delivery, scoring, or reporting test results. It is noted however, in pre-pandemic era, the integration of computers in writing assessments was not widespread. In fact, this method of assessment was considered a new development in digital literacy practices.

More recently, literature has emerged that presents contradictory findings about the efficacy of online writing assessment in place of traditional ones. Some scholars argue that online writing assessments yield many academic benefits. For one, Hamp-Lyons (2002) advocates that online writing assessment allows the development of tests which are suitable to the levels, purposes and needs of the students by ensuring authenticity and task variety. In a similar vein, Gupta (2021) asserted that online learning models offer the flexibility and convenience to help learners learn at their own pace and time, either via mobile learning or a hybrid of online and offline learning. Zheng et al. (2014) also argued that online writing assessment has been shown to be better than writing by hand as students are able to produce extensive writing via word processing or digital writing tools. This flexibility is not accessible in conventional writing tests. In traditional formative testing, students are usually assessed in a highly controlled environment with close supervision. In

online learning environments, on the other hand, writing assessments and instructions are usually integrated through interactive media simulations.

Although online writing assessments offer many conveniences, there are a number of factors that impede its efficacy. Benson and Brack (2010) divided the problems into four aspects which include student assistance, technological problems, authentication or plagiarism, and administrative skills of the instructor. Another perspective on the issue of digital assessment was cited by Breuch (2004) who claimed that challenges in online writing assessments range from the absence of computer-based writing instruction, teachers' reluctance to conduct face-to-face activities to virtual spaces and inappropriate test format for virtual assessments. Fulcher (2012) on the other hand offered a more holistic explanation of these challenges. He described that the challenges can be listed under the construct of "language assessment literacy" which involves having the necessary knowledge and skills, adopting the fundamentals of language assessment, and having awareness of language assessment's historical and social context.

Indeed, all of the challenges addressed in the literature are reasonable concerns shared by ELL learners and educators. In the Malaysian context, the sudden shift from pen and paper test to online writing test presents many challenges too. One of them would be students' home environments and how it affects their performance during an online test. Some may afford a laptop or PC to access the online examination, while others may not. Some may have a conducive home environment, and some may not.

Another issue is authentication and plagiarism. According to Spivey and McMillan (2014), although an online examination allows students to take the test anywhere, it has not been designed to allow open access to their text and notes. Due to limitations in supervision, students may plagiarise or refer to online resources during writing assessments. Ali and Dmour (2021) argue that the chances of students cheating increase in online assessments. This is because online assessments are done at home and unsupervised. With this flexibility, students are more likely to cheat or refer to resources available at their disposal. To mitigate the probability of cheating, some course instructors require students to turn on their webcams during online assessments. Nevertheless, as argued by Ali and Dmour (2021), students can still utilise other methods to cheat such as opening multiple windows on their computer screen or using their smartphones during tests. Additionally, students can also refer to their notes without their instructors noticing.

With the rise of online formative assessments in ESL classrooms and the uncertainty of teaching and learning procedures during COVID-19, online writing assessments may be here to stay. As Garcia-Morales et al. (2021) argue, online teaching and learning has "gained relevance and ensured its continuance even after the Covid-19 pandemic" (p.6). It is therefore necessary to establish a well-designed online writing assessment whose validity is comparable to that of traditional ones. Test setters should consider the differences between the traditional testing environment and the digital environment as they could impact, students' use of resources, text length and text quality. At present, there are very few studies that have explored the implementation of online writing assessments in the Malaysian context. As such, the current study aims to explore the insights of ELL students regarding the shift from traditional, f2f testing to online platforms, as well as perceived learning outcomes as a result of first-hand experiences with alternative online writing environments.

### *Performance Assessment in a Digital Setting*

As suggested in the previous section, the major shift from traditional testing environment to digital environment may require a shift in assessment format as well. Ali and Dmour (2021) suggest that multiple qualitative methodologies should be used to conduct online writing assessments. In this regard, authentic assessment can be seen as a more appropriate solution to assess students' writing performance in a digital environment. According to Sarwanti (2015), authentic assessment is also commonly referred to as performance assessment. Sarwanti further explained that performance assessment "requires students to demonstrate their knowledge, skills and strategies by creating a response or a product" p. 21. The formats of performance assessment may range from short texts to long term assignments that require learners to present their work. These assignments often entail students' engagement in higher order thinking skills (Mohamed & Lebar, 2017). In the context of a digital environment, a performance-based writing task should be able to tap students' performance in context while allowing them to refer to a myriad of resources online.

