The Affordances of Online Self-Learning: Strategies and Motivation for English as a Second Language (ESL) Learners Amid the COVID-19 Crisis

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OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada.
ISSN 1923-6654 (print) ISSN 1923-6662 (online) www.oidaijsd.com
Also available at https://www.ssrn.com/index.cfm/en/oida-intl-journal-sustainable-dev/

Abstract: The advancements in technology during the Fourth Industrial Revolution (IR 4.0) have had a profound and extensive impact on contemporary tertiary education. Due to the worldwide COVID-19 pandemic, in-person classes have transitioned to remote online learning. Consequently, students are required to actively manage and control their own learning in order to achieve success in this novel structure. Although online language programs have a high number of students, there is a paucity of understanding regarding the motivation and techniques employed by these students and how these factors affect their performance in online learning. The objective of this study is to bridge the existing information gap by examining the motivation of students and the application of multiple cognitive and meta-cognitive approaches employed in virtual English as a second language learning contexts throughout the outbreak. Our sampling approach adopted a multistage random sampling method to recruit 555 respondents from multiple Malaysian university populations. All respondents received the Google Forms-based survey includes an informed consent section via the WhatsApp application distributed by designated university representatives. Through online surveys, the research gathered (A) participants' demographic data, (B) investigated motivational aspects of English as a Second Language (ESL) students, and analysed their online behaviours pertaining to self-learning within the COVID-19 epidemic, including (C) perceived benefits of online self-learning during the pandemic, (D) online ESL self-learning approaches, and (D) personally observed improvement. To summarise, the research highlighted the interconnected relationship between self-monitoring, cognitive and meta-cognitive strategies, intrinsic and extrinsic motivation, and online learning platforms during the epidemic. The need of educators adapting their teaching techniques, utilising the advantages of online education, and providing targeted support to foster self-evaluated and motivated English as a Second Language (ESL) learners was highlighted.

Keywords: COVID-19, English, Online Learning, English as a Second Language (ESL), Self-Learning

Introduction

As a worldwide initiative, the Sustainable Development (SDGs) framework under the 2030 Agenda strives to cultivate harmony and prosperity for individuals and the global community, both in the present and for generations to come. According to Alvarez-Risco et al. (2021), acknowledging the transformative potential of information and communication technology (ICT), the SDGs emphasise their pivotal role in propelling the advancement of the 17 Sustainable Development Goals. Rapid ICT innovation and global interconnection hold potential for increasing human progress and building knowledge-based civilisations. The Eleventh Malaysia Plan (11MP) integrates sustainable development goals and ICT to guide Malaysia's development (Yusof and Ariffin, 2020).

Undoubtedly, the internet has become a crucial aspect of contemporary social interactions. According to data from the Malaysian Communications and Multimedia Commission (MCMC), internet usage among Malaysians increased significantly from 87.0% in 2018 to 90.1% in 2019 (Norman et al., 2022). The advent of online activities has greatly facilitated many modes of communication, learning, and collaboration, particularly in the realm of higher education

(Krishnan et al., 2020; Kumar, Bervell and Osman, 2020). However, due to the emergence of the Coronavirus Disease 2019 (COVID-19) epidemic and the subsequent implementation of the Movement Control Order (MCO), Malaysia's higher education institutions quickly shifted to online learning. Although the pandemic has increased demand for online learning, there has not been much focus on addressing the particular difficulties that English as a Second Language (ESL) learners face in this setting (Taufik et al., 2021; Vivoni-Suarez, 2021; Yu, Xu and Sukjairungwattana, 2023). This study intends to explore the intricate relationship between motivation and online learning practices in ESL classes during the COVID-19 pandemic. It seeks to offer valuable insights into the factors that influence student achievement in this specific context.

By gathering data on the technical advancements of the Industrial Revolution Era 4.0, which have had a significant influence on education today, especially higher education during the COVID-19 epidemic, this work contributes significantly. The motivation for and methods of learning employed in virtual ESL learning environments for secondary education students at Malaysian universities can also be assessed through this study. Additionally, this survey would be helpful to academic scholars assessing how students feel about switching from traditional in-person courses to online learning during the epidemic. Governments and managers in the education sector can use this study's findings to help create policies that will sustain the university's online learning model going forward. Additionally, educational establishments can receive assistance in developing techniques that work to raise the bar for instruction and comprehend the attitudes and motivations of students regarding the COVID-19 pandemic.

Materials and Methods

This study adopted a quantitative and cross-sectional methodology to explore the association between students' motivation and their employment of cognitive-meta-cognitive strategies in the context of virtual ESL learning throughout the COVID-19 crisis. The data sample comprised responses from 555 Malaysian university students, selected through multistage random sampling to reflect the diversity of academic fields. The research instrument, a self-reported online survey designed in Google Forms and consent documents, was circulated by university contacts via WhatsApp. Respondents, whose identities remain anonymous, participated voluntarily over a two-week period. The data gathering gave respondents the freedom to choose their level of survey completion. Demographic variables, such as participants' gender and course details were collected to facilitate a descriptive profile of the sample. Strict privacy measures ensured the information was only used solely for research purposes.

