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Attitudes and responsibilities of students against online learning

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Abstract

This research attempts to determine how student attitudes and responsibilities towards online learning vary according to ability and education level. Attitudes towards educators, learning processes, and learning materials are all quantifiable. Individuals' initial knowledge is determined by their ability to use information technology, their willingness to use it, and their perceptions of computer and internet reliability. This research focuses on undergraduate, masters, and doctoral students at Universitas Negeri Surabaya, which is located in Surabaya, East Java, Indonesia. This research utilized a non-experimental quantitative design. This research used questionnaires serving as the data collection instrument. The findings indicated that attitudes towards online learning varied according to one's initial level of competence and education. Despite this, there was no gender disparity in students' attitudes towards online learning. The degree to which students are responsible for online learning varies according to their baseline competence and education level.

Keywords: attitude; online learning; responsibility; students; university.

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1. Introduction

As we enter the fourth industrial revolution, all facets of life are connected to the Internet, allowing us rapid access to all information regardless of place, distance, or time constraints (Alotumi, 2021; Ding & Zhang, 2018; Tuckel & Pok-Carabalona 2023). These changes have affected a variety of disciplines, including education. Historically, education was viewed as a broadcasting activity, with educators functioning as the information source and students as the message recipients. Nowadays, the learning process is more participatory; educators are not the sole source of information; and students have access to Internet learning materials (Karademir et al., 2021; Rekow, 2020; Al Mamun & Lawrie 2023; Hsu et al., 2022; Taghizadeh & Emam 2023). Online learning resources are available in various formats including text-based resources, e-journals, e-books, and audiovisual resources, such as YouTube and various additional learning tools (Lai et al., 2019; Yoon et al., 2021). As a result of the increase in technological and educational resources, educators must adapt their techniques, methodologies, and learning models to address the challenges of education in the digital era, as the traditional learning model was occasionally deemed irrelevant to the learning techniques and habits of today's students, who exhibit marked differences from previous generations (Coman et al., 2020; Sert & BoynueÄŸri, 2017).

The teacher's role enhances the standard of the educational system by focusing on the optimal development of students' attitudes, abilities, and potential (Singh et al., 2021; Vanduhe et al., 2020). Authentic assessment can help teachers develop the skills necessary to serve as role models for students' attitude development throughout the learning process. Additionally, this scanner can scan and even check children's characteristics. Authentic assessment can help teachers develop the skills necessary to serve as role models for students' attitude development throughout the learning process. (Hardika et al., 2021; Kusaeri, 2019). Effective instruction is necessary to protect future generations from the pernicious effects of the media and other external sources, which are advancing at a breakneck pace in the modern era and must emphasize not intellectual abilities and aspects of the intellect, behavior, and character (Dewi & Kareviati, 2021; Hong et al., 2021). As a higher education institution whose graduates are expected to play a strategic role in social life, higher education is expected to maintain its graduates' attitude and responsibility to continuously improve quality, learn, and develop their capacity to adapt to civilization's development in the face of global competition (Johnson et al., 2021; Lim et al., 2020).

Universitas Negeri Surabaya has established itself as a leader in tertiary education by launching an online learning system called Vi-learn to supplement lectures (Suprapto et al., 2021; Wibawa et al., 2021). Vi-learn is connected to Indonesia's national online learning system. Online education is more effective when students have a positive attitude (Hsu et al., 2021; Winarti et al., 2021). A positive attitude approaches admiring, accepting, and anticipating the presence of specific objects with admiration, acceptance, and anticipation. A positive attitude is the outward embodiment of a mind that is receptive to positive influences. A positive attitude is generally characterized by activities of happiness, creativity, and optimism (Astuti et al., 2021; Permana & Nourmavita, 2017). A positive attitude is the state of mind that an individual maintains continuously and consciously to avoid deviating from their focus on something negative. Someone who consistently thinks positively understands that he will quickly revert to positive thinking if he has been thinking negatively.

Positive attitudes can be quantified in a variety of ways, including attitudes towards learning materials, lecturers, learning processes, and standards governing the use of learning materials (Getie, 2020; Manurung & Panggabean, 2020). To begin, an optimistic attitude towards educational resources is necessary. Students must have a positive attitude towards the studied material (Hsu et al., 2021; Yin et al., 2020). Students' enthusiasm for studying will increase this positive attitude and they will be more motivated to assist them in comprehending new material. Second, an empathetic attitude towards lecturers is required. Students must cultivate a genuine towards lecturers (Chao et al., 2017; Vanduhe et al., 2020). Students who harbor negative feelings towards lecturers are more likely to dismiss the lecturer's explanations. As a result, pupils who have negative attitudes towards their classmates will struggle to comprehend the lecturer's description of the learning subject. Thirdly, an optimistic view of the educational process is required. Students must have an optimistic disposition throughout the process of learning. (Daumiller et al., 2021; Yue et al., 2021). The learning process comprises several components, including instructional strategies, the methodology learning environment, and the instructional techniques used (Aristovnik et al., 2020; Duque et al., 2020,). A pleasant, exciting, and enjoyable learning environment can assist students in becoming more motivated; fourth, an optimistic view of content-related learning standards is required. Additionally, students must demonstrate a positive attitude toward specific social issues (Johnson et al., 2021; Moskowitz & Dewaele, 2021).