### *Schema and Sociocultural Theory in Writing*

The current work draws on the schema theory by Carrell (1984) and the sociocultural theory pioneered by Vygotsky and Cole (1978). The word schema is a term used in psychology and cognitive science to describe an organised pattern of thought which influences attention and the absorption of new knowledge (Zhao & Zhu, 2012). According to Carrell (1984), there are three categories of schema: linguistic schema, content schema and formal schema. Linguistic schema refers to the learner's prior linguistic knowledge, including the knowledge about grammar and vocabulary. Content schema is the learner's knowledge about a topic or subject matter. This includes learner's familiarity with a particular issue, cultural knowledge, conventions and personal experiences. Formal schema is described as the learner's prior knowledge about "the formal, rhetorical, organizational structures of different kinds of texts" (Carrell, 1983). Having a formal schema allows the learner to recognize different text genres and their respective structural organisation, language structures, vocabulary and grammar. In second language (L2) writing, students need to employ their background knowledge or previous schemata stored in their long-term memory to create good essays. Schemata provides the knowledge of phrases, content and forms, which influence students' writing process. If students do not have enough prior knowledge or schema for a particular writing task, they will not be able to fulfill it and may need to depend on other resources. These resources may come in the form of physical tools, digital tools, guidance from teachers and peer discussions.

Sociocultural theory advocates the idea that learning is a social act and best achieved through collaborative discussions with peers and teachers (Behizadeh, 2014; Prior, 2006; Rish et al., 2015; Schultz & Fecho, 2000). In relation to writing, sociocultural approach can be defined as mediated actions which learners consciously take to facilitate their learning to write (Lei, 2008). In a similar vein, Donato and McCormick (1994) who investigated the role of portfolio assessment procedures in mediating students' learning, discovered that classroom cultures can be instrumental in developing students' language learning strategies. The culture here refers to learners' own writing goals, resources, interaction with teachers, socialization with their peers and so forth. Now that online learning is no longer an option but a necessity, technological applications have also become part of the classroom culture and resource that students have access to. These technological tools ranging from editing apps, online sharing platforms and the internet itself can be regarded as a set of new affordances in the digital writing environment.

The new affordances in digital writing serve as a rich instructional medium in L2 classroom which is consistent with the goals and assumptions of sociocultural theory in writing. Within this theory,

writing is regarded as a “social act that involves a complex dialogic and distributed process of invention and knowledge transformation” (Slavkov, 2015 p.81). The conception of the sociocultural theory of writing takes place when writers borrow ideas, language structures and vocabulary from other writers and texts (Bakhtin, 1981). It is during this mediation process that writers examine their available resources and utilise the ones that can influence the content and quality of their essays. In a digital writing environment, online resources that students have access to serve as additional mediation tools that could influence their writing strategies and the quality of written output.

## RESEARCH QUESTIONS

1. What are the perceptions of the ELL university students on the differences between taking a writing test in a traditional classroom and an online writing test?
2. Do students use online resources as mediation tools to aid writing when attempting an online writing test?
3. What are the reasons students use online resources in their online writing test?

## METHODOLOGY

### Design

The current work is an exploratory study which aims to investigate university students’ perception of online writing assessment in comparison to conventional writing assessment. This involves tapping students’ views on the differences between taking a writing test online and taking a writing test in a traditional classroom setting. Research-related information was presented to the participants to voluntarily decide whether or not to participate as research subjects. Informed consent was sought from the participants prior to data collection.

### Samples

The data from the current work were collected from 206 university students studying at a public university in Malaysia. These students were convenient samples. The response rate was 93.70% i.e., 193 students as 13 students did not return their responses. Participants were between 19 to 23 years of age and heterogenous in respect of their mother tongue. Over 95% of them spoke Malay and the rest Kadazan Dusun, Bajau and other indigenous languages. All of them were in their second year of tertiary studies and came from various course programmes. The participants had differing proficiency levels ranging from CEFR A2 to B2. However, most of the students were at the B1 level.