The survey responses comprised nominal and ordinal scale variables. The online instrument contained 38 self-administered items employed a 5-point agreement scale ranging from "strongly agree," to "strongly disagree." The survey instrument was systematically structured into 4 domains: demographic characteristics (3 items), students' learning motivation (5 items), online learning strategies within a self-learning framework (9 items), online language learning strategies (16 items), and perceived progress in ESL online learning (5 items) totaling 38 carefully designed questions. The data collected from the questionnaires were evaluated statistically using Microsoft Excel and displayed in tables. Descriptive and inferential statistics were employed to analyse the demographics of the respondents and the characteristics and patterns of each item.

Power analysis is essential for estimating the sample size required to perform statistical analyses accurately and to ensure valid generalisations about the population. In addition, it is also crucial when considering the generalisability of findings to the entire community. It serves as an initial step to identify the required number of completed and usable surveys. In this study, to achieve reliable results, the appropriate sample size was mathematically derived from the total population size, the acceptable margin of error (ME), and required confidence interval (CI) as presented in Table 13 (see Appendix). The ME level is usually set at 5%, whereas the CI level is set at 95%. A population of 100,000 people would require a minimum of 383 samples for a survey with a 95% confidence interval and a 5% margin of error. Adjusting the confidence interval from 95% to 90% or 99% will cause the sample size to change from 383 to 270 or 660, respectively. Meanwhile, adjusting the margin of error (ME) from 5% to 10% or 1% results in a change in sample size from 96 to 8763. The final sample consists of 555 respondents who shared insights on their motivation and virtual learning approaches adopted amid the pandemic period. There is a total of 281,940 respondents (Ministry of Higher Education, 2022). However, the response rate was 0.20% because of uneven distribution and participation.

Results and Discussion

To order to strengthen the clarity and validation of the reported findings, the complete set of survey questions, along with the collected participants' responses have been included in the appendix (Appendix A and Appendix B). These materials support the analysis and interpretations discussed in this chapter. The questionnaires comprised 5 different sections:

Section A: Participants' Demographics,
Section B: Pandemic-era Potentials of Online Learning Motivation,
Section C: Perceived Benefits of online ESL Self-learning,
Section D: Online ESL Self-learning Strategies.
Section E: Perceived Progress in Online ESL Self-learning.

The demographic section reported three items, namely the gender, courses, and universities of the respondents. Data were collected from 555 respondents, of whom 404 were female and 151 were male (Figure 1).

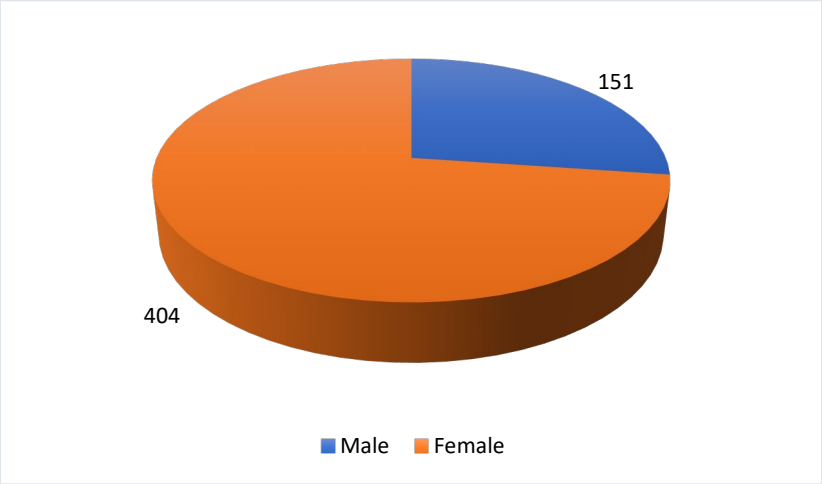

Figure 1. Gender of respondents

The respondents varied by 29 different courses, with the most occupied students in Accounting (83), followed by Early Childhood Education (72) and Defense Fitness (41) (seen Figure 2).

