Measuring Online Classroom Self-Efficacy of Lecturers in Public Universities in Uganda

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Abstract

The Covid-19 disease that broke out in 2019 spread worldwide not only affecting health systems but also the other fields including education. Due to its high probability of infection through physical contact, educational institutions implemented physical social distancing by adopting online methods of providing education. However, in Uganda implementation of online teaching and learning was virtually resisted by lecturers and students. Up to today, online teaching and learning has failed to become fully entrenched in education delivery in public universities in Uganda with many lecturers preferring on campus face to face classrooms. Against this background, this was attracted to measure online classroom self-efficacy of lecturers. Anchoring on Self-Efficacy Theory by Bandura (1977), lecturers self-efficacy in online classrooms was measured in terms of instructional methods, classroom management and student engagement. This cross-sectional study involved a sample of 327 lecturers from four public universities in Uganda. Data were collected using a self-administered questionnaire and analysed quantitatively. Data analysis was carried out using descriptive statistics and structural equation modelling (SEM) using SmartPLS for partial least square structural equation modelling (PLS-SEM). Descriptive statistics revealed that online classroom self-efficacy of lecturers was high on all the aspects of instructional methods, classroom management and student engagement. The results indicated the different online classroom self-efficacies of lecturers namely; instructional methods, classroom management and student engagement were high. PLS-SEM indicated that the three measures appropriately measured online classroom self-efficacy of lecturers. It was concluded that university lecturers have the self-efficacy necessary for conducting online teaching and instructional methods, classroom management and student engagement measure online classroom self-efficacy. Therefore, it was recommended that university managers should exploit the online classroom self-efficacy of lecturers to increase the level of e-learning implementation in the universities. University managers should also put in place programmes for regularly enhancing online classroom self-efficacy of lecturers because online teaching technologies continuous evolve and change. Further, researchers can use the instructional methods, classroom management and student engagement as measures of online classroom self-efficacy of lecturers.

Keywords: Instructional Methods, Self-Efficacy, Student Engagement, Student Management.

INTRODUCTION

The Covid-19 disease that broke out in 2019 spread worldwide not only affecting health systems but also the other fields including education (Cheng et al., 2020). Due to its high probability of infection through physical contact, educational institutions

implemented physical social distancing by adopting online methods of providing education (Dehghan et al., 2022). Online learning demand the use of the internet and other essential technologies to generate teaching materials, deliver content to learners, and administer courses. Online methods are flexible because they are not bound neither by time nor location or restricted by health issues (Li, 2022). Online learning leads to knowledge effectiveness and skills increase because it enables access to large amounts of data. In addition, online classrooms enhance collaboration, and strengthen learning through sustained relationships (Maatuk et al., 2022). Nonetheless, while e-learning has the potential of enhancing the quality of education, it was not very common in most institutions before the pandemic but after the pandemic it became the only possible source or medium used to reduce the knowledge void caused by COVID-19 lockdown (Kamal & Illiyan, 2021). Besides, e-learning suffers the challenge of developing e-learning materials a necessary for improving learning outcomes and carrying out evaluation (Maatuk et al., 2022). Therefore, conducting effective online classrooms requires higher teacher online teaching self-efficacy.

Teacher self-efficacy generally refers to an individual's belief that his or her methods of instruction are effective in influencing learners' positive learning outcomes (Perera et al., 2019). Teacher self-efficacy is the teachers' judgment of their capabilities to bring about desired outcomes of student engagement and learning to all students (Andreou et al., 2022). Teacher self-efficacy is vital because it is associated with the teachers' ability to use better strategies in preparing their tasks. Teacher self-efficacy is a decisive factor for handling their classroom's challenges (Permata et al., 2022). Teacher self-efficacy is a feature of teachers who are successful in addressing challenges and providing effective teaching (Culp-Roche et al, 2021). While online classroom self-efficacy is essential for e-learning, its development is a gradual continuous process yet teachers were required to immediately conduct teaching using online technologies following the outbreak COVID-19. An individual develops a sense of self-efficacy overtime by accumulating knowledge from alternative sources (Blonder et al., 2022). Sources of self-efficacy according Bandura (1977) include past experience, imitating others or observing models, verbal persuasion, positive feedback from the environment, and physiological and affective responses (Regier, 2021). The sense of self-efficacy alludes to the individual's perceived ability to accomplish daily anticipated tasks which models their decision-making process (Zhang et al., 2019).