### Instrument

#### *a. Online Test*

The online writing test consisted of one question which required students to compose an expository essay. The question type was identical to the traditional writing test prior to the pandemic. The only difference was that in the online test, students were allowed to refer to printed and online dictionaries. Also, they were warned not to refer to other online resources like Google translate and Grammarly or surf the Internet for ideas. In a traditional setting, the same test took 90 minutes. In the current setting, students were given 120 minutes, an additional 30 minutes for technical issues. Most of these students resided in rural areas where the Internet connection was not stable and thus experienced unnecessary technical glitches. To ensure that the participants submitted their essays on time, giving them more time was justifiable. In the present study, only the findings from the self-report were examined and explored.

### *b. Self-report*

The instrument for data collection was an online self-report comprising six open-ended questions and a multiple-choice question (see Appendix A). Self-report method provides the researchers information about the research participants' perspectives and experiences. Since the participants are allowed to describe themselves using the language common to the respondents, they have the liberty to express their views freely. Consequently, the information garnered from self-report is rich. In the present study, the self-report questions were also translated to Bahasa Melayu to allow students with limited English proficiency to answer the questions truthfully without constraints. The questions were converted into Google forms and shared in the Google meeting during class.

### Data Analysis

The data for this study were the written responses from the participants. The coding process was done manually. First, the researchers read all the responses. Coding was done by highlighting the key words. The researchers had agreed on which codes to apply to each segment of text. Only suggestions which were accepted unanimously were used to refine the coding scheme and the coding process along the way (see Table 1).

## FINDINGS AND DISCUSSION

### RQ1: What are the students' perceptions on the differences between taking tests in the classroom and online?

To gauge students' perception on the differences between taking tests in the classroom and online, they were asked to share their thoughts on the issue. Overall, a majority of the students were in favour of online writing assessment compared to traditional writing assessment. The findings revealed several advantages of online writing assessment. In analysing the data, four main themes emerged: convenience, ability to manage time, environment that is conducive and affordance of online resources.

**Table 1. Advantages of online writing assessment as reported by students**

Themes	Comments
Convenience	<ul style="list-style-type: none"> <li>• The use of computer writing the essays making the answers easier to read</li> <li>• Taking a writing test online is easier than taking a writing test in a classroom because if online, we are typing the essay.</li> <li>• It's easier to write online since I can just open up a tab and search up anything I need</li> <li>• I would say online is more convenient due to a comfortable place/room where my thoughts are within myself compared to a full classroom.</li> <li>• A lot more freedom in terms of generating ideas and referring to unknown words that I don't know/remember.</li> <li>• Taking a writing test in a classroom need us to rely on my own self 100% while taking a writing test online gives me the chance to find my points online</li> <li>• You can refer the Internet to do some research through online test but for the writing test, you have to use your brain fully to gain idea.</li> </ul>
Ability to manage time	<ul style="list-style-type: none"> <li>• Writing test online give me extra time to write an essay</li> <li>• I have more time in writing when online</li> <li>• In online writing test, I can translate the words that I don't know but in classroom it will take more time for me to think</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Taking a writing test online is quite comfortable</li> <li>• Honestly taking a writing test online is better for me personally because the atmosphere and my surroundings helps me think better</li> </ul>

- I have a quiet study room, which is my bedroom so there's not much disturbance. Also, my family is understanding if I'm taking a test.
- Reduces stress of not being in the exam hall with other students
- More relax when taking a writing test online.

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Affordance of Online Resources

- Taking an online writing test allows me to check words and expressions immediately
  - I can quickly come up with a word that I want to write and check my grammar using grammar check tools
  - My difficulties in grammar and the choosing the right words decrease.
  - There is no-auto correct in terms of spelling and grammar when taking a writing test in a physical classroom, but our spelling will always be correct when answering it online
  - I can avoid making errors when taking a writing test online. My phone can help me in correcting my spelling
- 

### Convenience

Taking tests online requires the use of personal computers and connectivity. With the use of a personal computer as a tool for taking the writing test, the respondents feel that this has made it easier for them to write, delete and ensure that their essays are legible. The use of computers makes writing essays easier to read. Typing the essay is believed to be faster and less tiring for the respondents.

In addition, since it is done online, students have the tendency to search for information online, despite being told they are not supposed to. One respondent stated that *"It's easier to write online since I can just open up a tab and search up anything I need"*. One of the common problems faced by students when it comes to writing essays is the lack of ideas in elaborating the main points. Hence, when essay writing is conducted online, students have the opportunities to search for ideas online as no one is monitoring them like in the traditional classroom testing. Students responded that in a traditional classroom test, they had to 'to think of ideas' themselves, and 'rely on their own 100%'. However, when taking the writing test online, *'I have more freedom in terms of getting ideas', 'I can find writing ideas on the websites', 'I can research on the topic', 'I can search for relevant ideas' and 'I have the advantage of getting ideas online'*. In short, online resources are used as convenient mediation tools by students to aid the writing process. The convenience experienced by the students has made the online writing test favourable to them.