The online learning environment which became more common after the Covid 19 is anticipated to assist and meet the learning demands of pupils during industrial Revolution 4.0, enabling students to study from any location and enhancing communication, interaction, and online engagement (Alotumi, 2021; O'Doherty et al., 2018; Assi & Rashtchi 2022; Farahian et al., 2022; Buttimer et al., 2022). Online learning is also expected to foster responsibility as a component of higher education's character education, including how students are accountable for meeting task deadlines specified in mutually agreed-upon project schedules, for not plagiarizing works/ideas when creating visual media, and for a variety of other indicators of student accountability related to the lectures they deliver (Ilgaz, 2019; Reinhold et al., 2021). The importance of responsibility states that the ease with which digital content can be duplicated on the Internet continues to generate ethical and legal cases and debates (Hidayah et al., 2021; Liu & Chen, 2018). The point is that, in addition to learning how to use new technology effectively, educational technologists must also develop an ethical understanding of how to use these technologies as part of their responsibility for learning (Fernandez & Shaw, 2020; Garbe et al., 2020; Müller & Wulf, 2020). Additionally, the researcher's experience as a course instructor demonstrates that students frequently struggle to engage in the learning process to assume responsibility.

One of the 18 characteristic traits taught in character education is responsible behavior. Numerous critical moral principles must be instilled in students to assist them in their social learning process, one of which is responsibility (Gonda et al., 2021; Lestiyanawati, 2020). Responsibility is 'the acceptance of one's actions'. A student's account must be demonstrated to their teacher and parents, and a responsible attitude is required (Tomczyk et al., 2021; Yllana-Prieto et al., 2021). The goal is for each student to comprehend and complete their assignment to the best of their ability to achieve the best result. By and large, beginning capabilities affect attitudes and responsibilities abilities (Kim et al., 2020; Singh et al., 2021). Historically, initial proficiency has been viewed as a critical factor in determining a student's ability to learn and succeed. Without sufficient prior knowledge, attempting to know anything may result in low-level learning or rote memorization. This learning outcome may

occur when pupils cannot connect new knowledge to their prior knowledge framework (Garad et al., 2021; Osadcha et al., 2020).

According to some sources, each human being is born with two fundamental abilities: declarative knowledge, which refers to students' initial capacity to comprehend something, and procedural knowledge, which relates to students' initial capacity to know how to perform a procedure. Declarative understanding, according to Anderson, is 'knowing what', whereas procedural knowledge is 'knowing how' (Hailikari et al., 2007; Solehana et al., 2019a). Thus, one could argue that, given the distinct nature of this state of knowledge, the two categories of information should be evaluated using different techniques. Other knowledge and cognitive processes classes are distinguished in Bloom's revised taxonomy. The taxonomy identifies the necessary learning products, namely the types of knowledge that must be classified using mental processes (Brosnan et al., 2020; Macaraan, 2021). A student begins the learning process with no prior knowledge or abilities but rather with prior knowledge and expertise in the subject being studied. Students' mental models were utilized to store prior knowledge, which was subsequently used to appraise and integrate newly acquired material(Lehmann et al., 2020; Schneider et al., 2018). Numerous earlier research studies have demonstrated that the amount and quality of innate abilities facilitate the acquisition of knowledge and the use of high-level cognitive problem-solving skills (Destino & Cunningham, 2020; Manurung & Panggabean, 2020). Initial skill differences have altered students' learning outcomes and enabled them to accomplish meaningful learning (Kurniaman & Zufriady, 2019; Purwitaningrum & Prahmana, 2021).

Instructors should consider assessing a student's initial ability when developing learning strategies before beginning the teaching process. For educators, an individual's early talents can provide critical insight and predictions into how to design and plan effective learning techniques. Before starting the study period, pupils were given a pre-test to see whether they had previously mastered any or all of the material that will be studied (Csapó & Molnár, 2019; Solehana et al., 2019b). Thus, the initial capability was to compare learning outcomes to the learning process evaluation and generate meaningful student profiles for instructional analysis. The initial proficiency exam can provide self-evaluation data that enable students to become aware of prior knowledge and prepare them for new learning materials that mobilize that prior knowledge (Kim et al., 2020; Theobald, 2021).

1.1. Purpose of study

In this study, the researcher aimed to determine if student ability, education level, and gender affected their views and duties about online learning. This research is very important because we will know several factors that can affect students' attitudes and responsibilities in attending online lectures. This is because, nowadays, learning is carried out online, and in the future, it is also possible that learning will also be carried out online.