Nonetheless, the major constraint for most lecturers in educational institutions was their efficacy to conduct online classes. Lecturers of different backgrounds and ages suddenly were expected to teach online in some cases without adequate technical support (Rapanta et al., 2020). In their study teaching staff of Makerere Business School in Uganda, Bada et al. (2020) reported that conservative teachers resistant to change in the way of education delivery and limited teaching and assessment online skills impeded e-learning uptake. Relatedly, Bwire et al. (2020) in a study done in five public universities in Uganda revealed that lecturers lacked skills necessary for designing online courses. Further, Mugizi and Nagasha (2023) in case study involving Kyambogo University established that may lecturers lacked ICT skills, and a number had negative attitudes towards online learning, and were stuck the traditional face to face strategies of teaching and learning. Since online learning became part and parcel of university teaching and learning following the COVID-19 pandemic, it is imperative to examine online classroom self-efficacy of lecturers. Basing on the conceptualisation of online classroom self-efficacy by Allouh et al. (2021) as referring to instructional methods, classroom management and student engagement, this study measured online classroom self-efficacy of lecturers in public universities in Uganda guided by the following objectives;

1. To establish the online classrooms instructional methods self-efficacy of lecturers in public universities in Uganda.
2. To find out the online classrooms classroom management self-efficacy of lecturers in public universities in Uganda.
3. To determine the online classrooms student engagement self-efficacy of lecturers in public universities in Uganda.

LITERATURE REVIEW

Theoretical Review

Classroom Self-Efficacy is anchored on the Self-Efficacy Theory by Bandura (1977). The self-efficacy theory describes the concept of self-efficacy as the individual's perception of one's ability to perform particular behaviours through four processes including cognitive, motivational, affective, and selection processes (Shorey & Lopez, 2021). The theory postulates that efficacious individuals are likely to set challenging goals, become resilient and remain positive as they pursue their goals (Mao et al., 2020). Therefore, due to self-efficacy beliefs, using cognitive comparisons of their own standard and knowledge of their performance level, individuals choose what problems they must face and how much effort is necessary to attempt or conquer those challenges. The level of motivation is determined by perceived self-efficacy (Shorey & Lopez, 2021). Self-efficacy is crucial for educational institutions because teachers experiencing higher self-efficacy exhibit higher levels of motivation and make the right decisions for successful personal and students' achievement (Larsen & James, 2022). Teachers that have stronger teaching self-efficacy tend to be more persistent when faced with challenges and try more innovative strategies to assist learners understand difficult subjects (Ma et al., 2021). Thus, teacher self-efficacy influences teachers' decisions, personal objectives, level of perseverance in the face of difficulty, and motivation to engage in certain teaching behaviours such adoption of online teaching (Zhang et al., 2021). According to Allouh et al. (2021), online classroom self-efficacy of teachers includes instructional methods, classroom management and student engagement. In measuring Classroom Self-Efficacy of Lecturers in Public Universities in Uganda, this study considered the measures that are namely the lecturers' instructional methods, classroom management and student engagement.