One other common difficulty for students in an essay writing task is the lack of vocabulary. Students would normally struggle to look for words to be used in their writing. With the availability of online dictionaries, most students feel at ease in getting the right vocabulary to be used in their essay. In their responses, they stated that 'Unlike conventional classroom test, I can [search for] the words I want to use in my essay', 'Online test is easier because I can search the right ideas correctly', 'We can refer to the online dictionary, and I can search for words such as synonyms to write my essay'. One student stated that 'My difficulties in grammar and getting the right words are decreasing'.

### Ability of time

Respondents also revealed that they had more time to write. They spent time looking for the words they wanted to use as they could search for those words in the online dictionary. Additionally, they disclosed that they also did not waste time brainstorming for ideas as they could also look up for ideas and examples online.



That said, some said that time seemed to be slipping past faster than usual when taking the writing test online. Since the availability of opportunities to look for information online, one respondent stated that he lacked the time to type the essay as he spent his time looking for information. Due to the poor Internet connection, some said that they were more anxious and could not submit the test on time.

### Environment

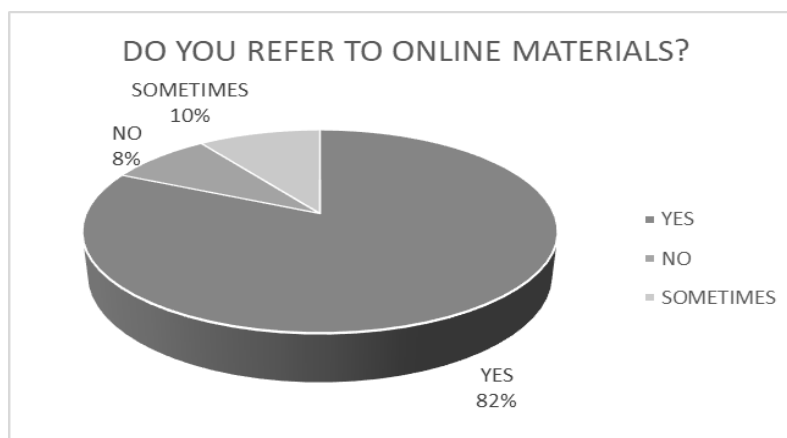
Contrary to the usual test taking environment (e.g., the classroom or the exam hall), online tests can be conducted anywhere convenient for the test takers as long as they are connected to the Internet. In most cases, online assessments are carried out in the homes of the students. Generally, the respondents felt that it was far better to take the online test in the comfort of their rooms which were more comfortable and more relaxed as there was less disturbance.

Nevertheless, some respondents also felt otherwise. The fact that it was not done face to face, they could not feel the exam vibe, especially the distinctive feeling or quality of the ambience of communal test taking. They felt that they did the tests in isolation. In addition, some took the test in an uncondusive environment where it was noisy in the presence of their non-understanding siblings. Oftentimes, they were disturbed or distracted in the house.

### Affordance of online resources

Affordance of online resources refers to the technology that can enable new learning and assessment opportunities and experiences. Taking the test online gives the opportunities for learners to make use of the online resources available to them. Respondents expressed that taking online tests and taking tests in the classroom were different in many ways. Due to the nature of the digital testing environment, students have access to various resources during the administration of a test. Although students were told not to refer to any resources or discuss with their peers during the test, the temptation to do so lingers. As this study has revealed, students used the internet to search for information to be used in their essay. In the physical classroom, they could only rely on themselves to brainstorm for ideas. Secondly, the accessibility of online dictionaries and google search engines have afforded them the right terms and vocabularies to be used in their essay writing. Thirdly, other applications such as spell-check, google translator, and auto correct have rendered simpler and easier means for students to write their essays.

