

The Level of Digital Literacy and Its Impact for Self-Regulated and Effective Language Learning

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Abstract

This study aims to discuss the effect of digital literacy level on independent language learning skills and effective learning abilities. The research respondents (n = 147) were the students of Universitas Islam Indonesia from various years who took English courses as General Education (MKU). Respondents were chosen randomly from students who participated in researcher English courses. This research is quantitative. The data was obtained through a Likert scale questionnaire with a range number; 0-1 and 1-5. The quantitative data were analyzed by correlation (Pearson product-moment) and regression (ANOVA) techniques. The results displayed; first, there is no significant effect of digital literacy variables on Self-Regulated language learning skills. Second, there is a substantial impact of digital literacy on effective learning abilities. Third, there is a significant impact of Self-Regulated language learning on effective language learning. This study suggested that higher education institutions need to provide formal programs in training or workshops to increase digital literacy capacity and student academic skills to achieve effective learning goals.

Keywords: digital literacy; effective learning; general education; self-regulated learning

Introduction

In the contemporary period, the need for literacy has expanded beyond traditional literacy concepts, namely reading, and writing to access information on various media and information technology platforms. In addition, students have now utilized multiple tools and social media, such as Facebook, Twitter, online games, Wikipedia, and blogs, to discuss various problems and issues to find ideas and answers while searching for entertainment (Spire & Bartlett, 2012). This transformation process of literacy concepts in that context is then well-known as digital literacy.

The term of digital literacy has many similar words. One of them is termed by Sharkey & Brandt (2008) as information technology literacy. In that term, they combined two literacies which were usually used separately. The two skills must even be integrated to obtain the number of skills and knowledge that someone needs. Combining standards and methods from those two skills, through the

Instructional System Design approach, will strengthen the development of the program and curriculum in the digital age.

Today, digital literacy has become an important part of science development. Literacy skills also influence the transformation of education in line with the changing of an era. This change was marked by the human lifestyle, from hard copy to digital documents, from books to tablets, from physical to virtual interaction. In addition, the need for an internet connection is no longer complementary but has become a basic need (Rahmah, 2015).

The implementation of digital literacy in education, from elementary schools to tertiary institutions, focuses differently on competency levels due to differences in the expected effects of digital literacy on each learning process. Therefore, the interpretation of digital literacy competence has been developing for a long duration. While at present, its development is characterized by the complexity which not only emphasizes skills in using technology but includes components of cognitive personality and attitudes (Rambousek, Štípek, & Vaňková, 2016).

As changes increase in society, there is a need to be more independent in the learning process. This concept emphasizes the independence of a person to gain knowledge. Therefore, a student must be responsible for his learning process. Dependency changes into inter-dependence by helping each other so that they become more independent than before. They play a role as their teachers with their capability and motivation when no one else acts as a teacher. In this context, a teacher acts more as a teaching manager, resource person, and learning partner with experience in gaining the knowledge needed (Belton & Scott, 2017).

Self-Regulated or autonomous learning is often considered problematic for Asian countries and secondary students except in developing countries with educational institutions from the western world. Some studies confirmed that students in Higher Education are deemed to have a more mature personality to be responsible for their learning. Thus, the content and learning methods are more in control than teachers, textbooks, and syllabi (Lamb, 2004).

This study aims to present a digital literacy model that increases self-regulated and effective learning of higher education students. This study also provides theoretical contributions including as follow:

1. This study proves the relationship between digital literacy and Self-Regulated and effective language learning in higher education. (1) Yang and Kim (2015) concluded that the level of students' digital literacy has a positive and significant impact on the skill of Self-Regulated learning. This study also supports Fernández-Toro and Hurd (2014), who argued that a student needs enough knowledge to bridge the gap between actual and ideal performance in autonomous learning. If not, they would not have the tools or ways to overcome this gap. Finally, it may result in stress and frustration. (2) Sharp (2018) argued that the practice of digital literacy has a significant theoretical and practical impact on the development of learning for adult learning context. Adult learning principles comprise intrinsic motivation, contextual, rich experience as a source of learning, problem-solving approaches, and autonomous learning (3) Ukwoma & Iwundu (2016) argued that students' digital literacy has a significant impact on their academic performance.