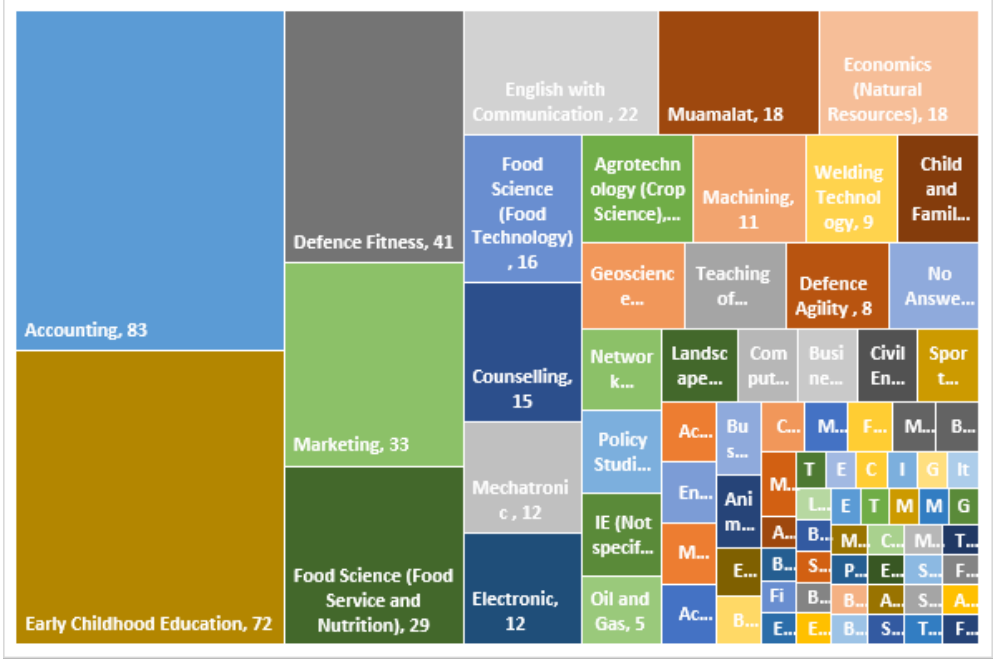

Figure 2. Courses of respondents

Data was collected at 29 universities, with most of the respondents being students from University Malaysia Terengganu (UMT) (219), followed by University College Bestari (UCB) (72) and Advanced Technology Training Centre (ADTEC) (58) (seen Figure 3).

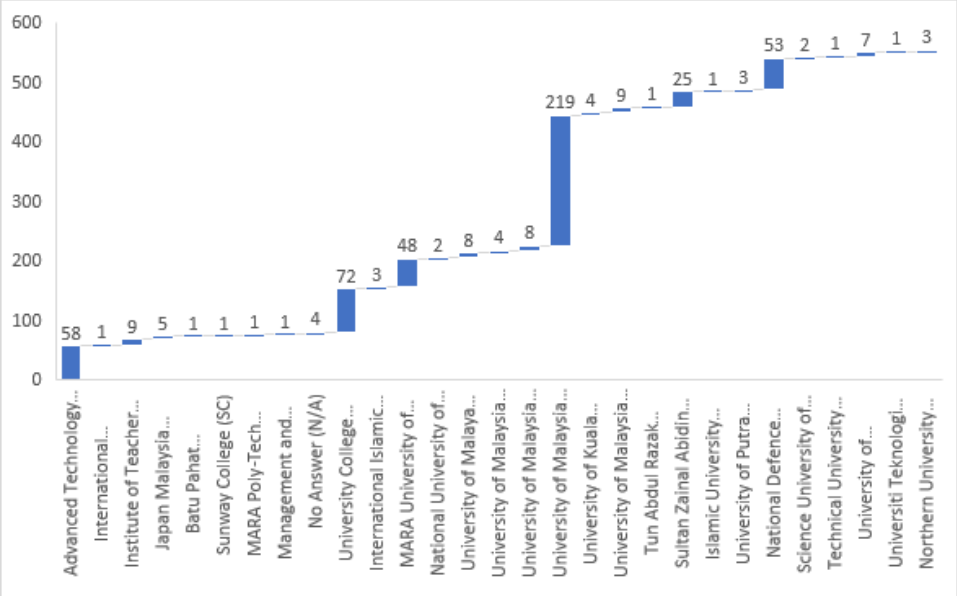

Figure 3. Universities that involved in data collection

For the Section A, B, C, and D analysis, we use descriptive statistics. Sections A, B, C, and D use a balanced five-interval agreement:
1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree.

In Section B, the motivation of the students was identified by the approach of the online study safety, the e-learning system provided by the university, the medium used during online classes, the video conference medium, and the usage of social media for the interaction. 54% of respondents agree that online learning, whether formal or informal, has the best and safest approach during the COVID-19 pandemic. Meanwhile, 70% of respondents strongly agree that universities have provided a good e-learning system during the COVID-19 pandemic. 56% of respondents defined Google Classroom as the most used tool during their online class, and 66% stated that Google Meeting was used during the video conference. 89% of respondents stated that the WhatsApp application was the most used social media for the class-related discussion. Table 1 shows the results of descriptive statistics on students' motivation.