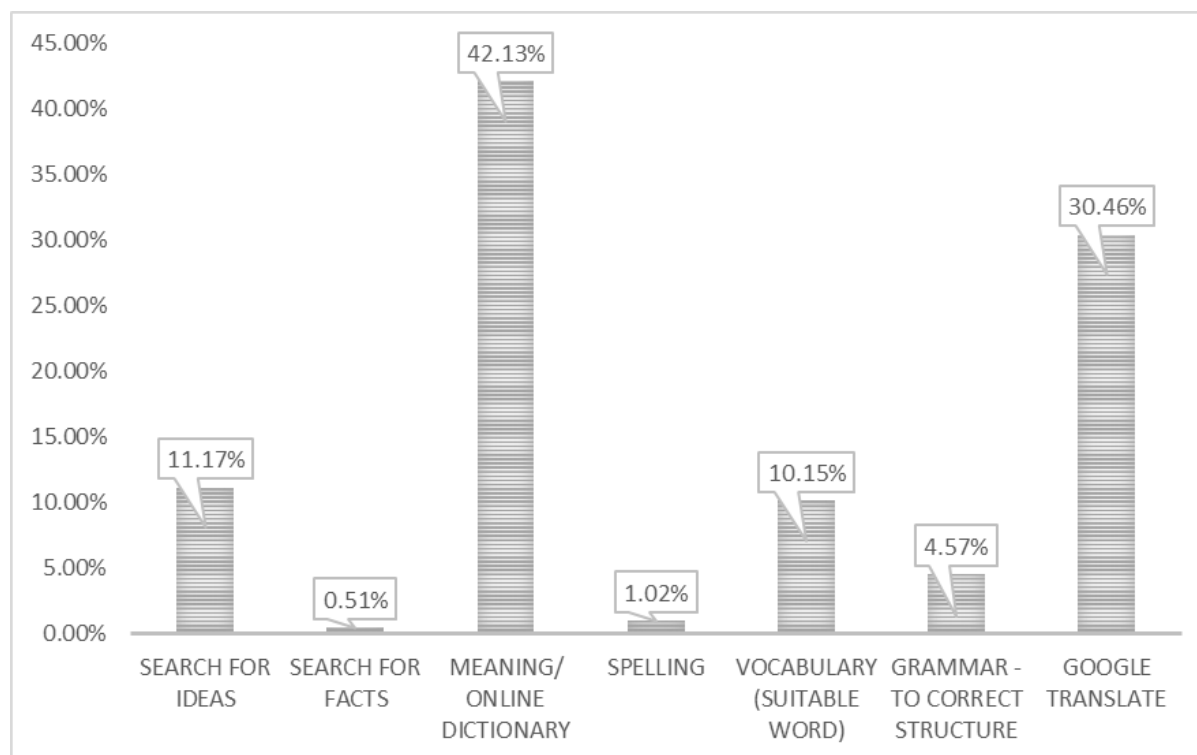
RQ2: Do students use online resources as mediation tools to aid writing when attempting an online writing test?



**Figure 1. Percentage of students who used online resources as mediation tools to aid writing**

Figure 1 shows that of the 193 respondents, a significant 82% stated that they used online materials during the online writing test whereas only 8 % stated that they did not. Another 10 % stated that they sometimes referred to materials online while taking their online tests.

*RQ3: What are the reasons students use online resources in their online writing test?*



**Figure 2: Reasons for the use of online resources as mediation tools**

Figure 2.0 presents what the online materials were used for as reported by students. As can be seen, 83% of the students reported using the online dictionary during the test to search for word definition and to ascertain meaning of words to be used in their essays. As some respondents commented, “*When taking an online writing test, I can check English words and expressions on the internet*” and “*I can quickly come up with a word that I want to write and check my grammar using grammar check tools*”. This is followed by 60% of them who used Google translate for meaning reference and translating texts from Malay to English. Another 20% of students used online search engines to google for suitable words or expressions relevant for their essays. As one respondent conceded, “*It's easier to write online since I can just open up a tab and search up anything I need*”. Quite surprisingly, only 22% used online resources to search for ideas. Some comments expressed by respondents included “*taking a writing test online gives me the chance to find my points online*”, “*I get a lot more freedom in terms of generating ideas*” and “*I have the advantage of getting ideas online*”.