Levels of Online Self-Efficacy

A number of scholars (Allouh et al., 2021; Al Qadhi et al., 2022; Andreou et al., 2022; Culp-Roche et al., 2021; Lee & Ogawa, 2021; Culp-Roche et al., 2021; Dolighan & Owen, 2021; Lee & Ogawa, 2021; Permata et al., 2022) had measured the level of online classroom self-efficacy. In a study done Qatar public schools involving teachers, Allouh et al. (2021) established that teacher self-efficacy was high on all measures that were student engagement, classroom management and instructional strategies high. Relatedly, Al Qadhi et al. (2022) in a study involving university instructors' in Qatar the findings revealed that the respondents showed a high level of self-efficacy on all the measures of student engagement, instructional strategies and classroom management. Culp-Roche et al. (2021) in a study involving nursing teaching staff from ten universities across the United States reported that their online classroom self-efficacy in terms of student engagement, classroom management and instructional strategies was high. Also, Culp-Roche et al. (2021) Lee and Ogawa (2021) in a study examining how English university teachers in Japan perceived their own ability to teach online established that university teachers believed they were highly self-efficacious. Nonetheless, in their study involving pre-service and in-service teachers in Greece, Andreou et al. (2022) reported that pre-service teachers reported higher levels

of teaching sell-efficacy than in-service teachers in online environments. This meant that different categories of teachers had differing online teaching self-efficacy.

On the other hand, Dolighan and Owen (2021) in their study done on secondary teachers in a southern Ontario in Canada, the teachers rated their self-efficacy on all aspects (student engagement, instructional strategies and classroom management to be low. This means that the teachers did not believe in their online classrooms' ability. In relation with the above, in a qualitative study Permata et al. (2022) reported on teachers' self-efficacy in inclusive schools in Surabaya, Indonesia. The study revealed that there was decline in efficacy of teachers when in online classes on all the aspects that are instruction, collaboration, and managing behaviour in online classes. While the literature above shows that scholars have made effort to examine online classroom self-efficacy of lecturers, contextual and empirical gaps emerged. Contextually, none of the studies captured the contexts of educational institutions in Africa and Uganda in particular where online line teaching was an emerging method at the time of COVID-19 outbreak. At empirical level, the studies were not unanimous, while some scholars indicated that teachers' online self-efficacy was high (Allouh et al., 2021; Al Qadhi et al., 2022; Culp-Roche et al., 2021; Lee & Ogawa, 2021), Andreou et al. (2022) indicated that it was different for different categories of teachers while Dolighan and Owen (2021) and Permata et al. (2022) indicated that it was low and declined respectively. These gaps made it necessary to further measure online classroom self-efficacy of lecturers in the context of public universities in Uganda.

METHODOLOGY

Research Design and sample

This study was a cross-sectional survey collecting data on what was going in the universities with respect to online classroom self-efficacy of lecturers. The design helped to collect data quickly in span of three months (December 2022 to February 2023). Data were collected from a sample 327 out of a population of 2225 lecturers of universities that are Busiitema, Gulu, Makerere University and Mbarara University of Science and Technology distributed in the four regions of Uganda that are Eastern, Northern, Central and Western respectively. The sample was determined using the Table for sample determination by Krejcie and Morgan (1970). Simple random sampling was the sampling techniques used to determine the lecturers that participated in the study. The sampling method made it possible for every respondent to be selected by chance. This helped to collect responses representative al all the lecturers in the universities.

Measures

A multi-construct self-administered questionnaire with several indicators for each construct was used to collect data from lecturers of the four public universities. The self-administered questionnaire was preferred as a method of data collection because it helped to quickly collect data necessary for quantitative analysis. The indicators for the different constructs were all adapted from Allouh et al. (2021). The question items on instructional methods were: I am able to stimulate students to think, analyse and reason in online classes (SEIS1); I involve students in collaborative learning in online classes (SEIS2); I am able to involve students in discussions during online classes (SEIS3); I easily engage students in question and answer during online classes (SEIS4); I am able to encourage students to contribute to learning during online classes (SEIS5), I make students participate in discussions during online classes (SEIS6); I am able to get to each student during online class (SEIS7); My online lecturers are interesting to students that most of them hardly miss (SEIS8); My students are convinced that they

can effectively learn even in online classes (SEIS9); I have empowered my students to value online learning (SEIS10); I am able to foster individual student creativity in online classes (SEIS11); and I assess students' assignments online (SEIS12).

The question items on classroom management (SESM) were: I able to control disruptive behaviour during online classes such as failure to adhere to outline policies for posting online (SESM1); I make my expectations about student behaviour clear in an online class (SESM2); In my online classes am able to make students to follow the established rules (SESM3); I am able to balance discussions during online discussions for equitable students' participation (SESM4); In my online classes, students follow my expectations; standards and course rules (SESM5); and I make students behave responsibly during my online classes (SESM6). The question items on student engagement (SESE) were: I effectively respond to questions from online students (SESE1); I am able to make learning interesting during online classes (SESE2); I make my students look forward for our online classes (SESE3); My students fully participate in online lectures activities (SESE4); I am able to engage passive learners in an online class (SESE5); and I effectively respond to questions from online students (SESE6). The indicators of for the different constructs were measured using a five Likert five-point where 1 = never (N), 2= almost never (AN) 3= occasionally/sometimes (O), 4= almost every time (AT) and 5 = every time (ET). The scale collected ordinal data that could be analysed quantitatively.

Data Analysis

Data analysis involved calculating descriptive statistics specifically the means to determine the levels of online classroom self-efficacy of lecturers. Using SmartPLS, measurement models were also developed to establish validity and reliability of the measures. The measurement models included validity and reliability tests. Validity tests included calculating composite and discriminant validity to find out whether the indicators of measures were consistent and whether the measures were independent. Reliability tests included Cronbach's alpha and composite reliability. On top of Cronbach's alpha, composite reliability was tested because it enables more indicators to become reliable because unlike the former, it is liberal because it tolerates out traits (Hair Jr et al., 2021). Descriptive statistics in terms of frequencies and percent for the background characteristics of the lecturers and means showing how the lecturers rated their online classroom self-efficacy were calculated. Partial least square structural equation modelling (PLS-SEM) was carried to develop a model showing appropriate indicators for the different measures measuring online classroom self-efficacy of lecturers.

RESULTS

Background Characteristics of the Lecturers

The background characteristics of the lecturers considered were sex, age groups, highest level of education, and work experience. The background characteristics results are presented in Table 1.

The results on background characteristics in Table 1 reveal that males were the majority percentage (68.5%) while the females were 31.5%. The larger percentage (42.8%) were between 40-49 years followed by 40.4% who were up to 39 years and the remaining 16.8% were 50 years and above. The larger percentage (59.6%) was of master degrees holders followed by 36.7% who had PhDs and the least percentage 3.7% had bachelor degrees.

Table 1: Background Characteristics of the Lecturers

Profiles	Categories	Frequencies	Percent
Sex	Male	224	68.5
	Female	103	31.5
	Total	327	100.0
Age Group	Up to 39 years	132	40.4
	40- 49	140	42.8
	50 and above	55	16.8
	Total	327	100.0
Education Level	Bachelor's degree	12	3.7
	Masters' Degree	195	59.6
	PhD	120	36.7
Working Experience in Years	Less than one year	39	11.9
	1 but less than 5 years	97	29.7
	5 but less than 10 years	87	26.6
	More than 10 years	104	31.8
	Total	327	100.0

The larger percentage (31.8%) had worked for more than 10 years while 29.7% had worked for one but less than five years, 26.6% for five and 11.9% had worked for less than one year. Therefore, lecturers of different categories with varied ages, education levels and experience participated in the study. The study collected data representative of various academic staff in the universities.

Measurement Models

The models include descriptive results in terms of means, validity tests that are Average Variance Extracted (AVE) and Heterotrait Monotrait (HTMT) Discriminant Validity, and reliabilities in terms of Chronbach's alpha and composite reliability. In addition, there are collinearity values in terms of Value Inflation Factor (VIF) values. The results follow in Tables 2 and 3 respectively.

Table 2: Descriptive Results, AVE and Heterotrait Monotrait (HTMT) Discriminant Validity assessment

Measures	Means	AVE	SESM	SEIS	SESE
SESM	3.72	0.614			
SEIS	3.67	0.555	0.770		
SESE	3.94	0.526	0.867	0.728	
LSE	3.78				

Abbreviations: *SESM = Classroom Management, SEIS = Instructional Methods, SESE = Student Engagement, LSE = Lecturers Self-Efficacy*

The descriptive results in Table 2 the lecturers indicated that their self-efficacy in terms of instructional methods (mean = 3.67), classroom management (mean = 3.72) and student engagement (mean = 3.94) were high. This was because, basing on the five-point Likert scale (where 1 = never, 2 = almost never, 3= occasionally/sometimes, 4= almost every time and 5 = every time) that was used, the mean was close to code 4 which is almost every time or high. The results also revealed that lecturers rated their overall online classroom self-efficacy was high (mean = 3.78). The AVE values for convergent validity revealed that the different constructs assessed the variable of teachers' self-efficacy. This is due to the fact that all EVE values were above 0.5 which is the minimum level (dos Santos & Cirillo, 2023). The Heterotrait-Monotrait (HTMT)

ratio of correlations evaluated discriminant validity to determine whether the components studied were independent hence each independently measured the variable. The HTMT ratio of correlations is a reflective test that reveals if measures in a model are independent hence their indicators define one particular construct. All HTMT correlation ratios were below 0.90 which is the highest limit. Therefore, discriminant validity of the constructs was confirmed (Hair Jr et al., 2021). This suggested that instructional methods, student management and engagement independently measured lecturers' self-efficacy.

Table 3: Reliability and Collinearity Values

Lecturers Self-Efficacy	α	CR	VIF
Classroom Management	0.840	0.843	1.607
Instructional Methods	0.788	0.795	1.555
Student Engagement	0.766	0.783	1.366

Reliability results in Table 3 show that for both Cronbach's alpha (α) and composite reliability (CR) the values were above the minimum of 0.70. This means that the indicators of the measures of the variables were reliable. Besides, Chronbach's alpha, composite reliability was tested because the former is highly sensitive and decreases reliability levels of the indicators because it presumes that their characteristics are similar across the population. On the other hand, composite reliability is more tolerant since it takes into account external characteristics, allowing a greater variety of indicators to become reliable (Hair Jr et al., 2021). The Collinearity (VIF) test revealed that there was no high correlation (Collinearity) between the constructs because the values were less than 5 with is the maximum (Kim, 2019). The appropriate VIF values mean that the constructs were independent hence each construct measure the variable independently.

Structural model for Lecturers' Self-Efficacy in Online Classes

Structural equation modelling was done in order to determine the measures of lecturers' self-efficacy in online classes. The results on lecturers' self-efficacy in online classes are shown in Figure 1.

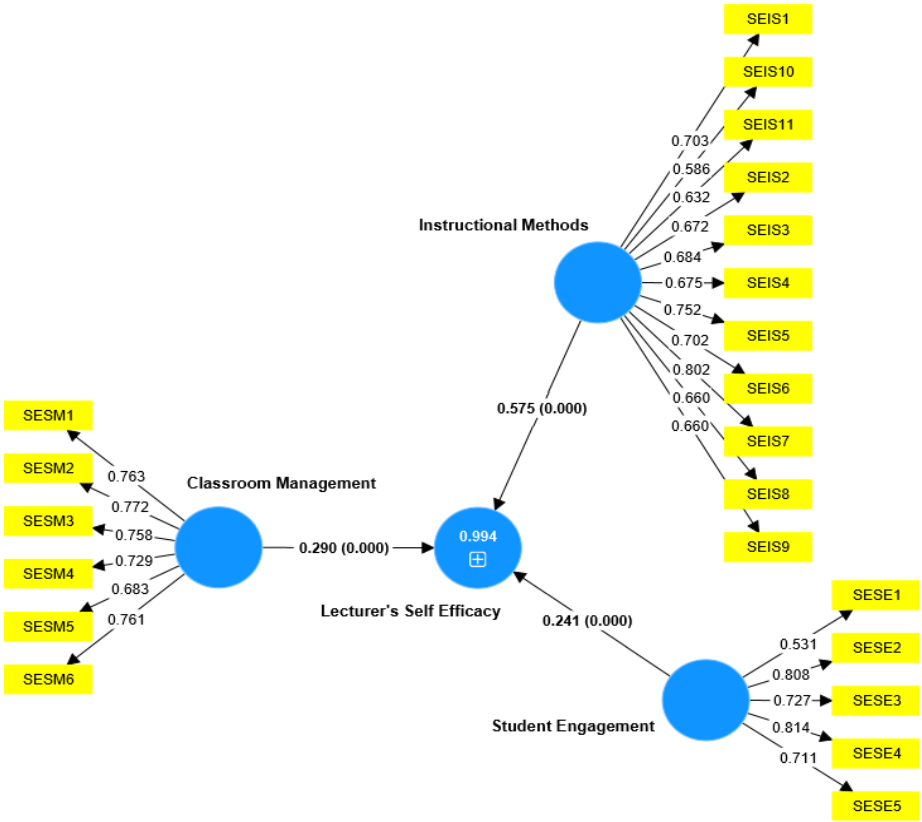

Figure 1: Lecturers Self-Efficacy in Online Classes Structural Model

The structural model (Figure 1) for lecturers' self-efficacy in online classes reveals that for the construct of instructional methods, 11 out of 12 indictors were retained because their factors loadings were above the minimum of 0.40 when factor analysis is applied (Hair, Jr et al., 2017). Therefore, indicator 12 was dropped. However, for the constructs of classroom management and student engagement all the indicators retained hence they measured the constructs. Thus, the three constructs were accurate measures lecturers' self-efficacy.

DISCUSSION

The findings revealed that online classroom self-efficacy of lecturers was high while the constructs of instructional methods, classroom management and student engagement were appropriate measures of the variable (online classroom self-efficacy). This finding that online classroom self-efficacy of academics was high was consistent with the findings of previous scholars. For instance, Allouh et al. (2021), Al Qadhi et al. (2022), Culp-Roche et al. (2021), and Lee and Ogawa (2021) established that teacher self-efficacy of teachers was high on all measures that were student engagement, classroom management and instructional strategies. However, inconsistent with the finding of the study, Andreou et al. (2022) different categories of teachers had differing online teaching self-efficacy depending on the context. On their part, Dolighan and Owen (2021) and Permata et al. (2022) indicated that teachers self-efficacy was low and on decline when in online classes respectively. With the finding

consistent with the larger number of studies, it can be affirmed that classroom self-efficacy of academics was high. Indeed, considering the finding by Andreou et al. (2022) that self-efficacy is dependent on the context, since 2021 following the Covid-19, lecturers have had access to online teaching. Therefore, their self-efficacy has improved over time. The findings of the study also concurred with Allouh et al. (2021) that instructional methods, classroom management and student engagement were measures of online classroom self-efficacy. Therefore, these constructs appropriately describe online classroom self-efficacy.

CONCLUSION

The findings of the study revealed that the different online classroom self-efficacies of lecturers namely; instructional methods, classroom management and student engagement were high. This finding led to the conclusion that university lecturers have the self-efficacy necessary for conducting online teaching and instructional methods, classroom management and student engagement measure online classroom self-efficacy. Instructional methods involve lecturers' ability to stimulate students in online classes, involving them in collaborative learning, in discussions, engaging them in question and answer during online classes, and encourage them to contribute to learning during online classes. Instructional methods also include being able to get to each student during online class, conducting interesting lectures, empowering students to value online learning, foster individual student creativity in online classes, and assess students' assignments online. Classroom management includes being able to control disruptive behaviour in online classes, making clear behaviour expectations, making students to follow the established rules, and equitably balancing students' participation in discussions. For student engagement, it involves making students effectively respond to questions in online classes, get interested in online classes, look forward to online classes, fully participate in online lectures, and making them to effectively respond to questions in online classes.

RECOMMENDATIONS

The conclusions above led to the recommendation that university managers should exploit the online classroom self-efficacy of lecturers to increase the level of e-learning implementation in the universities. University managers should also put in place programmes for regularly enhancing online classroom self-efficacy of lecturers because online teaching technologies continuous evolve and change. Therefore, lecturers have to remain up-to-date. Further, researchers can use the instructional methods, classroom management and student engagement as measures of online classroom self-efficacy of lecturers.

REFERENCES

Al Qadhi, S., Al-Thani, H. H., Hasan, M. A., Romanowski, M. H., Du, X., & Al-Emadi, A. (2022). Online teaching strategies of language skills during pandemic: A case of self-efficacy of teaching faculty in Qatar universities. *Eurasian Journal of Applied Linguistics*, *8*(1), 176-190. http://dx.doi.org/10.32601/ejal.911528

Allouh, A. M., Qadhi, S. M., Hasan, M. A., & Du, X. (2021). Teachers' self-efficacy and online teaching during COVID-19 pandemic in Qatari governmental schools. *International Journal of Learning, Teaching and Educational Research, 20*(11), 17-41. https://doi.org/10.26803/ijlter.20.11.2

Andreou, E., Roussi, C., Tsermentseli, S., Menabò, L., & Guarini, A. (2022). Teachers' self-efficacy during the COVID-19 pandemic in Greece: The role of risk perception and teachers' relationship with technology. *Education Sciences*, *12*(9), 600. https://doi.org/10. 3390/educsci12090600

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review, 84*(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Blonder, R., Feldman-Maggor, Y., & Rap, S. (2022). What can be learned from lecturers' knowledge and self-efficacy for online teaching during the Covid-19 pandemic to promote online teaching in higher education. *PloS one*, *17*(10), e0275459. https://doi. org/10.1371/journal.pone.0275459

Cheng, X., Pellegrini, M., Zhou, L., & Cheung, A. C. (2020). Not only survival but stronger: The impact of alarming invader of SARS-CoV-2 on global education. *Science Insights Education Frontiers*, *7*(2), 835-860. https://doi.org/10.15354/sief.20.or061

Culp-Roche, A., Hardin-Fanning, F., Tartavoulle, T., Hampton, D., Hensley, A., Wilson, J. L., & Wiggins, A. T. (2021). Perception of online teacher self-efficacy: A multi-state study of nursing faculty pivoting courses during COVID 19. *Nurse Education Today*, *106*, 105064. https://doi.org/10.1016/j.nedt.2021.105064

Dehghan, H., Esmaeili, S. V., Paridokht, F., Javadzade, N., & Jalali, M. (2022). Assessing the students' readiness for E-Learning during the Covid-19 pandemic: A case study. *Heliyon*, *8*(8), e10219. https://doi.org/10.1016/j.heliyon.2022.e10219

Dolighan, T., & Owen, M. (2021). Teacher efficacy for online teaching during the COVID-19 pandemic. *Brock Education Journal*, *30*(1), 95-95. https://journals.library.brocku.ca/broc ked

dos Santos, P. M., & Cirillo, M. Â. (2023). Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions. *Communications in Statistics-Simulation and Computation*, *52*(4), 1639-1650. https://doi.org/10.1080/03610918.2021.1888122

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modelling (PLS-SEM) using R: A workbook*. Cham, Switzerland: Springer Nature. https://doi.org/10.1007/978-3-030-80519-7

Kamal, T., & Illiyan, A. (2021). School teachers' perception and challenges towards online teaching during COVID-19 pandemic in India: An econometric analysis. *Asian Association of Open Universities Journal*, 16(3), 311-325. https://doi.org/10.1108/ AAOUJ-10-2021-0122

Kim, J. H. (2019). Multicollinearity and misleading statistical results. *Korean Journal of Anesthesiology*, *72*(6), 558-569. https://doi.org/10.4097/kja.19087

Larsen, A., & James, T. (2022). A sense of belonging in Australian higher education: the significance of self-efficacy and the student-educator relationship. *Journal of University Teaching & Learning Practice*, *19*(4). https://ro.uow.edu.au/jutlp/vol19/iss4/05

Lee, S. C. N., & Ogawa, C. (2021). Online teaching self-efficacy: How English teachers feel during the Covid-19 pandemic. *Indonesian TESOL Journal*, *3*(1), 1-17. doi: 10.24256/itj. v3i1.1744

Li, D. (2022). The shift to online classes during the COVID-19 pandemic: benefits, challenges, and required improvements from the students' perspective. *Electronic Journal of E-Learning*, *20*(1), 1-18.

Ma, K., Chutiyami, M., Zhang, Y., & Nicoll, S. (2021). Online teaching self-efficacy during COVID-19: Changes, its associated factors and moderators. *Education and information technologies*, *26*(6), 6675-6697. https://doi.org/10.1007/s10639-021-10486-3

Maatuk, A. M., Elberkawi, E. K., Aljawarneh, S., Rashaideh, H., & Alharbi, H. (2022). The COVID-19 pandemic and E-learning: challenges and opportunities from the perspective of students and instructors. *Journal of Computing in Higher Education*, *34*(1), 21-38. https://doi.org/10.1007/s12528-021-09274-2

Mao, Y., Yang, R., Bonaiuto, M., Ma, J., & Harmat, L. (2020). Can flow alleviate anxiety? The roles of academic self-efficacy and self-esteem in building psychological sustainability and resilience. *Sustainability*, *12*(7), 2987. https://doi.org/10.3390/su12072987

Perera, H. N., Calkins, C., & Part, R. (2019). Teacher self-efficacy profiles: Determinants, outcomes, and generalizability across teaching level. *Contemporary Educational Psychology*, *58*, 186-203.. https://doi.org/10.1016/j.cedpsych.2019.02.006.

Permata, R. S., Ramadhani, F., & Putri, A. K. (2022). Special education teachers' self-efficacy in inclusive schools during the COVID-19 pandemic. *KnE Social Sciences*, 257-269. https://doi.org/10.18502/kss.v7i18.12392

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, *2*(3), 923-945. https://doi.org/10.1007/s4243 8-020-00155-y

Regier, B. J. (2021). Examining relationships among concert band directors' efficacious sources, self-efficacy for teaching strategies, and effective teaching skills. *Journal of Research in Music Education*, *68*(4), 436-450. https://doi.org/10.1177/00224294209431

Shorey, S., & Lopez, V. (2021). Self-Efficacy in a nursing context. In G. Haugan & M. Eriksson. [Eds.]. (2021). *Health promotion in health care–vital theories and research*. Cham: Springer. https://doi.org/10.1007/978-3-030-63135-2

Zhang, X., Admiraal, W., & Saab, N. (2021). Teachers' motivation to participate in continuous professional development: relationship with factors at the personal and school level. *Journal of Education for Teaching*, *47*(5), 714-731. https://doi.org/10.1080/0260 7476.2021.1942804

Zhang, Y., Cui, L., Zhang, G., Sarasvathy, S., & Anusha, R. (2019). An exploratory study of antecedents of entrepreneurial decision-making logics: The role of self-efficacy, optimism, and perspective taking. *Emerging Markets Finance and Trade*, *55*(4), 781-794. https://doi.org/10.1080/17538157.2016.1200053