Table 1. Descriptive statistics on student motivation

Item	Level of agreement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
B1	Is online learning, whether formal or informal, the best and safest approach during the covid-19 pandemic?	203 (37%)	296 (54%)	25 (4%)	16 (3%)	15 (2%)
B2	In your opinion, do you think that your university implemented an effective e-learning delivery system throughout the pandemic period?	388 (70%)	142 (26%)	0 (0%)	21 (4%)	4 (1%)
Item	Options	Google classroom	Edmono	Webinar	WhatsApp	Others
B3	If your university e-learning performs well, what are the most frequently used tools your lecturer uses?	311 (56%)	61 (11%)	73 (13%)	48 (9%)	62 (11%)

Item	Options	Zoom	Google meeting	Telegram	Others	
B4	Select the video conferencing tools your lecturers most frequently use for online classes?	52 (9%)	365 (66%)	6 (1%)	132 (24%)	
Item	Options	WhatsApp	Telegram	Instagram	Facebook	Others
B5	Which social media platforms do you primarily use for class academic discussions?	493 (89%)	58 (10%)	0 (0%)	0 (0%)	4 (1%)

In Section C, nine questions were submitted to measure the functions of online learning throughout the global pandemic. Most of the respondents "agree" that online learning does help them gain more interesting learning experiences (57%), suit their time preferences (55%), location preferences (55%), pace preferences (57%), gain motivation (51%), become independent learners (57%), learn collaboratively (49%), have close progress monitoring (51%), and have support for repeated practice and reinforcement of language skills (56%). Table 2 presents the outcomes of online learning functions during the COVID-19 pandemic.

Table 2. Descriptive Statistics of the Functions of Online Learning in the Time of Global Pandemic Crisis

Item	Amid the global pandemic, online learning:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
B1	Enables me to have a more interesting English learning experience.	88 (16%)	318 (57%)	112 (20%)	30 (5%)	7 (1%)
B2	Supports me to work at the time that suits me best.	108 (19%)	304 (55%)	106 (19%)	29 (5%)	8 (1%)
B3	Allows me to work at the location that suits me best.	119 (21%)	305 (55%)	84 (15%)	39 (7%)	8 (1%)
B4	Helps me to work at the pace that suits me best.	139 (25%)	316 (57%)	69 (12%)	27 (5%)	4 (1%)
B5	Inspires my motivation in learning the language.	119 (21%)	285 (51%)	122 (22%)	25 (5%)	6 (1%)
B6	Encourages me to become more independent learner.	165 (30%)	315 (57%)	59 (11%)	12 (2%)	4 (1%)
B7	Allows me to learn collaboratively.	122 (22%)	273 (49%)	133 (24%)	20 (4%)	7 (1%)
B8	Allows me to monitor my learning progress closely.	116 (21%)	282 (51%)	121 (22%)	28 (5%)	8 (1%)
B9	Supports for repeated practice and reinforcement of language skills.	123 (22%)	312 (56%)	94 (17%)	22 (4%)	4 (1%)

Table 3 indicates the result of online language learning strategies. Section D consists of 16 questions measuring online language learning strategies. Within all the questions, respondents also mostly choose "agree" options that they have purpose in online courses (57%), communicating in English language with the other students (42%), communicating with the classmates in related with their performance in online class (52%), notes taken during online class (61%), identify the fitness of the content with the learning purpose in online class (63%), getting back to refocus when distracted (64%), having reference materials (53%), tables, figures, and photos to boost comprehension (56%), context clues to increase understanding (59%), using own ideas as examples to increase understanding (59%), read academic materials thoroughly (55%), guessing the meaning of unknown words (55%), get learning assistance from instructor (64%), practicing the sound of English online (57%), finding many ways for using English online (59%) and having external resources to explore the topics (62%).