## DISCUSSION

The present study set out to investigate students’ experience in their online writing tests while learning remotely. Overall, two major findings emerged. Firstly, it was found that during digital writing tests, students utilised online resources to source ideas and points for their essays. The affordance of the internet and mobile devices enabled them to produce more concrete points, and

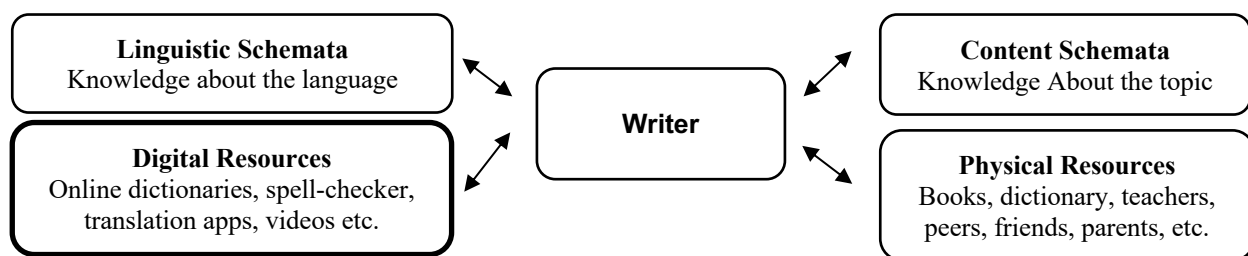
this consequently improved the quality of their essay. In this regard, it can be said that the processes executed during the digital writing assessment reflect the process of invention and knowledge transformation depicted in sociocultural theory. For instance, students' utilization of online resources demonstrates the mediation process between the writer and their resources. Meanwhile, students' action of borrowing ideas from online texts reflects the process of knowledge transformation in a socio-cultural context. This is consistent with the findings of Ali and Dmour (2021) who claim that students tend to copy from online resources while doing their online tests. Therefore, in essence, online resources can be seen as the main go-to during the mediation process to help students improve their writing output.

The second key finding revealed that students used online tools and mobile devices during digital writing tests to polish their essays. Writing tools such as Grammarly and online Thesaurus were among the main resources, students utilised to improve their essays. Understandably, most of them felt they performed better in the online tests compared to traditional pen and paper assessments due to the affordances of digital resources. This clearly suggests that the mediation between the author and the resources in a digital environment help compensate for students' lack of linguistic ability. This is consistent with the findings of Shin, Kwon and Lee (2021) who found that low and intermediate learners used online resources to overcome their linguistic limitations while completing online writing tasks. In a similar vein, the findings from this study also corroborate the findings of Isbell and Winke (2019) who advocate that computer-based language tests "facilitate, contextualize, and enhance" the assessment of learners' linguistic skills (p. 313). Apart from improving the language of their essays, students also reported producing longer texts in the digital writing test. In fact, many reported that they utilise their time more effectively when doing online test. These insights suggest that students' linguistic challenges are lessened by the affordances of online linguistic tools which aid vocabulary, grammatical accuracy, and essay mechanics. This is consistent with the findings of Zheng et al. (2015) who argue that online writing assessments allow students to produce more lengthy output with the help of digital writing tools.

#### *A socio-cultural framework for digital writing tests mediated by online resources*

Within a sociocultural approach, the current work explored how ELLs mediated their writing using the online resources available to them during a digital writing assessment. In particular, the present study highlighted the mediating tools that the learners drew upon to compensate for their lack of schema. Figure 2 presents a socio-cultural framework for digital writing tests mediated by online resources. This framework is inspired by Carrell (1984) schema theory and Vygotsky and Cole (1978) sociocultural theory. It comprises four components: Language schemata, Content schemata, Digital resources, and Physical resources. These components represent the four mediation tools that L2 writers may utilise during an online writing test. Language schemata refers to linguistic knowledge such as vocabulary proficiency and grammar knowledge. Content schemata refers to topical knowledge or background knowledge on a particular subject matter. Digital resources refer to any sort of resources or tools that are retrieved digitally while Physical Resources refer to physical tools, people and resources that are available at the learners' disposal during the administration of a writing test. In a traditional testing environment, the learner could only utilise his content and linguistic schemata to fulfill a writing task. However, in a digital environment, L2 learners are afforded with all the four mediation tools shown in Figure 2 and they may choose whichever tool they wish to utilise during a test. Although this study did not analyse students' use of Linguistic schemata, Content schemata and Physical Resources in completing the online writing test, these components are presented in the framework to provide a holistic view of the available resources in a digital writing environment.

