

## Conference Paper

# E-Learning Readiness and Learning Engagement during the Covid-19 Pandemic

Wiwik Juwarini Prihastiw<sup>1</sup>, Endang Prastuti<sup>2</sup>, and Nur Eva<sup>2</sup>

<sup>1</sup>Faculty of Psychology, Universitas Muhammadiyah Surabaya, Surabaya, Indonesia

<sup>2</sup>Faculty of Psychology Education, Universitas Negeri Malang, Malang, Indonesia

### Abstract

This study aims to determine the effect of e-learning readiness on learning engagement and to find out which aspects have the greatest influence. The design of this research is correlational research, conducted via a questionnaire. The research sample was comprised of 125 students from the Faculties of Psychology, Law, Education, and Teacher Training at the Muhammadiyah University of Surabaya, Indonesia. Measuring e-learning readiness consists of 3 dimensions: computer / internet self-efficacy; online communication self-efficacy; and self-directed learning abilities. The dimensions of measuring learning engagement are cognitive, affective, and behaviour. Data were analysed using regression models. The results indicate that learning readiness contributed to the variance of learning engagement by 26%. The biggest contribution from each dimension of e-learning readiness to engagement is self-directed learning, then internet self-efficacy, and online communication self-efficacy. However, the study also obtained anecdotal evidence that the subjects were not satisfied with e-learning because they did not get data about the material.

**Keywords:** learning engagement, e-learning readiness, covid19

Corresponding Author:

Wiwik Juwarini Prihastiw  
 wiwikprihastiw27@fpsi.um-  
 surabaya.ac.id

Published: 5 January 2021

Publishing services provided by  
**Knowledge E**

© Wiwik Juwarini Prihastiw  
 et al. This article is distributed  
 under the terms of the [Creative  
 Commons Attribution License](#),  
 which permits unrestricted use  
 and redistribution provided that  
 the original author and source  
 are credited.

Selection and Peer-review under  
 the responsibility of the ICoPsy  
 Conference Committee.

## 1. Introduction

The stipulation of the pandemic status of the corona virus or COVID-19 by the World Health Organization (WHO) caused the Indonesian Government to issue a lockdown policy as an effort to minimize casualties and break the chain of spread of the virus. Following this policy, all educational institutions move learning activities from school to home which are carried out online. At the higher education level, online learning is not new, but not all universities have implemented online learning yet. Data collection by the Central Indonesian Higher Education Organizers Alliance (Apperti) until March 2020 shows there are 58 universities that have changed their learning methods to online learning (Kompas, 2020). The Covid-19 pandemic has forced all levels of education from elementary to tertiary education to implement online learning.

 **OPEN ACCESS**

Online learning can have a positive impact but also have a negative impact on students. The results of online learning monitoring and evaluation at the psychology faculty of the Muhammadiyah University of Surabaya found that 83.5% of the total 221 student subjects experienced stress (Anon t.t.) s (Prihastiwi, 2020). Stressful conditions have the potential for students not to be involved in learning. This fact is reinforced by the experience of teaching online in the even semester 2019/2020, the attendance of students for each lecture is 100% but those who actively respond online are only 30%. This fact shows the low involvement of learning (Learning engagement) in learning carried out online. Therefore it is very important to know what factors influence the low involvement of online learning. The key to success in mastering the subject matter is student engagement during the lesson. This study wanted to determine the role of e-learning readiness with learning engagement in students, as well as the dimensions of learning readiness which made the greatest contribution to strengthening learning engagement.

## 2. Literature Review

The instructure model with e-learning provides a valuable framework for understanding technology integration and pedagogy. Electronic learning, commonly known as e-learning, is one of the earliest applications of web-based technology (Azhari & Ming, 2015). E-learning is the delivery of learning using pure internet and digital technology (Al-Busaidi, 2013). Schell & Janicki (2013) explains that e-learning or online learning means all subject matter is delivered simultaneously through information technology so that there is very little face-to-face communication between students and instructors. Nichols (Moore, Dickson-Deane, & Galyen, 2011) argues that e-Learning is learning which materials can be accessed on web-based technology devices. The constructivist theoretical model states that e-Learning is not only procedural but is a transformation of experience into knowledge through the process of knowledge construction (Tavangarian in Moore et al., 2011).