2. Although there have been several studies examining the correlation of digital literacy to learning performance (Meng Tang & Yen Chaw, 2016), studies focused on language learning are still limited. Ozdamar-Keskin, Ozata, Banar, & Royle (2015) suggested the importance of conducting training to increase the use of digital devices for effective learning purposes and design learning environments to improve digital literacy Self-Regulated learning.

Literature Review

Digital Literacy

Internet is a technology that has been considered the most important for the current generation. The era, which is identical to search engines and social media, has presented challenges and opportunities for education. Statistics have also shown that teachers and students are increasingly reliant on the internet, making the internet the main source of information and knowledge inside and outside of school. The digital literacy term represented students' ability to use and produce digital content and printed text (Spire & Bartlett, 2012).

In this study, digital literacy is interpreted as a skill and competency that enables students to use digital devices to enrich their learning experiences and develop themselves towards the community and lifelong learning (Ukwoma, Iwundu, & Iwundu, 2016). Paul Gilster first recognized this term, quoted by Ktoridou & Eteokleous-Grigoriou (2011), which defines digital literacy as "the ability to understand information and more important to evaluate and integrate data in multiple formats that the computer can deliver."

Bawden (2008) argued that the concept of digital literacy is often used inconsistently. Some authors have used the term to show a broad idea connected with relevant literacy, competency-based, and information technology or computer skills. He divided digital literacy into four components: (1) underpinning, namely traditional literacy in reading, writing, and basic computer operating skills. (2) background knowledge is assumed to be part of an educated person who can access information from multiple sources. (3) main competencies (central competency) include understanding information in digital or non-digital form from various sources such as books, journals, websites, and others. (4) attitude and perspective, learning independently and showing good behavior in a digital environment.

With the development of information technology, the concept of digital literacy also continues to change. The development of clearer conceptual frameworks further enhances understanding of the skills covered in digital literacy terms. Eshet-Alkalai (2004) offers four new conceptual frameworks to the concept of digital literacy. (a) photo visual literacy; (b) reproduction literacy; (c) information literacy; (d) branching literacy; and (e) socio-emotional literacy. The four types that cover most of the concepts above are expected to broaden the understanding of how a user should complete tasks requiring diverse digital skills.

Digital literacy has been described as the ability to reflect a process of using digital devices appropriately. To achieve these abilities, someone needs a variety of diverse literacy skills. In educational technology, digital literacy covers several sub-disciplinary areas; computer literacy, technology literacy, information literacy,

media literacy, visual literacy, communication literacy (Covello, 2010).

Digital Literacy and Self-Regulated Learning

The major challenge of Self-Regulated Learning is to build students' ability always to engage, take advantage, and contribute positively from the learning environment, even though it is not directly mediated by the teacher (White, 2011). Self-Regulated Learning skills are needed to achieve, explicitly when students are responsible for their learning process, having metacognitive control, motivation and behavior, and other generative learning thinking. Besides Self-Regulated Learning, Self-Regulated and autonomous learning is often used to imply the same ideas. At a global level, this component includes using systematic and learning approaches, time management, and instrumental methods to get help and manage motivation in learning activities. (Weinstein, Acee, Jung, & Dearman, 2011).

Fernández-Toro & Hurd (2014) proposed four external factors that influence active student involvement in autonomous learning. These factors will be significant if the four things are combined: goal relevance, knowledge, self-confidence, and roles.

Along with implementing a broad digital technology-based education, students' knowledge, and skills in using information technology turn into a necessity. According to Yang & Kim (2015), e-learning is considered to reduce students' dependence on place, time, teaching, and learning tools. E-learning has also provided correspondence learning and learning content appropriate to the student's level and needs by breaking down a single learning environment. Thus, to develop an independent learning model, it is necessary to increase the ability of digital literacy based on interaction and sharing activities in the digital social and cultural environment.

Digital Literacy and Effective Learning

Each student has a unique way of learning. For example, some students are visual, while others are kinesthetic. Some students may prefer to study in the morning while others in the evening. Based on this assumption, Morey and Frangioso (1998) defined effective learning as the ability to create, recognize, integrate, and implement new techniques. It is also defined as understanding the information in a quick way that determines students' long-term success. Furtherly, six principles can encourage students' effective learning, divided into three categories; the first category is understanding that includes: (1) paradigms and (2) diverse thought. The second is skills that have (3) courage to question an assumption and (4) hearing to understand. While the third category is a process that consists of; (5) the learning cycle and (6) teaching others.

In measuring the effectiveness of the teaching and learning process, Bloom Taxonomy is one of the reference frameworks considered to have good measurement points (Meng Tang & Yen Chaw, 2016). The taxonomy of educational objectives is a framework for classifying statements of what we expect from student learning processes that are considered the result of the teaching process. Bloom considers taxonomy to be more than a measure of learning effectiveness. He believes that taxonomy can play a role as; (1) common language learning objectives that

facilitate interpersonally, material, and level, (2) the basis for determining course or curriculum, (3) determining the congruence of learning objectives, activities, and assessments for each activity unit, (4) offering panoramas of various possibilities in education against all the limitations of learning activity (Krathwohl, 2002).

Based on the Revised Bloom Taxonomy framework, which includes six dimensions of cognitive processes; remembering, understanding, applying, analyzing, evaluating, and creating (Anderson et al., 2001), this study examined four constructs to measure the effectiveness of learning, which includes four aspects: knowledge application, higher-order thinking, practical evaluation knowledge, and knowledge improvement. The level of items to measure each construct was adopted from previous studies (Nkhoma et al., 2017).

The presence of digital technology in education has triggered debate among many experts around the positive and negative impacts on learning effectiveness. However, Underwood argued that the need to instill the value of technology in education is particularly important, especially in emphasizing accountability based on several standards. It is also caused by the substantial costs of implementing technological innovations in the learning space. Some of the benefits that can be obtained from the application of digital technology include: (1) increasing the effectiveness and performance, (2) students' efficiency, (3) greater satisfaction with performance, (4) positive student attitudes. Therefore, improving digital technology literacy skills is truly relevant in maximizing students' learning activity effectiveness. This process is also in line with Radovanovic's opinion that digital literacy is the center of empowerment agents in educational institutions because performance and personal life become more technologically advanced (Underwood, 2009).

Self-Regulated and Effective Learning

Self-regulated learning is a term that refers to an action or process aimed at obtaining information or skills, which includes learners' agencies, goals, and instrumental perceptions. Self-Regulated learning has been distinctive because of many differences, including awareness of the strategic relationship between the regulation process or response and learning output. By employing this strategy to achieve academic goals, the systematic application of metacognition, motivation, and behavior strategies is a major feature of the definition of independent learning (Zimmerman, 1990).

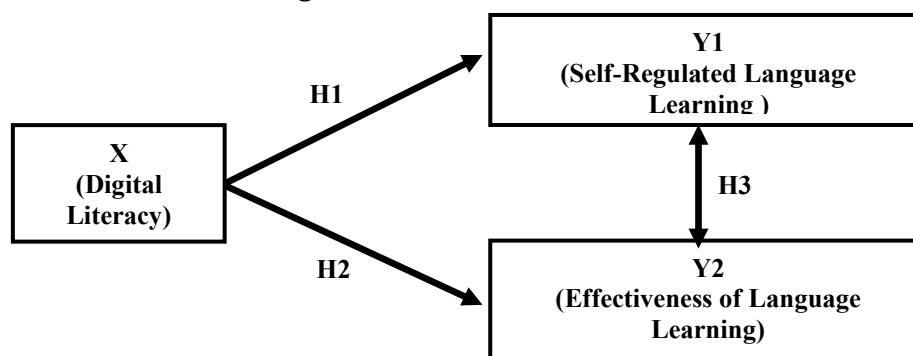
A self-regulated learner will design their own goals for wider knowledge and more sustainable motivation in a learning process. Thus, they realized what they know, believe and the differences between various kinds of information that affected the approach used in a task. Based on the different stages in each task, Self - Regulated Learning has several topics, namely; (a) searching or obtaining information in a task domain, (b) monitoring their active involvement about goals and identifying deviations from planned goals, (c) redesigning strategic planning in learning based on an assessment of the choice of paths that have more chances of success, (d) revise knowledge and beliefs in a domain of individual competencies (Winne, 1995).

Trigwell (2010) further stated that students who can regulate their learning would be more effective learners. Montalvo & Torres (2008) have explored those

Self-Regulated learners who see themselves as agents for their behavior, believe that learning is a proactive process, being motivated by themselves, and use strategies that can help them achieve their desired learning goals. In more detail, the characters of Self-Regulated learners are as follows:

1. Knowledge of how to use a set of cognitive strategies (repetition, elaboration, and organization) that can help them absorb, transform, organize, and detailed information.
2. Knowledge explained how to plan, control, and direct their mental processes towards achieving personal goals.
3. Evidence of motivational beliefs and adaptive emotions such as high academic self-efficacy.
4. The capacity to manage time effectively and make the most use of available resources to complete the goal. Additionally, understanding how to establish an environment conducive to learning.
5. Increased efforts to regulate and govern academic tasks, circumstances in the classroom, and structures when possible.
6. Ability to play a role in a series of desire strategies, aiming to stay away from internal and external disturbances to maintain concentration, effort, and motivation when completing academic assignments.

Thus, based on the theoretical framework above, the expected research model can be illustrated in the following illustration:



This study will confirm the following three hypotheses

- H1: Digital literacy has a significant effect on the level of Self-Regulated language learning
- H2: Digital literacy has a significant impact on the effectiveness of language learning
- H3: Independence of language learning has a significant effect on the effectiveness of language learning

Method

The population of this research was 250 active students at Universitas Islam Indonesia who received online questionnaire links. The total number of respondents who answered correctly was 148 students. The primary data was collected through a Likert scale questionnaire instrument with a range of grades 1-5 to measure students' perceptions of their digital literacy levels and their effects on Self-Regulated and language learning effectiveness. The sample was determined by

random sampling for students who actively participated in the researcher’s English classes. The data collected was analyzed using product-moment correlation techniques and regression with the support of SPSS software.

Results

Correlation between Digital Literacy, Self-Regulated Language Learning and Effective Learning

Table 1. Correlations

		X (Digital Literacy)	Y1 (Self—Regulated Learning)	Y2 (Effective Learning)
X (Digital Literacy)	Pearson Correlation	1	,114	,196*
	Sig. (2-tailed)		,168	,017
	N	148	148	148
Y1 (Self—Regulated Learning)	Pearson Correlation	,114	1	,352**
	Sig. (2-tailed)	,168		,000
	N	148	148	148
Y2 (Effective Learning)	Pearson Correlation	,196*	,352**	1
	Sig. (2-tailed)	,017	,000	
	N	148	148	148

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data Processed, 2020

Table 1. displays the results of product-moment correlation analysis between research variables. The results showed that the correlation value between the independent variables of digital literacy (X) to the Self-Regulated language learning (Y1) was 0.168, which means there is no significant correlation between the two variables. While the correlation value between the independent variable of digital literacy (X) to the effective language learning variable (Y2) was 0,017, which means digital literacy has a significant correlation to effective language learning. Meanwhile, the correlation between Self-Regulated language learning (Y1) the effective language learning (Y2) was 0,000, which means there is a significant correlation between the two variables.

Table2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,114 ^a	,013	,006	1,131

a. Predictors: (Constant), X (Digital Literacy)

Source: Primary Data Processed, 2020

Table 2. shows the correlation coefficient value between digital literacy (X) and Self-Regulated language learning (Y1) with a correlation rate of 0.114. This value can be interpreted that the relationship between the two variables was positive. The coefficient of determination between the two variables can also be understood that

shows how strong each variable creates the regression model. It is displayed that the coefficient of determination rate was 0.013, which means that the X variable contributed 1.3% to the Y1 variable, while 98.7% was influenced by other factors that were not examined in this study.

Table 3. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,460	1	2,460	1,922	,168
	Residual	186,838	146	1,280		
	Total	189,297	147			

a. Dependent Variable: Y1 (Self-Regulated Learning)

b. Predictors: (Constant), X (Digital Learning)

Source: Primary Data Processed, 2020

Table 3. shows the results of the F test analysis. The F count value was 1.922 with a probability level of 0.168 (significance). Based on significance criterion <0.05, the matter can be interpreted that the digital literacy variable (X) does not significantly influence the Self-Regulated language learning variable (Y1) or does not meet the element of linearity.

Table 4. Coefficients

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
				Beta		
1	(Constant)	4,221	,666		6,339	,000
	X (Digital Literacy)	,012	,009	,114	1,386	,168

a. Dependent Variable: Y1 (Self-Regulated Learning)

Source: Primary Data Processed, 2020

Table 4. shows the regression equation model obtained through constant coefficients and variable coefficients in the Unstandardized Coefficients B column with the equation model $Y = 4.221 + 0.012X$. Beta value of 0.012 means if the digital literacy variable is increased by one unit, the respondent's language learning independence will increase by 1.2%. It means; however, the coefficient is positive but not significant.

Based on the table, the significance of the digital literacy variable (X1) with a value of 0.168. Since the result is > 0.05, it can be concluded that H1 or the first hypothesis was rejected. It means that there is no significant effect of digital literacy (X1) on Self-Regulated language learning (Y1).

This result was not in line with the research conducted by Yang & Kim (2015) that the students' digital literacy considerably influences self-regulated learning skills in university e-learning environments. This study has examined three branches of digital literacy: critical literacy, social literacy, and functional literacy.

Specifically, critical literacy has a wider influence on all aspects of independent learning skills, namely, cognitive regulation, metacognitive regulation, and behavior management. Only functional literacy does not affect each element of Self-Regulated.

Effect of Digital Literacy on the Effective Language Learning

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,196 ^a	,039	,032	1,263

a. Predictors: (Constant), X (Digital Literacy)

Source: Primary Data Processed, 2020

Table 5. shows the correlation coefficient between digital literacy variable (X) and effective language learning (Y2) with a correlation rate of 0.196. This rate can be understood that the relationship between the two variables was positive. It is also understood that the coefficient of determination rate was 0.039, which indicates that the X variable affected 3.9% of the Y2 variable, while 96.1% was influenced by other factors not examined in this study.

Table 6. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9,348	1	9,348	5,861	,017 ^b
	Residual	232,841	146	1,595		
	Total	242,189	147			

a. Dependent Variable: Y2 (Effective Learning)

b. Predictors: (Constant), X (Digital Literacy)

Source: Primary Data Processed, 2020

Table 6. shows the results of the second hypothesis F test analysis. The F count value is 5.861, and the probability level of 0.017 (significance). With a significance baseline <0.05, the matter can be interpreted that digital literacy (X) has a considerable influence on the language learning independence variable (Y2) or satisfies the element of linearity.

Table 7. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,448	,743		5,983	,000
	X (Digital Literacy)	,024	,010	,196	2,421	,017

a. Dependent Variable: Y2 (Effective Learning)

Source: Primary Data Processed, 2020

Table 7. shows the result of the Beta rate of 0.024, which means if the digital

literacy variable is increased by one unit, the students' effective language learning will increase by 2.4%. Thus, the coefficient is positive and significant. In addition, the significance of the digital literacy variable (X1) with 0.017 indicated that H2 or the second hypothesis is accepted. There is a significant effect of digital literacy (X1) on effective language learning (Y2).

The results were also in line with research conducted by (Meng Tang & Yen Chaw, 2016) which concluded that prominent levels of digital literacy, including four dimensions: underpinning, background knowledge, central competency, attitudes, and perspective, became conditions of effective learning achievement in a blended learning environment. Thus, each tertiary institution must conduct training and workshops to improve students' digital literacy.

Self-Regulated Learning and Effective Learning

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,352 ^a	,124	,118	1,205

a. Predictors: (Constant), Y1 (Self-Regulated Learning)

Source: Primary Data Processed, 2020

Table 8. shows the correlation coefficient values between Self-Regulated Learning (Y1) and the effectiveness of language learning (Y2) with a correlation rate of 0.352. This value explained that the relationship between the two variables is strong. It is also known that the coefficient of determination between the two variables is 0.124. The result demonstrates that variable X contributed up to 12.4% to the Y2 while 87.6% was influenced by other factors examined in the study.

Table 9. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30,037	1	30,037	20,671	,000 ^b
	Residual	212,152	146	1,453		
	Total	242,189	147			

a. Dependent Variable: Y2 (Effective Learning)

b. Predictors: (Constant), Y1 (Self-Regulated Learning)

Source: Primary Data Processed, 2020

Table 9. shows the results of the F test analysis for the third hypothesis. It is known that the F count value is 20,671 with a probability level of 0,000 (significance). It can be interpreted that the Self-Regulated language learning variable (Y1) has a considerable impact on the effective language learning variable (Y2) or meet the element of linearity.

Table 10. Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	4,184	,461		9,082	,000
	Y1 (Self-Regulated Learning)	,398	,088	,352	4,547	,000

a. Dependent Variable: Y2 (Effective Learning)

Source: Primary Data Processed, 2020

Table 10. shows the Beta rate of 0.398 indicated that if the Self-Regulated language learning variable were increased by one unit, the effective language learning level would increase by 39.8%. Therefore, the coefficient was positive and significant. It was also known that a considerable value of Self-Regulated language learning (Y1) with a value of 0,000 indicates that H3 or the third hypothesis was accepted.

All these results were in line with Winne (1995), who mentioned that Self-Regulated Learning (SRL) skill is an important construct for effective learning. He said that in the end, effective learning becomes a determining factor for students in maintaining the achievement of educational goals. This result supported Trigwell (2010), which stated that students who can be Self-Regulated learners would be more effective in learning. A Self-Regulated learner made the learning process an activity that they developed more proactively. Thus, to encourage students' effective learning, it is necessary to involve formal training that educates them to be Self-Regulated learners.

The overall results and analysis of those three hypotheses can be briefly described in the following research model.

Conclusion

Based on the results and discussion above, it can be concluded that digital literacy, in general concept, has not significantly influenced self-regulated learning in tertiary students who take English courses as General Education. Thus, according to students' perceptions, efforts to increase digital literacy skills in programs, such as computer courses and digital technology proficiency workshops, have not been considered to provide significant benefits for Self-Regulated language learning skills. Second, digital literacy has not been considered to have a considerable influence on effective language learning. Therefore, the process of student development skills focusing on digital literacy proficiency has been considered to have an important impact on students to achieve effective learning so that the objectives of the educational process will be achieved. Third, Self-Regulated language learning skills have been considered to have a positive and considerable influence on the achievement of effective learning. Thus, the higher the level of student skills in Self-Regulated language learning, it is considered to have a significant effect on the accomplishment of learning effectiveness, leading to the achievement of educational goals.

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References

- Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. E., Mayer, R. E., Pintrich, P. R., . . . Wittrock, M. C. (2001). *A Taxonomy for Teaching, Learning, and Assessing: A Revision of Bloom's Taxonomy of Educational Objective*. United States: Longman.
- Bawden, D. (2008). Origins and Concepts of Digital Literacy. In C. I. Knobel, *Digital Literacies: Concept, Policies and Practices*.
- Belton, V., & Scott, J. L. (2017). Independent learning and operational research in the classroom. *Journal of the Operational Research Society*, 49(9), 899-910. doi: <https://doi.org/10.1057/palgrave.jors.2600593>
- Covello, S. (2010). *A Review of Digital Literacy Assessment Instruments*. New York: Syracuse University School of Education.
- Eshet-Alkalai, Y. (2004). Digital Literacy: A Conceptual Framework for Survival Skills in the Digital Era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93-106.
- Fernández-Toro, M., & Hurd, S. (2014). A model of factors affecting independent learners' engagement with feedback on language learning tasks. *Distance Education*, 35(1), 106-125. DOI:<https://doi.org/10.1080/01587919.2014.891434>
- Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory Into Practice*, 41(4), 212-218.
- Ktoridou, D., & Eteokleous-Grigoriou, N. (2011). Developing digital immigrants' computer literacy: the case of unemployed women. *Campus-Wide Information Systems*, 28(3), 154-163. DOI:<http://dx.doi.org/10.1108/10650741111145689>
- Lamb, M. (2004). It Depends on the Students Themselves: Independent Language Learning at an Indonesian State School. *Language, Culture and Curriculum*, 17(3), 229-245.
- Meng Tang, C., & Yen Chaw, L. (2016). Digital Literacy: A Prerequisite for Effective Learning in a Blended Learning Environment? *The Electronic Journal of e-Learning*, 14(1), 54-65.
- Montalvo, F. T., & Torres, M. C. (2008). Self-Regulated Learning: Current and Future Directions. *Electronic Journal of Research in Educational Psychology*, 2(1), 1-34.
- Morey, D., & Frangioso, T. (1998, June). Aligning an Organization for Learning: The Six Principles of Effective Learning. *Journal of Knowledge Management*, 1(4), 308-314.
- Nkhoma, M. Z., Lam, T. K., Sriratanaviriyakul, N., Richardson, J., Kam, B., & Lau, K. H. (2017). Unpacking the revised Bloom's taxonomy: developing case-based learning activities. *Education + Training*, 59(3), 250-264. doi:10.1108/ET-03-2016-0061
- Ozdamar-Keskin, N., Ozata, F. Z., Banar, K., & Royle, K. (2015). Examining Digital Literacy Competences and Learning Habits of Open and Distance Learners.

- Contemporary Educational Technology*, 6(1), 74-90.
- Rahmah, A. (2015). Digital Literacy Learning System for Indonesian Citizen. *Procedia Computer Science* (pp. 94-101). New York: Elsevier.
- Rambousek, V., Štípek, J., & Vaňková, P. (2016). Contents of digital literacy from the perspective of teachers and pupils. *Procedia - Social and Behavioral Sciences* (pp. 354 – 362). Prague: Elsevier Ltd.
- Sharkey, J., & Brandt, D. S. (2008). Integrating Technology Literacy and Information Literacy. in P. C. Rivoltella, *Digital Literacy: Tools and Methodologies for Information Society* (pp. 85-98). New York: IGI Publishing.
- Sharp, L. A. (2018, January). Collaborative Digital Literacy Practices among Adult Learners: Levels of Confidence and Perceptions of Importance. *International Journal of Instruction*, 11(1), 153-166.
DOI:<https://doi.org/10.12973/iji.2018.11111a>
- Spires, H. A., & Bartlett, M. E. (2012). *Digital Literacies and Learning: Designing a Path Forward*. North Carolina: Friday Institute for Educational Innovation, North Carolina State University.
- Trigwell, K. (2010). Promoting Effective Student Learning in Higher Education. *International Encyclopedia of Education (Third Edition)*, 461-466.
DOI:<https://doi.org/10.1016/B978-0-08-044894-7.00863-0>
- Ukwoma, S. C., & Iwundu, N. E. (2016). Digital literacy skills possessed by students of UNN, implications for effective learning and performance A study of the MTN Universities Connect Library. *New Library World*, 117(11), 702-720.
doi:10.1108/NLW-08-2016-0061
- Weinstein, C. E., Acee, T. W., Jung, J., & Dearman, J. K. (2011). Strategic and self-regulated learning for the 21st century: The merging of skill, will and self-regulation. In B. Morrison, *Independent Language Learning Building on Experience, Seeking New Perspectives* (pp. 41-54). Hong Kong: Hong Kong University Press.
- White, C. (2011). Inside independent learning: old and new perspectives. In B. Morrison, *Independent Language Learning Building on Experience, Seeking New Perspectives* (pp. 13-23). Hong Kong: Hong Kong University Press.
- Winne, P. H. (1995). Inherent Details in Self-Regulated Learning. *Educational Psychologist*, 30(4), 173-187. Retrieved from <https://www.researchgate.net/publication/246474970>
- Yang, M.-s., & Kim, J.-k. (2015). The Effect of Learner's Digital Literacy on Self-Regulated Learning Skill at University e-learning Environment. *Information*, 18(5B), 1925-1930.
- Zimmerman, B. J. (1990). Self-Regulated Learning and Academic Achievement: An Overview. *Educational Psychologist*, 25(1), 3-17.