As reported in this study, students used digital resources during the online writing test despite being told they were not allowed to. One of the main reasons for this reliance was the use of online dictionary for meaning reference. The second significant reason was the use of digital translation tools for translating texts from their mother tongue to English. From a sociocultural perspective, the use of these strategies imply that students compensate their lack of linguistic schema through the mediation of digital tools such as online dictionaries and Grammarly. Additionally, students' lack of content schema prompted them to use the internet to search for relevant ideas and details for their essays. Due to the nature of the digital writing environment, they have immediate access to various resources which allow them to borrow ideas, linguistic expressions and copy correct forms of writing. Students can simply google a topic and take key points from sample articles with no supervision. These mediation processes can arguably affect students' writing output. In face-to-face testing however, this amenity is not provided. Instead, traditional writing assessments are closely supervised by an invigilator to ensure that tests are performed independently. This controlled environment is incomparable to that of a digital testing environment. Differences such as affordance to resources, learner autonomy, test length and supervision are factors that can affect text quality and length. Hence, this begs the question as to whether it is valid and reliable to shift writing assessments from a conventional classroom to a virtual classroom verbatim. The originality of students' production is at stake and lecturers could be marking students' plagiarised work. Conclusively, the direct move from pen and paper assessments in the physical classroom to the virtual setting without any adjustment is unjustifiable.



*Figure 3: Writing assessment in a digital environment from a socio-cultural perspective*

## IMPLICATIONS

The findings of the present study reveal valuable information on the merits and application of digital writing tests. Several implications can be drawn to inspire students and educators. In regard to pedagogical implications, the proposed framework for online writing assessments suggests that the four main components; L2 schemata, Content Schemata, Digital Resources and Physical Resources should be considered when designing assessment questions. As the research findings revealed, learners relied heavily on Digital Resources during the mediation process in an effort to produce better essays. This means that the formative assessment conducted digitally is not comparable to traditional testing and therefore could not really reflect students' true writing abilities from brainstorming ideas to putting their thoughts on paper. In short, traditional testing is not suitable to be converted into an alternative online assessment without any adjustments to the test format and specifications. It is more suited to apply alternative online writing tests for project-based writing and portfolio assessments which require students to do source-based writing. As such, educators and test setters should consider looking at writing assessment from the socio-cultural perspective: a skill that involves mediation between the writer and the resources around him. After all, writing in the real world is a social process that involves mediation in many forms.

In regard to the practical implications, findings from the current work suggest that other forms of written assessments be considered in the digital setting. Alternative assessments could be an appropriate substitute in place of formative ones. Some examples of alternative assessments include course work, written assignments and even portfolios. Written assignments for instance, allow students to conduct small-scale project-like work within a certain time frame which is more appropriate and feasible than a traditional writing test. Ideally, the syllabus might need to be changed to source-based writing. In writing with sources, students select a topic based on their interests and then synthesise the information from different sources. Right from the start of exploring the topic, students are into higher order thinking skills rather than lifting ideas and language they come across on the Internet in a classroom writing test. Another merit of source-based writing is students are afforded the opportunity to mediate between different resources available to them. This includes digital sources and physical resources i.e. family, peers etc. In this mediation process, the act of searching for information online to using Grammarly, checking their sentence construction to enhancing their writing skills are all warranted. In this form of writing with sources, students will be taught how to synthesise information, paraphrase, summarise and use quotations. Crediting sources and references will help students avoid plagiarism. Not only are students exposed to academic writing, but also churn out work that is more original than taking an online writing test in a stipulated time.

An area that was not explored in this study was the learners' level of L2 proficiency. Future studies could investigate how learners of different proficiency levels use online resources as mediating tools in writing. More broadly, research is also needed to determine whether other forms of alternative online assessments can really tap into assessing students' writing ability.

## CONCLUSION

As this study has discovered, students' writing outputs during the digital writing assessment were aided by the mediation of online resources. Although students perceive the moving of the classroom-based writing assessment in the online platform as having many merits, its reliability and validity are questionable. For this reason, assessments that better cater to the online writing environment should be in place. Since online resources are at students' fingertips, source-based writing is more substantial than migrating conventional writing tests online. All the skills such as paraphrasing, summarising, and quoting skills including crediting the sources are crucial in academic writing. Project-based assignment is therefore more justifiable when it comes to assessing students' writing abilities in the virtual setting.