2. Materials and Methods

2.1. Data collection instrument

This study employed a cross-sectional quantitative survey. Three criteria were used to evaluate each participant: attitude, accountability, and initial capability. Philosophy was examined on three levels: attitudes toward instructors, the learning process, and instructional materials. Responsibility was determined using three accountability factors: time, participation, and plagiarism.

Simultaneously, the initial capability was evaluated in terms of capabilities, technology use, willingness to use technology, and trust in the reliability of computers and the Internet.

2.2. Participants

This study involved 545 students from Universitas Negeri Surabaya. The subjects are divided into three levels, namely undergraduate, master, and doctoral. The research subjects selected were samples of students from Universitas Negeri Surabaya. Researchers distributed instruments to research subjects using a questionnaire. The questionnaire was created to assess the attitudes and responsibilities of students enrolled in online learning. Researchers used Google Forms in compiling instruments and then distributed them to research subjects.

2.3. Analysis

Instruments obtained from research subjects were analyzed so that they would become the basic data in this study. The data is described by the researcher so that it becomes data that is easy to read and evaluate. The instrument was used to collect data on attitudes, responsibilities, and initial abilities. The questionnaire was based on a 4-point Likert scale with response possibilities ranging from strongly disagree (1) to strongly disagree (4). Data were analyzed using SPSS.

2.4. Ethics

The study employed the right ethical standards to ensure the anonymity of participants while collecting, analyzing, and reporting data. All participants voluntarily participated in the study.

3. Result

3.1. Students' attitudes toward online learning have been seen from their initial abilities

Table 1

Initial Attitude and Ability

Dependent variable	Initial ability	Mean	Std. error	95% Confidence interval	
				Lower bound	Upper bound
Attitude	High	101.779	.700	100.405	103.153
	Low	90.291	.713	88.891	91.691

Based on the tests of between-subjects effects, (table 1) which indicate a significance level of 0.000 (<0.05), it can be inferred that there were differences in student attitudes about online learning participation based on beginning ability. Students with strong starting talents exhibited more positive views about online learning (101.779) than those with poor initial abilities (98.981) (90.291).

3.2. Students' attitudes towards online learning have been seen from their level of education

Table 2

Attitude and Education Level

Dependent variable	Educational Level	Mean	Std. error	95% Confidence interval

				Lower bound	Upper bound
Attitude	Undergraduate	93.674	.521	92.651	94.697
	Mater	96.264	.999	94.301	98.227
	Doctoral	98.167	1.415	95.387	100.946

The test criteria demonstrate a significance of 0.002 (<0.05); therefore, it can be inferred that there were differences in the attitudes of students toward online learning based on their educational background (table 2). Students with a doctoral degree have a more positive outlook (98.167) than those with a masters degree (96.264) and those with a bachelor's degree (88.751) (93.674). The attitudes of undergraduates are the weakest compared to those of masters and doctoral students.

3.3. Attitude and Gender

Table 3

Gender and Attitude

Dependent variable	Initial ability	Mean	Std. error	95% Confidence interval	
				Lower bound	Upper bound
Attitude	Male	96.328	.841	94.676	97.980
	Female	95.741	.657	94.452	97.031

The calculated value of sig. 0.519 (>0.05) indicates that Ho was accepted; hence, it can be stated that there was no gender difference in students' attitudes towards online learning (table 3).

3.4. Students' responsibility towards online learning has been seen from their initial abilities

Table 4

Responsibility and Initial Ability

Dependent variable	Initial ability	Mean	Std. error	95% Confidence interval	
				Lower bound	Upper bound
Responsibility	High	27.735	.244	27.255	28.216
	Low	24.343	.249	23.854	24.833

Based on the acquired sig. 0.000 (<0.05), it is possible to assume that Ho was rejected or that there was no difference in student responsibility for online learning based on initial ability (table 4). Students with high starting talents (27.735) have a greater sense of responsibility than those with poor initial abilities (24.343).

3.5. Students' responsibility towards online learning has been seen from their level of education

Table 5

Responsibility and Education Level

Dependent variable	Educational Level	Mean	Std. error	95% Confidence interval	
				Lower bound	Upper bound

Responsibility	Undergraduate	24.991	.182	24.634	25.349
	Mater	26.345	.349	25.659	27.031
	Doctoral	26.782	.494	25.810	27.753

The conclusion of the calculation indicates a significance level of 0.000 (<0.05), indicating that Ho was rejected or that student responsibility for online learning in the undergraduate, masters, and doctoral degrees varied (table 5). Students at the doctoral level (26.782) are more responsible than masters level (26.345) and undergraduate level students (27.345) (24.991). Undergraduates have the least number of responsibilities compared to graduate and doctoral students.

3.6. Students' responsibility towards online learning in terms of gender

Table 6

Responsibility and Gender

Dependent variable	Initial ability	Mean	Ltd. error	95% Confidence interval	
				Lower bound	Upper bound
Responsibility	Male	25.682	.294	25.104	26.259
	Female	26.397	.229	25.946	26.848

The computation result was sig. 0.025 (<0.05); therefore, Ho was rejected, leading to the conclusion that there was gender-based disparities in the obligations of online learning students (table 6). Female students (26.397) demonstrate superior accountability compared to male students (25.682).

4. Discussion

Students with strong initial talents exhibit a positive disposition. This can be a guide for us, if we have good initial skills then our attitude when participating in learning in the classroom is much better in online learning. A good attitude can be controlled and shown by students who have high initial abilities (Buckwalter, 2019; Hong, Hsiao, et al., 2021).

Higher education can affect students' attitudes toward participating in learning. The high level of education that students have allows them to control their attitudes. Therefore, the level of education is very important for individuals to be able to have a good attitude in the learning environment. The level of education has a close relationship with the attitude shown by the individual (Belo et al., 2020; Tsai et al., 2019)

Gender does not influence student attitudes in participating in learning. The good attitude shown by students does not depend on their gender. Gender cannot be changed. However, the attitudes possessed by individuals can be changed according to their wishes. Different genders have no impact on the attitudes shown in participating in learning (Hoang, 2021; Reddy, 2017).

The initial abilities of students have an impact on their responsibilities in lectures(Metz, 2021; Wardono et al., 2021). Individuals who have good initial abilities will also have a good sense of responsibility in lectures. Responsibility is shown by coming for class hours, doing assignments on time, and consulting according to the agreed time.

Individuals with a high degree of education have a significant obligation. This is because those with a high degree of knowledge will see the necessity for accountability to study effectively. With responsibility, we will think that the education we are taking must be completed immediately. The higher the level of education of a person, the higher the responsibility on him.

Responsibilities held by women look better than the responsibilities held by men (King et al., 2020). The responsibilities shown by women are greater than men; this is because women are more thorough and tend to be able to complete various tasks (one form of responsibility) given to them as well as quickly as possible. This implies that gender affects responsibilities.

5. Conclusion

According to the study's findings, attitudes towards online learning varied according to baseline ability. Students with excellent initial abilities exhibited more positive attitudes than students with lesser initial skills. Second, students' attitudes towards online learning varied according to their level of education. The attitude of doctoral students was more hopeful than that of masters and undergraduate students. The attitudes of undergraduates were the least positive compared to those of masters and postgraduate students. Thirdly, there were no gender differences in student attitudes about online education. Fourth, students' responsibilities with online learning varied according to their initial capability. Students with exceptional early abilities demonstrated a higher level of commitment than students with less special early skills. Fifth, at the undergraduate, master, and doctoral levels, there were significant disparities in student attitudes toward online learning.

Doctoral students bear a greater responsibility than masters and undergraduate students. In comparison to masters and postgraduate students, undergraduates overlooked minor errors. Finally, there were disparities in the obligations of online learning students based on gender. Male and female students are held to a higher standard of responsibility.

Many factors can affect the attitude and responsibility of individuals in online learning. The attitude of students was impacted by their ability and their degree of education, while their sense of responsibility was influenced by their physical ability, level of education, and gender.

6. Recommendations

According to this conclusion, recommendations are that research educators should consider students' initial abilities when designing online learning. According to the study, students with higher initial abilities demonstrated more favorable attitudes and responsibilities toward online learning than students with lower initial skills. In online education for undergraduate students, educators must promote more positive attitudes and responsibilities than postgraduate students as undergraduate students exhibit the most hostile attitudes compared to masters and doctoral students. Lecturers do not need to take gender into account when designing online learning as there were no significant differences in student perspectives. They must still take responsibility as female students were more accountable than male students.

Attitudes and responsibilities are needed by students in online lectures. The research that is currently being carried out is to look at the internal factors that exist within students. The attitudes and responsibilities that exist in students are certainly different, but we can improve them through

external stimuli. In the future, the research can be continued by looking at the attitudes and responsibilities of students who are influenced by external factors or the surrounding environment.

References

Al Mamun, M. A., & Lawrie, G. (2023). Student-content interactions: Exploring behavioural engagement with self-regulated inquiry-based online learning modules. *Smart Learning Environments*, *10*(1), 1. https://link.springer.com/article/10.1186/s40561-022-00221-x

Alotumi, M. (2021). EFL college junior and senior students' self-regulated motivation for improving English speaking: A survey study. *Heliyon*, *7*(4). https://doi.org/10.1016/j.heliyon.2021.e06664

Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability (Switzerland)*, *12*(20). https://doi.org/10.3390/su12208438

Assi, E., & Rashtchi, M. (2022). Virtual classes during COVID-19 pandemic: Focus on university students' affection, perceptions, and problems in the light of resiliency and self-image. *Asian-Pacific Journal of Second and Foreign Language Education*, *7*(1), 1-23. https://sfleducation.springeropen.com/articles/10.1186/s40862-022-00144-7

Astuti, M., Arifin, Z., Mutohhari, F., & Nurtanto, M. (2021). Competency of Digital Technology: The Maturity Levels of Teachers and Students in Vocational Education in Indonesia. *Journal of Education Technology*, *5*(2), 254–262. https://doi.org/10.23887/jet.v5i3.35108

Belo, P., Navarro-Pardo, E., Pocinho, R., Carrana, P., & Margarido, C. (2020). Relationship Between Mental Health and the Education Level in Elderly People: Mediation of Leisure Attitude. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.00573

Brosnan, T., Kolubinski, D. C., & Spada, M. M. (2020). Parenting styles and metacognitions as predictors of cannabis use. *Addictive Behaviors Reports*, *11*. https://doi.org/10.1016/j.abrep.2020.100259

Buckwalter, W. (2019). Implicit attitudes and the ability argument. *Philosophical Studies*, *176*(11). https://doi.org/10.1007/s11098-018-1159-7

Buttimer, C. J., Littenberg-Tobias, J., & Reich, J. (2022). Designing Online Professional Learning to Support Educators to Teach for Equity During COVID and Black Lives Matter. *AERA Open*, *8*. https://doi.org/10.1177/23328584211067789

Chao, J. Y., Tzeng, P. W., & Po, H. Y. (2017). The study of problem solving process of e-book PBL course of atayal senior high school students in Taiwan. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(3), 1001–1012. https://doi.org/10.12973/eurasia.2017.00654a

Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability (Switzerland)*, *12*(24). https://doi.org/10.3390/su122410367

Csapó, B., & Molnár, G. (2019). Online diagnostic assessment in support of personalized teaching and learning: The eDia system. *Frontiers in Psychology*, *10*(JULY). https://doi.org/10.3389/fpsyg.2019.01522

Daumiller, M., Rinas, R., Hein, J., Janke, S., Dickhäuser, O., & Dresel, M. (2021). Shifting from face-to-face to online teaching during COVID-19: The role of university faculty achievement goals for attitudes towards this sudden change, and their relevance for burnout/engagement and

student evaluations of teaching quality. *Computers in Human Behavior*, *118*. https://doi.org/10.1016/j.chb.2020.106677

Destino, J. F., & Cunningham, K. (2020). At-Home Colorimetric and Absorbance-Based Analyses: An Opportunity for Inquiry-Based, Laboratory-Style Learning. *Journal of Chemical Education*, *97*(9). https://doi.org/10.1021/acs.jchemed.0c00604

Dewi, T., & Kareviati, E. (2021). THE USE OF POWERPOINT AS THE INSTRUCTIONAL MEDIA IN TEACHING ENGLISH FOR YOUNG LEARNERS. *PROJECT (Professional Journal of English Education)*, *4*(4). https://doi.org/10.22460/project.v4i4.p617-621

Ding, Y., & Zhang, P. (2018). Practice and effectiveness of web-based problem-based learning approach in a large class-size system: A comparative study. *Nurse Education in Practice*, *31*, 161–164. https://doi.org/10.1016/j.nepr.2018.06.009

Duque, E., Gairal, R., Molina, S., & Roca, E. (2020). How the Psychology of Education Contributes to Research With a Social Impact on the Education of Students With Special Needs: The Case of Successful Educational Actions. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.00439

Farahian, M., Parhamnia, F., & Maleki, N. (2022). The mediating effect of knowledge sharing in the relationship between factors affecting knowledge sharing and reflective thinking: the case of English literature students during the COVID-19 crisis. *Research and Practice in Technology Enhanced Learning*, *17*(1), 1-25. https://telrp.springeropen.com/articles/10.1186/s41039-022-00200-3

Fernandez, A. A., & Shaw, G. P. (2020). Academic Leadership in a Time of Crisis: The Coronavirus and COVID-19. *Journal of Leadership Studies*, *14*(1). https://doi.org/10.1002/jls.21684

Garad, A., Al-Ansi, A. M., & Qamari, I. N. (2021). THE ROLE OF E-LEARNING INFRASTRUCTURE AND COGNITIVE COMPETENCE IN DISTANCE LEARNING EFFECTIVENESS DURING THE COVID-19 PANDEMIC. *Cakrawala Pendidikan*, *40*(1), 81–91. https://doi.org/10.21831/cp.v40i1.33474

Garbe, A., ogurlu, U., Logan, N., & Cook, P. (2020). Parents' Experiences with Remote Education during COVID-19 School Closures. *American Journal of Qualitative Research*, *4*(3). https://doi.org/10.29333/ajqr/8471

Getie, A. S. (2020). Factors affecting the attitudes of students towards learning English as a foreign language. *Cogent Education*, *7*(1). https://doi.org/10.1080/2331186X.2020.1738184

Gonda, D., Pavlovičová, G., Tirpáková, A., & Ďuriš, V. (2021). Setting up a flipped classroom design to reduce student academic procrastination. *Sustainability (Switzerland)*, *13*(15). https://doi.org/10.3390/su13158668

Hailikari, T., Nevgi, A., & Lindblom-Ylänne, S. (2007). Exploring alternative ways of assessing prior knowledge, its components and their relation to student achievement: A mathematics based case study. *Studies in Educational Evaluation*, *33*(3–4), 320–337. https://doi.org/10.1016/j.stueduc.2007.07.007

Hardika, H., Aisyah, E. N., & Listyaningrum, R. A. (2021). Utilization of Various Disruptive Community Learning Resources for the Covid-19 Period in the Perspective of Life Based Learning. *International Journal of Interactive Mobile Technologies*, *15*(7). https://doi.org/10.3991/ijim.v15i07.21551

Hidayah, Y., Trihastuti, M., & Widodo, B. (2021). Online Learning Model in Improving Civic Responsibility as a Solution during Covid-19 Pandemic in Indonesia. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, *6*(1). https://doi.org/10.24042/tadris.v6i1.6227

Hoang, T. N. (2021). The Effects of Grade Level, Gender, and Ethnicity on Attitude and Learning Environment in Mathematics in High School. *International Electronic Journal of Mathematics Education*, *3*(1). https://doi.org/10.29333/iejme/217

Hong, J. C., Hsiao, H. S., Chen, P. H., Lu, C. C., Tai, K. H., & Tsai, C. R. (2021). Critical attitude and ability associated with students' self-confidence and attitude toward "predict-observe-explain" online science inquiry learning. *Computers and Education*, *166*. https://doi.org/10.1016/j.compedu.2021.104172

Hong, J. C., Lee, Y. F., & Ye, J. H. (2021). Procrastination predicts online self-regulated learning and online learning ineffectiveness during the coronavirus lockdown. *Personality and Individual Differences*, *174*. https://doi.org/10.1016/j.paid.2021.110673

Hsu, J. L., Rowland-Goldsmith, M., & Schwartz, E. B. (2022). Student motivations and barriers toward online and in-person office hours in STEM courses. *CBE—Life Sciences Education*, *21*(4), ar68. https://www.lifescied.org/doi/abs/10.1187/cbe.22-03-0048

Hsu, P. C., Chang, I. H., & Chen, R. S. (2021). The Impacts of College Students' Civic Responsibility on Civic Engagement via Online Technology: The Mediations of Civic Learning and Civic Expression. *SAGE Open*, *11*(3). https://doi.org/10.1177/21582440211031909

Ilgaz, H. (2019). Adult Learners' Participation in A Blended Learning Environment: A Case Study on Imposed Pace Learning. *Malaysian Online Journal of Educational Technology*, *7*(4), 15–29. https://doi.org/10.17220/mojet.2019.04.002

Johnson, A. P., Wohlauer, M. V., Mouawad, N. J., Malgor, R. D., Coogan, S. M., Sheahan, M. G., Singh, N., Cuff, R. F., Woo, K., Coleman, D. M., & Shalhub, S. (2021). The Impact of the COVID-19 Pandemic on Vascular Surgery Trainees in the United States. *Annals of Vascular Surgery*, *72*. https://doi.org/10.1016/j.avsg.2020.09.045

Johnson, J. B., Reddy, P., Chand, R., & Naiker, M. (2021). Attitudes and awareness of regional Pacific Island students towards e-learning. *International Journal of Educational Technology in Higher Education*, *18*(1). https://doi.org/10.1186/s41239-021-00248-z

Karademir, T., Alper, A., Soğuksu, A. F., & Karababa, Z. C. (2021). The development and evaluation of self-directed digital learning material development platform for foreign language education. *Interactive Learning Environments*, *29*(4). https://doi.org/10.1080/10494820.2019.1593199

Kim, S., Sodian, B., Paulus, M., Senju, A., Okuno, A., Ueno, M., Itakura, S., & Proust, J. (2020). Metacognition and mindreading in young children: A cross-cultural study. *Consciousness and Cognition*, *85*. https://doi.org/10.1016/j.concog.2020.103017

King, A. A., Vesely, S. K., Vettese, E., Cook, S., Cuker, A., Stock, W., Homer, M., Fritz, J., & Sung, L. (2020). Impact of gender and caregiving responsibilities on academic success in hematology. *Blood Advances*, *4*(4). https://doi.org/10.1182/bloodadvances.2019000084

Kurniaman, O., & Zufriady, Z. (2019). The Effectiveness of Teaching Materials for Graphic Organizers in Reading in Elementary School Students. *Journal of Educational Sciences*, *3*(1), 48–62. https://doi.org/10.31258/JES.3.1.P.48-62

Kusaeri. (2019). Penilaian Sikap Dalam Pembelajaran Matematika. *Jurnal Pendidikan Matematika (JPM)*, *5*(2), 61–70. https://doi.org/10.33474/jpm.v5i2.1588

Lai, C.-H. H., Lin, H.-W. W., Lin, R.-M. M., & Tho, P. D. (2019). Effect of peer interaction among online learning community on learning engagement and achievement. *International Journal of Distance Education Technologies (IJDET)*, *17*(1), 66–77. https://doi.org/10.4018/IJDET.2019010105

Lehmann, T., Pirnay-Dummer, P., & Schmidt-Borcherding, F. (2020). Fostering integrated mental models of different professional knowledge domains: instructional approaches and model-based analyses. *Educational Technology Research and Development*, *68*(3). https://doi.org/10.1007/s11423-019-09704-0

Lestiyanawati, R. (2020). The Strategies and Problems Faced by Indonesian Teachers in Conducting e-learning during COVID-19 Outbreak. *CLLiENT (Culture, Literature, Linguistics, and English Teaching)*, *2*(1). https://doi.org/10.32699/cllient.v2i1.1271

Lim, M. H., Gleeson, J. F. M., Rodebaugh, T. L., Eres, R., Long, K. M., Casey, K., Abbott, J. A. M., Thomas, N., & Penn, D. L. (2020). A pilot digital intervention targeting loneliness in young people with psychosis. *Social Psychiatry and Psychiatric Epidemiology*, *55*(7). https://doi.org/10.1007/s00127-019-01681-2

Liu, X., & Chen, X. (2018). Disruptive technology enhanced learning: The use and misuse of digital technologies in higher education. *Innovations in Education and Teaching International*, *55*(1). https://doi.org/10.1080/14703297.2018.1405550

Macaraan, W. E. R. (2021). Addressing the parents' mental wellness during their kids' online learning. *Journal of Public Health*. https://doi.org/10.1093/pubmed/fdab237

Manurung, S. R., & Panggabean, D. D. (2020). Improving students' thinking ability in physics using interactive multimedia based problem solving. *Cakrawala Pendidikan*, *39*(2). https://doi.org/10.21831/cp.v39i2.28205

Metz, J. (2021). An ability-based theory of responsibility for collective omissions. *Philosophical Studies*, *178*(8). https://doi.org/10.1007/s11098-020-01568-y

Moskowitz, S., & Dewaele, J. M. (2021). Is teacher happiness contagious? A study of the link between perceptions of language teacher happiness and student attitudes. *Innovation in Language Learning and Teaching*, *15*(2). https://doi.org/10.1080/17501229.2019.1707205

Müller, F. A., & Wulf, T. (2020). Technology-supported management education: a systematic review of antecedents of learning effectiveness. *International Journal of Educational Technology in Higher Education*, *17*, 1-33. https://link.springer.com/article/10.1186/s41239-020-00226-x

O'Doherty, D., Dromey, M., Lougheed, J., Hannigan, A., Last, J., & McGrath, D. (2018). Barriers and solutions to online learning in medical education - An integrative review. In *BMC Medical Education* (Vol. 18, Issue 1). https://doi.org/10.1186/s12909-018-1240-0

Osadcha, K., Osadchyi, V., Semerikov, S., Chemerys, H., & Chorna, A. (2020). The review of the adaptive learning systems for the formation of individual educational trajectory. *CEUR Workshop Proceedings*, *2732*, 547–558.

Permana, E. P., & Nourmavita, D. (2017). Pengembangan Multimedia Interaktif Pada Mata Pelajaran Ipa Materi Mendeskripsikan Daur Hidup Hewan Di Lingkungan Sekitar Siswa Kelas Iv Sekolah Dasar. *Jurnal PGSD*, *10*(2), 79–85. https://doi.org/10.33369/pgsd.10.2.79-85

Purwitaningrum, R., & Prahmana, R. C. I. (2021). Developing instructional materials on mathematics logical thinking through the Indonesian realistic mathematics education approach. *International Journal of Education and Learning*, *3*(1), 13–19. https://doi.org/10.31763/ijele.v3i1.178

Reddy, L. (2017). Gender differences in attitudes to learning science in Grade 7. *African Journal of Research in Mathematics, Science and Technology Education*, *21*(1). https://doi.org/10.1080/18117295.2017.1279450

Reinhold, F., Schons, C., Scheuerer, S., Gritzmann, P., Richter-Gebert, J., & Reiss, K. (2021). Students' coping with the self-regulatory demand of crisis-driven digitalization in university mathematics instruction: do motivational and emotional orientations make a difference? *Computers in Human Behavior*, *120*. https://doi.org/10.1016/j.chb.2021.106732

Rekow, E. D. (2020). Digital dentistry: The new state of the art — Is it disruptive or destructive? *Dental Materials*, *36*(1). https://doi.org/10.1016/j.dental.2019.08.103

Schneider, S., Beege, M., Nebel, S., & Rey, G. D. (2018). A meta-analysis of how signaling affects learning with media. *Educational Research Review*, *23*, 1–24. https://doi.org/https://doi.org/10.1016/j.edurev.2017.11.001

Sert, N., & BoynueÄŸri, E. (2017). Digital technology use by the students and English teachers and self-directed language learning. *World Journal on Educational Technology: Current Issues*, *9*(1), 24–34. https://doi.org/10.18844/WJET.V9I1.993

Singh, B. D., Moore, D. W., Furlonger, B. E., Anderson, A., Fall, R., & Howorth, S. (2021). Reading Comprehension and Autism Spectrum Disorder: a Systematic Review of Interventions Involving Single-Case Experimental Designs. *Review Journal of Autism and Developmental Disorders*, *8*(1). https://doi.org/10.1007/s40489-020-00200-3

Solehana, L., Solehana, L., Asrori, A., & Usman, A. (2019a). The Development of E-Learning Teaching Material Based on Edmodo on Basic Competencies of National Integration at Class X of Senior High School. *JETL (Journal of Education, Teaching and Learning)*, *4*(2), 382–388. https://doi.org/10.26737/jetl.v4i2.1914

Solehana, L., Solehana, L., Asrori, A., & Usman, A. (2019b). The Development of E-Learning Teaching Material Based on Edmodo on Basic Competencies of National Integration at Class X of Senior High School. *JETL (Journal of Education, Teaching and Learning)*, *4*(2), 382–388. https://doi.org/10.26737/jetl.v4i2.1914

Suprapto, S., Suparji, S., Harianto, S., Palupi, A. E., & Samsul, S. I. (2021). Evaluasi Kinerja Dosen Dan Tenaga Kependidikan Selama Work From Home (Wfh): Studi Kasus Di Universitas Negeri Surabaya. *JPSI (Journal of Public Sector Innovations)*, *5*(2), 90-99. https://journal.unesa.ac.id/index.php/jpsi/article/view/12811

Taghizadeh, M., & Emam, N. S. (2023). Technology-enhanced academic listening classes: instructors' and engineering students' attitudes and views. *Journal of Computing in Higher Education*, 1-33. https://link.springer.com/article/10.1007/s12528-023-09384-z

Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology*, *66*. https://doi.org/10.1016/j.cedpsych.2021.101976

Tomczyk, Ł., Jáuregui, V. C., de La Higuera Amato, C. A., Muñoz, D., Arteaga, M., Oyelere, S. S., Akyar, Ö. Y., & Porta, M. (2021). Are teachers techno-optimists or techno-pessimists? A pilot comparative among teachers in Bolivia, Brazil, the Dominican Republic, Ecuador, Finland, Poland, Turkey, and Uruguay. *Education and Information Technologies*, *26*(3). https://doi.org/10.1007/s10639-020-10380-4

Tsai, L. T., Lin, Y. L., & Chang, C. C. (2019). An assessment of factors related to ocean literacy based on gender-invariance measurement. *International Journal of Environmental Research and Public Health*, *16*(19). https://doi.org/10.3390/ijerph16193672

Tuckel, P., & Pok-Carabalona, K. (2023). Student Attitudes Towards Distance Learning at a Large Urban Public College. *Online Learning*, *27*(2). https://pdfs.semanticscholar.org/f682/f582b6ab0eeb206d1c591ea2c6187e661076.pdf

Vanduhe, V. Z., Nat, M., & Hasan, H. F. (2020). Continuance Intentions to Use Gamification for Training in Higher Education: Integrating the Technology Acceptance Model (TAM), Social Motivation, and Task Technology Fit (TTF). *IEEE Access*, *8*. https://doi.org/10.1109/ACCESS.2020.2966179

Wardono, Mariani, S., & Kurniati, C. N. (2021). Mathematics literacy abilities and responsibility with realistic mathematics education learning based ethnomathematics. *Journal of Physics: Conference Series*, *1918*(4). https://doi.org/10.1088/1742-6596/1918/4/042059

Wibawa, R. P., Wibawa, S. C., Susanti, M. D. E., & Sulistiyo, E. (2021). E-readiness Measurement in the Virtual Application Learning. *IOP Conference Series: Materials Science and Engineering*, *1125*(1). https://doi.org/10.1088/1757-899x/1125/1/012059

Winarti, W. D., Afifah, D. S. N., Pebriani, L., Putri, I. M., & Suja'i, I. S. (2021). Study of Independence Student's Online Learning During Covid-19 Pandemic. *Journal Universitas Muhammadiyah Gresik Engineering, Social Science, and Health International Conference (UMGESHIC)*, *1*(1). https://doi.org/10.30587/umgeshic.v1i1.2470

Yin, Y., Yang, L., & Liu, B. (2020). Analysis on Entrepreneurship Psychology of Preschool Education Students With Entrepreneurial Intention. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.01559

Yllana-Prieto, F., Jeong, J. S., & González-Gómez, D. (2021). An online-based edu-escape room: A comparison study of a multidimensional domain of psts with flipped sustainability-stem contents. *Sustainability (Switzerland)*, *13*(3). https://doi.org/10.3390/su13031032

Yoon, M., Hill, J., & Kim, D. (2021). Designing supports for promoting self-regulated learning in the flipped classroom. *Journal of Computing in Higher Education*. https://doi.org/10.1007/s12528-021-09269-z

Yue, S., Zhang, J., Cao, M., & Chen, B. (2021). Knowledge, Attitudes, and Practices of COVID-19 Among Urban and Rural Residents in China: A Cross-sectional Study. *Journal of Community Health*, *46*(2). https://doi.org/10.1007/s10900-020-00877-x