(Rasouli, Rahbania, & Attaran, 2016) argued that e-learning transformed teacher-centered learning into student-centered learning. Student-based learning will encourage active students to build their knowledge based on instructions the instructions delivered synchronously or asynchronously. This process supports the construction of knowledge by the students themselves (Duffy and Cunningham in Martinez & Grooms, 2018). Therefore, students must have web-based learning readiness so that they can optimally involved in online learning.

Kaur and Abas (Yilmaz, 2017) suggest e-learning readiness as an individual's ability to utilize e-learning resources and multimedia technology to improve the quality of learning. Kinds of literature, it is found that e-learning readiness consists of several elements, namely self-efficacy of computer/internet use, online communication self-efficacy, self-directed learning, student control, and motivation towards e-learning (Borotits & Poulymenakou, 2004; Demir, 2015). (Demir, 2015) and Hung et al. (Yilmaz, 2017) suggests that computer/ internet self-efficacy as a belief in their skills to use basic computer programs. Online communication self-efficacy is the perception of how individuals understand the language and communication culture that is typical for the e-learning environment and how well individuals can express themselves in that environment (Coopasami, Knight, & Pete, 2017; Demir, 2015). Self-directed learning is a process in which learners take the initiative with or without help from others in finding learners 'learning needs, determining learners' learning objectives, selecting and implementing appropriate learning strategies, evaluating learning outcomes (Knowles, 1975). (Shyu & Brown, 1992) define learner control as individual learning experiences and levels of directing the learning process according to their wishes. Motivation towards e-learning as a state of desire that encourages people to do something for e-learning (Demir, 2015; Smith, 2005) define readiness for e-learning and online learning in three aspects: (1) student preferences to communicate indirectly. (2) student beliefs in using electronic communication for learning and in particular, competence and confidence in Internet use and computer-mediated communication and (3) Self-directed learning

Traditionally, engagement has been conceptualized as time-on-task, which one of the important aspects of classroom teaching. Student engagement refers to the level of attention, curiosity, interest, optimism, and passion shown by students when they are learning or being taught (Brophy & Good in (Parsons, Richey, & Parsons, 2014). In general, the concept of student engagement is based on the belief that learning increases when students are curious, interested, or inspired. Another opinion about student academic engagement refers to commitment or engagement efforts in the context of learning throughout the student's school experience (Henrie, Halverson, & Graham, 2015). In many studies, learning engagement was classified into three components: behavior (BE), emotional (EE), and cognitive (CE) (Doğan, 2014; Parsons et al., 2014). Affective attachments include belonging in the classroom and interest, curiosity, or enthusiasm around a particular topic or assignment. Attachment behavior includes time-on-assignment and active participation in-class activities. Cognitive attachment is a more recent construct and includes persistence, the use of metacognitive strategies, and self-regulation.

### 3. Method

The design of this study is a correlational study by measuring each variable and then correlating it. The variables in this study are e-learning readiness as independent variable and learning engagement as dependent variable

#### 3.1. Population and Sample

The population of this study were students of the Muhammadiyah University of Surabaya, Indonesia and the sampling technique used a random cluster. The cluster in this research is the faculty. The number of samples of 125 students, from the Faculty of Psychology, Law and Education and Teacher Training, were registered in the even semester of 2019/2020.

#### 3.2. Instrument

Data were collected using a questionnaire arranged based on a Likert scale with a score moving from 1 to 4. The e-learning readiness instrument was arranged based on the concept of (Hung, Chou, Chen, & Own, 2010) which consists of the following dimensions: 1). Computer / Internet Self-efficacy 2). Online communication self-efficacy 3). Self-directed learning. The dimension of self-directed learning in this study is structured on the basis of Guglielmino's theory (Guglielmino, 1977). Measurement items are arranged according to these dimensions.

The measurement instrument of learning engagement consists of three aspects are cognitive, behavioral, and affective (Fredericks et al., in Sengsouliya et al., 2020).

##### 3.2.1. Validity Instrument

The construct validity analysis using the confirmatory factor analysis approach. The measuring instrument has validity if it meets the requirements of the fit model with fit indicators, namely Goodness of fit index  $> 0.90$  and Root Mean Square Residual (RMSR)  $< 0.08$  (Ghozali, 2005) and the loading factor is above 0.3 (Hair, 2010). In this study, the researcher used the parsimony principle because it only used 2 (two) good of fit index criteria. Constructs that have a loading factor is below 0.30 will be removed from the measuring instrument. The results of the validity analysis in Table 1

TABLE 1: Validity Instrument

| Variabel                         | GFI   | RMR   | $\sum \sum$ Item | f.load |
|----------------------------------|-------|-------|------------------|--------|
| Computer/internet self efficacy  | 0.936 | 0.028 | 6                | 0      |
| Commucation online self efficacy | 0.948 | 0.039 | 5                | 0      |
| Self Directed Learning           | 0.945 | 0.022 | 8                | 0      |
| Learning Engagement              | 0.927 | 0.035 | 9                | 3*     |

\* factor loading < 0.30

### 3.2.2. Reliability Instrument

Furthermore, alpha Cronbach analysis was carried out to determine reliability. The results of the analysis in table 2.

TABLE 2: Reliability

| Variabel                         | Alpha Cronbach |
|----------------------------------|----------------|
| Computer/internet self efficacy  | 0.791          |
| Commucation online self efficacy | 0.761          |
| Self Directed Learning           | 0.716          |
| Learning Engagement              | 0.628          |

### 3.3. Analysis technique

Regression statistical analysis was carried out in order to answer research questions

## 4. Results

Research subjects in terms of gender obtained more women (72%) than men (27%). Online lectures certainly require sophisticated hardware. The devices used by the research sample to attend lectures were 41.6% using cell phones and 58.4% using laptops

The purpose of regression analysis was conducted to determine the effect of each dimension of e-learning readiness on learning engagement and the results can be seen in table 3.

TABLE 3: Regresi Analisis

| Model         | F      | R     | R Square | Sig   |
|---------------|--------|-------|----------|-------|
| $R_{y-1,2,3}$ | 14.161 | 0.510 | 0.260    | 0.000 |

The results of the regression analysis can be concluded that there is a significant effect of e-learning readiness with the dimensions of self-efficacy using internet/computer, self-directed learning, and online communication self-efficacy on engagement,  $F = 14.161$ ,  $R_{y,1,2,3} = 0.510$  and  $p < 0.001$ .

TABLE 4: Correlation Analysis

| Model             | Pearson | Sig   | Betha |
|-------------------|---------|-------|-------|
| X <sub>1</sub> -Y | 0.277   | 0.001 | 0.068 |
| X <sub>2</sub> -Y | 0.438   | 0.000 | 0.482 |
| X <sub>3</sub> -Y | 0.255   | 0.002 | 0.018 |

X1 = Computer/internet self Efficacy

X2 = Self Directed Learning

X3 = Communication online self efficacy

Table 5 shows that the dimension of self-directed learning has a greater contribution to online learning engagement variance, which is 48.6% than the other 2 (two) variables.

This research also reveals about psychological conditions, mastery of material and satisfaction in e-learning. Descriptions data based on the answers of research subjects are shown in table 5.

TABLE 5: Learning satisfaction through e-learning

| Componen                  | Very agree | Agree | Disagree | Very disagree |
|---------------------------|------------|-------|----------|---------------|
| Confused                  | 31,5%      | 56.5% | 11.3%    | 0%            |
| got less deep explanation | 31.2%      | 56.4% | 9.6%     | 0%            |
| Stress                    | 46.4%      | 37.6% | 16%      | 0%            |

## 5. Discussion

Based on the results of the analysis, students' readiness to learn through e-learning correlates with student involvement. The dimensions of e-learning readiness, internet / computer self-efficacy, independent learning, and online communication self-effectiveness each have a positive correlation with e-learning engagement. Self-directed learning has the highest correlation and contribution to the variance of learning involvement compared to internet/computer self-efficacy and online communication self-efficacy. The characteristic of e-learning learning is that the teacher's role is decreasing so that it requires students to take a more active role in their learning. In particular, students must take responsibility for guiding and directing their learning (Hartley & Bendixen, 2001), capable of time management for class attendance, (Hill,

2002; Roper, 2007) to complete work on time (Discenza, Howard, & Schenk, 2002), and to be an active contributor to learning (Garrison & Anderson, 2003).

Self-directed learning is a personal characteristic in which individual learners must have the initiative to learn, have a self-concept as a learner, be responsible for their learning, be creative, open to learning opportunities, initiative, autonomous and, love learning (Guglielmino, 1977). Based on these characteristics, it is a requirement to be fully involved and be able to be attentive in learning through e-learning. However, belief in mastery of technological devices is also important because the main means of e-learning instructional are technological devices.

The results of the study found that the research sample felt that they did not get a detailed explanation of the subject matter being discussed so that they experienced confusion (88%). This is probably because e-learning media used is less varied. An instructional method with e-learning ideal should be carried out synchronously and asynchronously. Asynchronous learning can use YouTube media so that students can relearn subject matter from asynchronous media, for example learning from youtube.

Another fact shows that the research sample experienced stress because of the many assignments (87,6%). An instructional using e-learning platform, there will be a lot of tasks that must be done both individually and in groups. These assignments are intended so that students are able to construct their learning experiences into knowledge. Students must be able to manage time, have independence, initiative and, responsibility in learning so that they can complete the assignments given by the lecturer

Furthermore, the use of a phone cell as a means of attending lectures is also a problem in itself because it is not necessarily a sophisticated student phone cell that can multitask.

The data above also found student dissatisfaction with learning through e-learning. Dissatisfaction because students did not receive a detailed explanation of the material. This also shows that students have not shown the characteristics of being self-directed learners. besides that, the teacher must make thorough preparations in presenting the material so that it can provide a more detailed explanation by utilizing various existing media platforms. The results of this study indicate that the ideal learning method is to use a blended learning approach. Traditional method of face to face are still practiced.

The aspect that must be considered is the characteristics of students. In this study, it was found that self-directed learning gave a large enough contribution, namely 48.2%. This aspect must receive educational attention through the application of learning methods that can make students into self-directed learners.

## Acknowledge and Funding

The author is grateful to the Chancellor of Muhammadiyah University of Surabaya for providing research funding so that this research is carried out and thanks to Shafira and Tutut Putri Rahayu, psychology student at Muhammadiyah University of Surabaya who has helped data collection and data analysis.

## References

- [1] Al-Busaidi, K. A. (2013). An Empirical Investigation Linking Learners' Adoption of Blended Learning to their Intention of full E-Learning. *Behaviour & Information Technology*, vol. 32, issue 11, pp. 1168–1176, <https://doi.org/10.1080/0144929X.2013.774047>.
- [2] Azhari, F. A. and Ming, L. C. (2015). Review of E-Learning Practice at the Tertiary Education Level in Malaysia. *Indian Journal of Pharmaceutical Education and Research*, vol. 49, issue 4, pp. 248–257, <https://doi.org/10.5530/ijper.49.4.2>.
- [3] Borotis, S. and Poulymenakou, A. (2004). *E-Learning Readiness Components: Key Issues to Consider Before Adopting e-Learning Interventions*. Retrieved from <https://www.learntechlib.org/primary/p/11555/>.
- [4] Coopasami, M., Knight, S. and Pete, M. (2017). E-Learning Readiness amongst Nursing Students at the Durban University of Technology. *Health SA Gesondheid*, vol. 22, pp. 300–306.
- [5] Demir, O. (2015). The Investigation of E-Learning Readiness of Students and Faculty Members: Hacettepe University, Faculty of Education Example. (Master's Thesis, Hacettepe University, Ankara 2015).
- [6] Discenza, R., Howard, C. and Schenk, K. D. (Eds.). (2002). *The Design and Management of Effective Distance Learning Programs*. Hershey, Pa. : IGI Global.
- [7] Doğan, U. (2014). Validity and Reliability of Student Engagement Scale. *Bartın Üniversitesi Eğitim Fakültesi Dergisi*, vol. 3, issue 2, pp. 390–390, <https://doi.org/10.14686/BUFAD.201428190>.
- [8] Garrison, D. R. and Anderson, T. (2003). *E-learning in the 21st Century: A Framework for Research and Practice*. London: Routledge.
- [9] Ghozali, I. (2005). *Model Persamaan Struktural Konsep dan Aplikasi dengan Program Amos 24 Update Bayesin SEM*. Semarang: Badan Penerbit Universitas Diponegoro.



- [10] Guglielmino, L. M. (1977). Development of the Self-Directed Learning Readiness Scale. (Doctoral Dissertation, University of Georgia, 1977).
- [11] Hair, J. F. (Ed.). (2010). *Multivariate Data Analysis* (7<sup>th</sup> ed). Upper Saddle River: Prentice Hall.
- [12] Hartley, K. and Bendixen, L. D. (2001). Educational Research in the Internet Age: Examining the Role of Individual Characteristics. *Educational Researcher*, vol. 30, issue 9, pp. 22–26, <https://doi.org/10.3102/0013189X030009022>.
- [13] Henrie, C. R., Halverson, L. R. and Graham, C. R. (2015). Measuring Student Engagement in Technology-Mediated Learning: A Review. *Computers & Education*, vol. 90, pp. 36–53, <https://doi.org/10.1016/j.compedu.2015.09.005>.
- [14] Hill, R. P. (2002). Managing Across Generations in the 21st Century: Important Lessons from the Ivory Trenches. *Journal of Management Inquiry*, vol. 11, issue 1, pp. 60–66, <https://doi.org/10.1177/1056492602111020>.
- [15] Hung, M.-L., et al. (2010). Learner Readiness for Online Learning: Scale Development and Student Perceptions. *Computers & Education*, vol. 55, issue 3, pp. 1080–1090, <https://doi.org/10.1016/j.compedu.2010.05.004>.
- [16] Knowles, M. S. (1975). *Self-Directed Learning: A Guide for Learners and Teachers*. New York: Association Press
- [17] *Kompas.com*. (2020, March). Retrieved November 20, 2020 from <https://kompas.id/baca/english/2020/03/17/independent-learning-at-home/>.
- [18] Martinez, K. R. and Grooms, L. D. (2018). Online Learning Propelled by Constructivism. In Mehdi Khosrow-Pour (Ed), *Encyclopedia of Information Science and Technology* (4<sup>th</sup> ed pp. 2588–2598). Hershey, Pa. : IGI Global
- [19] Moore, J. L., Dickson-Deane, C. and Galyen, K. (2011). E-Learning, Online Learning, and Distance Learning Environments: Are they the Same? *The Internet and Higher Education*, vol. 14, issue 2, pp. 129–135.
- [20] Parsons, S., Richey, L. and Parsons, A. (2014). Student Learning: Engagement & Motivation. *Phi Delta Kappan*, vol. 95, pp. 23–27.
- [21] Prihastiwati, W. J. (2020). Laporan Monitoring dan Evaluasi Pembelajaran Daring Fakultas Psikologi Universitas Muhammadiyah Surabaya. Unpublished manuscript, Fakultas Psikologi Universitas Muhammadiyah Surabaya, Surabaya
- [22] Rasouli, A., Rahbania, Z. and Attaran, M. (2016). Students' Readiness for E-Learning Application in Higher Education. *Malaysian Online Journal of Educational Technology*, vol. 4, issue 3, pp. 51–64.
- [23] Roper, A. (2007). *The Development of Online Student Skills: Successful Online Students Share their Secrets*, p. 171–183.

- [24] Schell, G. and Janicki, T. J. (2013). Online Course Pedagogy and the Constructivist Learning Model. *Journal of the Southern Association for Information Systems*, vol. 1, issue 1, pp. 26-36. <https://doi.org/10.3998/jsais.11880084.0001.104>
- [25] Sengsouliya, S., et al. (2020). An Investigation on Predictors of Student Academic EngagemENT. *European Journal of Education Studies*, vol. 0, issue 0, <https://doi.org/10.46827/ejes.v0i0.2793>.
- [26] Shyu, H.-Y. and Brown, S. W. (1992). Learner Control versus Program Control in Interactive Videodisc Instruction: What are the Effects in Procedural Learning. *International Journal of Instructional Media*, vol. 19, issue 2, pp. 85–95.
- [27] Smith, P. J. (2005). Learning Preferences and Readiness for Online Learning. *Educational Psychology*, vol. 25, issue 1, pp. 3–12, <https://doi.org/10.1080/0144341042000294868>.
- [28] Yilmaz, R. (2017). Exploring the Role of E-Learning Readiness on Student Satisfaction and Motivation in Flipped Classroom. *Computers in Human Behavior*, issue 70, pp. 251–260, <https://doi.org/10.1016/j.chb.2016.12.085>.