Table 3. Descriptive statistics of online language learning strategies

Item	When I learn online:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
C1	I have a purpose in mind for my online courses.	124 (22%)	318 (57%)	89 (16%)	23 (4%)	1 (0%)
C2	I communicate in English with other learners.	49 (9%)	231 (42%)	182 (33%)	78 (14%)	15 (3%)
C3	I discuss my online learning performance with classmates to evaluate my progress.	72 (13%)	291 (52%)	128 (23%)	54 (10%)	10 (2%)
C4	I take notes to increase my understanding when joining in the chat room and discussion.	149 (27%)	336 (61%)	52 (9%)	14 (3%)	4 (1%)
C5	I think about whether the content of the on-line material fits my learning purpose.	116 (21%)	351 (63%)	78 (14%)	9 (2%)	1 (0%)
C6	Whenever my mind wanders. I try to refocus myself.	132 (24%)	353 (64%)	52 (9%)	12 (2%)	6 (1%)
C7	I use online reference tools, like an online dictionary, to better comprehend online lessons.	196 (35%)	292 (53%)	48 (9%)	15 (3%)	4 (1%)
C8	Tables, figures, and pictures help me understand better.	117 (21%)	313 (56%)	102 (18%)	20 (4%)	3 (1%)
C9	By using context clues, I improve my learning comprehension.	116 (21%)	327 (59%)	99 (18%)	12 (2%)	1 (0%)
C10	I paraphrase information in my own words to test how well I understand them.	145 (26%)	327 (59%)	70 (13%)	11 (2%)	2 (0%)
C11	I read academic materials online thoroughly to easily comprehend them.	108 (19%)	303 (55%)	108 (19%)	30 (5%)	6 (1%)
C12	I often guess the meaning of unfamiliar words or phrases.	100 (18%)	306 (55%)	99 (18%)	42 (8%)	8 (1%)
C13	I get learning assistance from the instructor.	115 (21%)	356 (64%)	62 (11%)	18 (3%)	4 (1%)
C14	I practice the sounds of English online.	125 (23%)	318 (57%)	90 (16%)	20 (4%)	2 (0%)
C15	I use English in as many online contexts as I can find.	123 (22%)	326 (59%)	86 (15%)	16 (3%)	4 (1%)
C16	I use external online resources to explore topics in more depth.	128 (23%)	346 (62%)	70 (13%)	8 (1%)	3 (1%)

Section E consists of five questions measuring learners' perceived progress in ESL self-learning through online platforms. Within the five options, analysis revealed that participants primarily selected "agree" options across all categories. These results demonstrate that learners perceive online self-learning as particularly efficient for advancing productive ESL language proficiency (speaking/writing) rather than receptive skills (grammar/reading), with oral fluency showing the highest confidence level. The strong rate in positive responses (55–60% agreement) reinforces the property of online platforms for autonomous ESL learning development. As presented in **Table 4**, these outcomes correlate with broader findings linking online learning to self-paced skill enhancement, especially when incorporating dynamic resources, such as the latest versions of language applications and virtual exchanges.

Table 4. Descriptive statistics of perceived progress in online English as a Second Language (ESL) self-learning

Item	Perceived progress in ESL learning by learning online:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
E1	I developed my own English grammar and vocabulary online.	93 (17%)	317 (57%)	129 (23%)	14 (3%)	2 (0%)
E2	I improved English speaking skills online myself.	106 (19%)	303 (55%)	123 (22%)	18 (3%)	5 (1%)
E3	I enhanced English reading skills independently online.	115 (21%)	329 (59%)	94 (17%)	15 (3%)	2 (0%)
E4	I improved speaking skills in English online by myself.	114 (21%)	332 (60%)	92 (17%)	13 (2%)	4 (1%)
E5	I strengthened English writing skills independently online.	112 (20%)	313 (56%)	109 (20%)	17 (3%)	4 (1%)

Discussion

The research aimed to explore the ways the global pandemic shaped the online self-learning strategies of ESL learners, including cognitive and meta-cognitive approaches, as well as their intrinsic and extrinsic motivation. The study revealed that the pandemic prompted a rapid transition to virtual learning, highlighting the cognitive advantages of online platforms such as interactive multimedia resources and flexible pacing.

Autonomous ESL learners demonstrated effective employment of meta-cognitive strategies in the online environment, including goal setting, self-monitoring, and self-assessment. These learners utilised cognitive strategies like summarisation, elaboration, and organisation to enhance comprehension and retention, taking advantage of the digital tools available. Descriptive statistics prove that respondents, as ESL learners, show a relatively high level of both intrinsic and extrinsic motive. These results are consistent with Zabolotskikh et al. (2020) and Bailey et al. (2021) studies, which found that students taking online language courses often show a high level of motivation. Similarly, intrinsic motivation was sustained among independent ESL learners through the autonomy provided by the online platform. Students could tailor their learning experiences, fostering a sense of ownership and engagement. In terms of extrinsic motivations, such as timely feedback and virtual peer interactions, they also play a significant role in maintaining motivation and a sense of community.

Besides, online learning tools have proven to serve as effective solutions to the challenges of self-monitoring, distraction management, and study routine maintenance. These tools established a structured digital environment and facilitated the creation of consistent schedules and routines that countered the absence of physical classrooms (Yang et al., 2020; Yohana, 2020). Features like calendars, reminders, and progress tracking enhance self-regulation skills through improved organisation and self-monitoring. Furthermore, interactive elements within online platforms, such as discussion forums and collaborative projects, facilitate peer interaction and collaborative learning, effectively addressing the limitations of face-to-face interactions. These tools foster 9 meaningful engagement and intrinsic motivation through virtual exchanges and group activities, promoting cognitive involvement.

Moreover, the adaptability of online learning platforms empowers learners to tailor their experiences according to their preferences, reinforcing their autonomy and intrinsic motivation. Overall, these multifaceted tools present a comprehensive approach to overcoming challenges related to self-monitoring, collaborative learning, cognitive engagement, and intrinsic motivation within the context of online education. In addition, educators who facilitated meta-cognitive discussions, provided guidance in setting learning goals, and encouraged self-assessment witnessed higher levels of self-regulation and intrinsic motivation among their students. The study emphasised the importance of nurturing self-observation skills and integrating meta-cognitive strategies into online ESL instruction to maximise cognitive engagement and motivation.

The study also explores online language learning strategies, illustrating that online ESL language learners show a level of awareness in their learning process and utilise strategies effectively and creatively in understanding new knowledge. Findings from the aspect of self-regulatory learning strategies for online ESL students are in line with previous research. Among them are studies on learning strategies in online contexts (e.g., Klimova et al., 2022; Syakur, 2020; Tsai et al., 2021; Ubaedillah et al., 2021), which examine the use of self-monitoring learning strategies including goal setting, self-directed learning, assessment, management, and additional support from peers, instructors, or other relevant parties. Also, as suggested by previous researchers (e.g., Ibrahim, 2013; Tosuncuoglu, 2019; Zabolotskikh et

al., 2020), online language students should be independent, have well-planned and determined future goals, be analytical, and reflect on their learning in each learning process. Furthermore, this study expands the study of self-evaluated learning beyond the field of traditional language learning by including strategies and motivational tips for online ESL second language learning.

Concisely, this study's findings on the dynamic interplay of self-assessment, cognitive-meta-cognitive strategies, and motivation in ESL learning amid the pandemic contributes significantly to the Sustainable Development Goals. Specifically, the proven efficacy of online learning platforms advances SDG 4 (Quality Education), directly supporting Target 4.4's mandate to enhance the proportion of youth and adults with essential skills, including those in technical and vocational fields. Multimedia tools cognitive enhancements support SDG 4. A's emphasis on improved educational technology, while self-regulatory meta-cognitive approaches promote SDG 4.7's commitment to sustainable development education. Additionally, motivational outcomes enhance SDG 8 (Decent Work) by illustrating how intrinsic drive combined with external incentives nurtures career-essential digital literacy competencies (Target 8.6), as documented in UNESCO's 2022 Education Report. Pedagogically, the study advances SDG 10 (Reduced Inequalities) as they reveal how virtual learning tools can bridge education gaps in times of crises. Yet, further studies must explore accessibility gaps to unlock their full potential. These outcomes align with the World Bank's (2021) resilient education model while underscoring the necessity for professional educator training (SDG 4.c) in digital methodologies. The study thus ultimately equips policymakers with data to enact SDG 17's (Partnerships for the Goals) mandate for collaborative to design dynamic, engaging e-learning environments that uphold education standards during crisis.

Limitations

There is some limitation in the current study. To draw accurate conclusions from a random sample and prevent sampling errors or biases, it is essential to ensure that the sample size is sufficient. According to the previous studies, the size of the sample plays the vital role in empirical investigations to make population-level generalisation underscores the significance of employing an appropriate sample size. The study uses a sample size calculation based on the population size, margin of error (ME), and confidence interval (CI) (Serdar et al., 2021). In 2022, 118,794 male students and 163,146 female students are enrolled in Malaysian educational institutions (Ministry of Higher Education, 2022). The gender disparity in the study is due to a few reasons. Statistics indicate that men are less represented at public universities, due to their preference for alternative tertiary pathways such as polytechnics and community colleges. In contrast to males, women are more likely to succeed academically in secondary school and encounter adverse socialisation (Tienxhi, 2017). Finally, future studies should consider expanding the sample size and utilising different triangulation methods to improve the overall relevance of the findings. Although the sample size is small (n=555), researchers can use it for further study to better understand students' motivation and online learning practices during the COVID-19 epidemic in Malaysia.

Conclusions

In sum, this study examined the role of motivation and learning strategies, particularly through the lens of self-learning on English as a second language (ESL) online learning success. Against expectations, neither intrinsic and extrinsic drive was a strong predictor of learning performance. Instead, self-learning strategies were a strong predictor, reinforcing SDG 4 (Quality Education) by stressing the value of pedagogical approaches that cultivate learner independence (Target 4.4). These findings expand knowledge on the self-regulation in online ESL learning, especially for autonomous ESL university students, and align with SDG 4c's emphasis on instructor professional training in digital teaching effectiveness. By confirming that systematic integration of online learning strategies lead to learner engagement, self-assessed progress, and overall achievement, it reinforces SDG 10 (Reduced Inequalities) through equitable, inclusive teaching solutions. For educators, these results present a compelling case to prioritise embedding instructions for autonomous learning into syllabus structures to facilitate sustainable linguistic competency development (SDG 4.7's focus on continuous learning). Furthermore, the scalable framework harmonises with SDG 17 (Partnership objectives), promoting for multi-stakeholder synergistic engagement to optimise digital learning infrastructures. Importantly, these outcomes supply policymakers and educational leaders with data-driven pathways to meet SDG 4's benchmarks and reduce the disparities in digital accessibility gap. By connecting conceptual and operational implementations, this work serves as a crucial foundation for policy reforms that codify independent learning-supportive protocols in global digital education infrastructures.

Informed consent

The online survey questionnaire incorporated an obligatory informed consent statement, acknowledged and accepted by participants prior to commencement, as evidenced in the attached instrument.

Ethics Statement

All respondents who participated in the current survey were fully informed of the study's purpose and procedures; thus, their participation was both voluntary and anonymous. Also, this study was conducted exclusively with only adult respondents (aged 18+ years old) and utilised completely anonymous online questionnaires. The collected data did not include any personally identifiable information or sensitive subject matters. Given its classification as minimal-risk research only, the study qualified for exemption from a comprehensive ethics review.

Acknowledgements

The authors gratefully acknowledge the sincere appreciation to the respondents who participated in this research, and the support provided by academic and non-academic staff during the administration of the online survey. This work was made possible through funding from the Talent and Publication Enhancement-Research Grant (TAPE-RG), Universiti Malaysia Terengganu (Vote No. 55216).

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Appendix A: Participant Self-report Questionnaire

THE COVID-19 PANDEMIC: AFFORDANCES FOR ONLINE SELF-LEARNING STRATEGIES AND MOTIVATION OF ENGLISH AS A SECOND LANGUAGE.

****** USER SELF-REPORT QUESTIONNAIRE ******

Thank you for agreeing to fill in this questionnaire- there are only 2 pages and it takes about 10 minutes to complete.

The questionnaire covers:

A) Demographic; B) Pandemic-era potentials of online learning motivation; C) Perceived benefits of online ESL self-learning; D) Online ESL self-learning strategies, and E) perceived progress in online ESL self-learning.

Thanks for joining this survey! Survey participation is voluntary, anonymous, and withdrawable anytime. We appreciate your honesty. Only summarised data will be reported. For enquiries, contact [idaray@umt.edu.my]

A- *1. Sex:

○ Male

○ Female

* 2. Course

*3. University

B- *1. Is online learning, whether formal or informal, the best and safest approach during the Covid-19 pandemic?

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly disagree

*2. In your opinion, do you think that your university implemented an effective e-learning delivery system throughout the pandemic period?

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly disagree

3. If your university e-learning performs well, what are the most frequently used tools your lecturer uses?

- Google Classroom
- Edmodo
- Webinars and video-conferencing
- WhatsApp
- Other (please specify)

4. Select the video conferencing tools your lecturers most frequently use for online classes?

- Zoom
- Google Meet
- Telegram

☐ Other (please specify)

5. Which social media platforms do you primarily use for class academic discussions?

○ WhatsApp

○ Telegram

○ Instagram

○ Facebook

Other (please specify)

C- This question is about what you think you can do with online ESL self-learning. Indicate your level of agreement with each of the following statements.

During Covid-19 pandemic, online self-learning:

1. **Enables me to have a more interesting English learning experiences**
2. **Supports me to work at the time that suits me best.**
3. **Allows me to work at the location that suits me best.**
4. **Helps me to work at the pace that suits me best.**
5. **Inspires my motivation in learning the language.**
6. **Encourages me to become more independent learner.**
7. **Allows me to learn collaboratively.**
8. **Allows me to monitor my learning progress closely.**
9. **Supports for repeated practice and reinforcement of language skills.**

D. ABOUT YOUR LEARNING

This question is about your online language self-learning strategies. Indicate your level

of agreement with each of the following statements.

When I learn online:

1. **I have a purpose in mind for my online courses.**
2. **I communicate in English with other learners.**
3. **I discuss my online learning performance with classmates to evaluate my progress.**
4. **I take notes to increase my understanding when joining in the chat room and discussion**
5. **I think about whether the content of the on-line material fits my learning purpose.**
6. **Whenever my mind wanders. I try to refocus myself.**
7. **I use online reference tools, like an online dictionary to better comprehend online lessons.**
8. **I use tables, figures, and pictures to increase my understanding.**

9. By using context clues, I improve my learning comprehension.
10. I paraphrase information in my own words to test how well I understand them.
11. I read academic materials online thoroughly to easily comprehend them.
12. I often guess the meaning of unknown words or phrases.
13. I get learning assistance from the instructor.
14. I practice the sounds of English online.
15. I use English in as many online contexts as I can find.
16. I use external online resources to explore topics in more depth.

E. Select your level of agreement for each statement on how much you feel your English has improved through online ESL self-learning.

I developed my own English grammar and vocabulary online.

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly disagree

*2. I improved my English-speaking skills online by myself.

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly disagree

*3. **I enhanced my English reading skills independently online.**

- Strongly agree
- Agree
- Not sure

Disagree

Strongly disagree

*4. I improved my speaking skills in English online by myself.

Strongly agree

Agree

Not sure

Disagree

Strongly disagree

*5. I strengthened my English writing skills independently online.

Strongly agree

Agree

Not sure

Disagree

Strongly disagree

**** THANK YOU AGAIN FOR TAKING TIME TO COMPLETE THIS SURVEY *****

********* YOUR EFFORT IS VERY MUCH APPRECIATED *********

Appendix B: Corresponding Participant Responses

	Jen	2 Kursus	3 Universiti	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	B8	B9	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	D1	D2	D3	D4	D5
2	2	Kejuruteraan Perisian	UNIMAS	2	1	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	2	Civil Engineering	Unimas	3	2	5	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	
4	2	Kejuruteraan Elektrikal & Elektronik	Universiti Malaysia Sarawak	1	3	5	4	1	1	1	2	2	2	2	4	2	3	2	4	3	2	2	1	2	3	1	1	4	2	2	2	2	2	2	1	2	2	1
5	2	Pengurusan dan Sains Sumber Haiwan	UNIMAS	1	1	3	1	1	2	2	2	2	2	2	4	3	2	3	2	4	2	2	2	1	4	2	2	1	4	2	2	2	2	1	1	2	1	1
6	2	HA20 - PSIKOLOGI KANAK-KANAK DAN KELUARGA	UNIVERSITI MALAYSIA SABAH (UMS)	1	1	3	2	1	3	2	4	2	3	2	3	3	2	2	2	2	2	3	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2
7	1	Engineering	UPM	1	1	2	1	1	3	3	2	3	2	4	4	4	4	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
8	2	Kejuruteraan Awam	Utm	2	1	1	4	5	2	1	3	1	2	2	2	3	3	2	2	3	3	4	2	1	3	3	2	1	3	2	1	3	3	3	3	2	2	2
9	2	Pengajian Bahasa Melayu	IPG KAMPUS ILMU KHAS	1	1	1	2	1	3	3	2	2	3	2	3	3	3	3	3	2	2	2	2	2	2	3	3	2	2	3	3	3	3	3	3	4	4	4
10	2	Bioteknologi	UNIMAS	1	1	3	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	1	Psikologi Kanak-Kanak dan Keluarga	Universiti Malaysia Sabah (UMS)	2	2	1	2	1	2	1	2	4	1	5	1	1	1	2	1	5	1	1	4	1	1	1	1	1	5	2	1	1	1	1	1	1	1	1
12	2	Bahasa melayu	Institut pendidikan guru kampus ilmu khas	1	1	1	2	1	5	3	3	4	4	2	4	4	2	3	4	2	2	3	2	2	2	2	2	2	3	3	4	4	2	4	4	2	3	3
13	2	Sains dan Pengurusan Sumber Haiwan	Universiti Malaysia Sarawak (UNIMAS)	1	1	5	4	1	1	4	5	3	4	5	3	2	4	3	4	2	1	2	5	1	3	2	1	4	1	2	2	5	1	3	3	4	2	5
14	2	Kejuruteraan sivil	Unimas	1	3	1	4	1	4	2	4	2	2	2	2	3	3	2	3	2	1	2	2	1	2	2	2	2	2	2	3	2	2	2	2	2	2	2
15	1	Sarjana Muda Sains Komputer (Kepujian)	Universiti Teknologi MARA (UiTM)	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	3	2	2	2	4	3	2	3	2	2	2	2	2	2	2
16	2	Psikologi Kanak-kanak dan Keluarga	Universiti Malaysia Sabah (UMS)	1	2	1	1	1	2	2	2	2	2	2	2	2	2	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	2	HA20	UMS	1	2	5	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	1	Psychology kfluarga dan kanak kanak	UM	5	2	4	2	2	4	5	5	3	4	2	5	5	5	4	4	5	5	1	5	3	5	4	5	3	3	1	1	1	3	2	3	2	3	3
19	2	HA20 Psikologi kanak-kanak dan keluarga	Universiti Malaysia Sabah	1	1	3	2	1	3	3	3	2	2	2	2	2	2	3	4	4	2	3	2	2	2	2	2	2	3	4	3	4	4	3	3	3	3	3
20	2	BAHASA MELAYU	IPGKIK	2	1	1	2	1	3	3	2	3	3	2	3	3	2	3	3	2	2	2	3	2	2	3	3	2	2	2	3	3	2	3	3	3	3	3
21	1	pendidikan	uia	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	2	1	1	1	1	1	2	1	1	1	1	1	2	2	2