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## APPENDIX A

### QUESTIONNAIRE: ENGLISH WRITING TEST IN A DIGITAL ENVIRONMENT *SOAL SELIDIK:*

#### *UJIAN PENULISAN BAHASA INGGERIS DALAM PERSEKITARAN DIGITAL*

The purpose of this questionnaire is to gather information on your perceptions of writing English essays. By responding to this questionnaire, you will be able to help us to identify the challenges faced by you when writing essays in English, both for tests and assignments. There are only two (2) sections in this questionnaire. The first section gathers information regarding your biodata and the second comprises questions regarding your perceptions of the online writing test and the difficulties that you normally face in writing English essays. Please begin by clicking on the NEXT button. Thank you.

*Tujuan borang soal selidik ini adalah untuk mengumpul maklumat berkenaan pendapat anda mengenai penulisan esei dalam Bahasa Inggeris. Respon yang diberikan oleh anda akan membantu kami untuk mengenalpasti cabaran-cabaran yang anda hadapi semasa menulis esei dalam Bahasa Inggeris, sama ada untuk ujian atau tugas. Borang soal selidik ini mempunyai dua seksyen. Soalan-soalan dalam seksyen pertama (1) adalah mengenai maklumat latar belakang anda, dan soalan-soalan dalam seksyen kedua (2) adalah berkenaan persepsi anda mengenai ujian penulisan Bahasa Inggeris yang dilakukan secara maya serta dengan cabaran-cabaran yang anda hadapi semasa menulis esei dalam Bahasa Inggeris. Sila klik butang NEXT untuk mula menjawab. Terima kasih.*

#### **Section A: Demographic Profile**

##### ***Seksyen A: Profil Demografi***

(1) Name/ *Nama*

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(2) Matric No/ *No Matrik*

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(3) Gender/ *Jantina*

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(4) Age/ *Umur*

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(5) Mother tongue/ *Bahasa ibunda*

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**Section B: Perception on online writing tests and the difficulty in fulfilling writing tests in English**  
**Seksyen B: Persepsi terhadap ujian penulisan secara maya serta kesukaran menjawab soalan penulisan dalam Bahasa Inggeris.**

(1) What differences have you noticed between taking a writing test in a classroom and taking a writing test online? *Apakah perbezaan yang anda dapat perhatikan mengenai ujian penulisan secara bersemuka dan ujian penulisan secara talian?*

(2) When taking an English writing test online, do you use / refer to an online dictionary / a google translator / websites to get ideas? *Ketika mengambil ujian penulisan Bahasa Inggeris secara talian, adakah anda menggunakan / merujuk kepada kamus online / google translator / internet?*

(3) If you have answered yes to Question 2, please indicate the reasons for referring to online materials during the administration of the online writing test. *Sekiranya anda ada merujuk kepada bahan bahan online semasa mengambil ujian penulisan, sila nyatakan sebab anda berbuat demikian.*

(4) Do you find writing essays in English difficult? Why or why not? *Adakah anda mengalami kesukaran menulis esei dalam Bahasa Inggeris? Bagi sebab atas respon anda.*

(5) What are the main weaknesses or/and difficulties you have faced when writing your English essays? / *Apakah kelemahan atau kesukaran yang anda alami semasa menulis esei dalam Bahasa Inggeris?*

(6) Based on your learning experience in schools and university, what kind of writing errors do you often make when writing English essays? / *Berdasarkan pengalaman pembelajaran anda di peringkat sekolah dan universiti, apakah kesalahan yang biasa anda lakukan dalam penulisan esei Bahasa Inggeris?*

(7) Which of the following pose the biggest challenge for you when it comes to writing essays in English? / *Antara yang berikut, yang manakah merupakan cabaran yang paling sukar anda alami dalam penulisan esei Bahasa Inggeris?*

(a) Brainstorming for relevant ideas (lack of ideas) / *Mencari idea yang relevan (kekurangan idea)*

(b) Finding the right words in English (lack of English vocabulary) / *Mencari perkataan yang sesuai (kekurangan kosa kata dalam Bahasa Inggeris)*

(c) Using the correct grammar (lack of grammar skills) / *Menggunakan tatabahasa yang betul (kekurangan pengetahuan dalam tatabahasa)*

(d) Structuring and organising ideas in my essay (the flow in my essay) / *Menstruktur dan menyusun ayat dalam esei (kesinambungan dalam esei)*

(e) Using the right mechanics (spelling/punctuation/capitalisation) / *Kekurangan pengetahuan dalam ejaan perkataan serta penggunaan tanda baca dan huruf besar/kecil*

Other:

Lain-lain: