MS_EUJER_ID_2103081206.docx

By EDITOR EU-JER

WORD COUNT	6378	TIME SUBMITTED	05-APR-2021 11:10AM
		PAPER ID	70724542

The Users' Experiences in Processing Visual Media for Creative and Online Learning Using Instagram

***Corresponding Author**

*

Abstract: This study was aimed at; analyzing the effect of creative and online learning using Instagram on the ability to create new products in The Technology and Learning Media course, and determining the level of users' experience in processing visual media through the Canva application on android. Quantitative approach with true experimental, Post-test Only Control Group Design was applied to 58 students as the respondents in two experimental and control classes. This study used two instruments; the cognitive learning outcome questionnaire according to the subject to get the students' ability to create new products, and the second instrument was taken from www.ueq-online.org in the Indonesian version to know the users' experience in processing visual media. The data were analyzed using one-way ANOVA, mean and standard deviation assisted by IBM SPSS Statistics 24.0. The results demonstrated that the effect of creative and online learning using Instagram on the ability to create new products in The Technology and Learning Media course was found significant at 0.028 <0.05 which meant it could be applied well. Meanwhile, the level of users' experience in processing the visual media application Canva on Android had the highest score on the Stimulation scale at 1.59, categorized "Very Good" and the lowest score was on the Novelty scale at 0.93, categorized "Above Average". With the strong creative encouragement to create new products, the students were able to process their own visual media which were tailored to the agreed digital visual designs and were published on Instagram.

Keywords: Creative Learning, Online Learning, Creating, User Experience, Instagram

The Users' Experiences in Processing Visual Media for Creative and Online Learning

Introduction

Learning in the 21st century includes creativity (Newton & Newton, 2014), it is considered as the core thinking skill of the 21st century, but many people hesitate to identify themselves as "creative" (Henriksen et al., 2017), including creative learning which enable learning process to direct all aspects of students' abilities in learning to support education because there is a relationship between education and creativity (Daniel, 2001). Creativity in students is a part that encourages learning abilities in supporting learning, namely creativity and learning (Jeffrey & Craft, 2004). Creative learning is important in supporting education and learning at all levels of education (Tanggaard, 2014).

Creative learning will create students who are also able to create many new findings in the learning process, both in the community and in small environments such as small classrooms at school (Amponsah et al., 2019); provide new learning directions for students in class with special practices that stimulate the ability to create new favorite things (Ellis, 2016); guide to pay attention to all aspects of creative learning design (Cochrane & Antonczak, 2015), in the form of creative learning through social media using cellular devices and redesigning the curriculum around the students produced in m-portfolios (Cochrane & Antonczak, 2015). Furthermore, Mayer (1989) explained, creative learning occurs when students use active learning strategies to represent new material mentally in a way that leads to transfer the problem solving that supports a view of cognitive creativity.

However, the research-experimented to four different groups by Yeh et al. (2020) entitle "Beliefs towards Cellular Devices for Learning Creativity " found that not all learning process in higher education is created into creative learning which direct students' potential to the positive direction, their research also claimed that processing visual media will create creative students. Because creativity is something that we can find in every child, not only those who

are gifted or very intelligent (Runco, 2003), it is necessary to develop measurement criteria for creativity and spatial specific ability domains in education (Cho, 2017), moreover, students show creative activity when they work regularly with professionals in their schools (Heath & Wolf, 2005).

Processing visual media is a creative activity and the teachers play an important role in providing a conducive classroom environment for creative learning (Esquivel, 1995). Jónsdóttir (2017) claimed that fostering creativity is such a complex undertaking, it is characterized by several factors that can be adjusted and influenced. According to Davies et al. (2013) there are some factors that support the development of creative skills in children and adolescents; the flexible use of space and time, availability of suitable materials, and working outside the classroom/school.

Besides visual media, processing audio-visual media such as learning videos can be used to support creative learning. Toyn (2008) provided responses from the students who valued their experience and develop a desire to use digital video in their own classroom practice to support meaningful learning by making digital videos to be the powerful tool in supporting creative teaching and learning. This finding was also supported by an essay from Jeffrey (2008) entitle 'Studio Thinking: A Model of Artistic Mind, the role of new technologies in creative learning and assessment of creative learning' which revealed current perspectives of the policy on creativity in education and the perspectives of artists on art practice and pedagogy.

Visual media and visualization have long been measured and researched, in the form of a Verbalizer-Visualizer Questionnaire at post-test and a 3 weeks follow-up to the 53 junior high school students in the certain program to reduce interpersonal anxiety (Warren & Good, 1979). A careful revision was also conducted for the challenging goal by the better modeling process of human visual information (Diamant, 2008). B. Park et al., (2020) stated that visual information

processing can be measured by eye movement, subjective perceived cognitive, and retention performance, but did not affect the comprehension performance or information transfer found, however, this study emphasized more on visual media processing, students formulation, planning and producing visual media and were published on social media Instagram. Another similar study was also conducted by Sadik (2009) and investigated the impact of utilizing social media 'Flickr', hosting community, and sharing photos online on visual literacy skills of pre-service teachers.

Likewise for online learning, according to Martin et al., (2020), the students have been ready for online learning which is measured by interest and confidence in their abilities. In addition, the use of multimedia in course design contributed positively to student performance or their perceptions of online learning experiences (T. Davis & Frederick, 2020). Tekin et al. (2020) added, the right and suitable model for online learning was a flipped classroom model for learning interactive multimedia content because the flipped model is suitable for self-efficacy (Kinteki et al., 2019), Julia et al. (2020) also examined the flipped classroom model articles which have published in several well-known international journals from 2010 to 2019.

Online learning with social media has also been popularly used, such as Facebook (Jumaat et al., 2019), YouTube for interesting learning (Jenkins & Dillon, 2013; D. Y. Lee & Lehto, 2013; Salehudin, 2020), also for Instagram, it can also be used for interesting learning because it has interactive or streaming functions, today, Instagram is even the world's third-best social media with a growing number of users. In Indonesia, there are about 100 million users of Instagram and dominated by adolescents and college students. Young people like using Instagram as a global social media among them (Jang et al., 2015; Kertamukti et al., 2019), Instagram for learning (Salehudin, Hamid, et al., 2020), Instagram as the most reliable visual function (Hochman & Manovich, 2013; Zappavigna, 2016), Instagram for creative learning of graphic design lesson (Salehudin et al., 2019).

Therefore, the ability of students to process visual media is an instrument for developing and fostering the potential to create new products which as the students' learning creativity in technology and learning media (Giaoglio, Ekaterina, 2014; Marsh et al., 2017), the ability to process visual media as an art of creativity development (Ulger, 2016), thus enabling the research on the users' experience in processing visual media for interesting learning.

Users' experiences in processing technology-based or android applications visual media is a form of technological development that supports all human activities including teaching and learning activities, all art activities, music, DIY, and even all social medical activities (Prattichizzo, 2015), interpreting subjectivity of Instagram images (Zappavigna, 2016), the Instagram users' experiences to learn graphic design (Salehudin, Hamid, et al., 2020), multimedia users' experiences and Instagram posts based on visual image features (Mittal et al., 2017) and social media that can be used for learning (Aljuboori et al., 2020; Hussein & Hussain, 2019; Liu, 2010; Thalluri & Penman, 2015).

There was a number of studies on social media for teaching and learning, specifically Instagram for learning, but no research has been done on the users' experience in processing visual media for the students' publication as well as the students' outcomes in creating new products in teaching and learning to support creative learning, whereas, the visual media in Instagram can be used as a media for online learning which has been widely used around the world. So it is interesting for this current research to raise the key questions about how online learning through Instagram with visual media as the outcomes of students' cognitive "creating new products" in creative learning, and the second question is about how the users' experiences in processing visual media using the Canva application android to support creative learning.

Methodology

Research Goal

The purpose of this study; first is to analyze the effect of online learning using Instagram on the ability to create new products with creative learning in the Technology and Learning Media courses, second is to determine the level of users' experiences in processing visual media through the Canva application on android in online learning via Instagram.

Research Design and Data Collection

This study used a popular experimental design, that is true experimental design, post-test only control group design (Creswell, 2012). Participants were categorized or placed in two class groups, experimental class and control class, post-test was administrated in both groups but the treatment was only given to the experimental class, it can be seen by the following procedure:

Table 3.Experimental procedure of post-test only control group design

	Meeting							
	1	2	3	4	5	6	7	8
Class	*R*	----------		*Experimental Class*			-------	*O* X1Q
	R	----------		*Control Class*			----------	*O* X2

Information:
X1 = Creative learning (experimental treatment)
X2 = Problem Based Learning (PBL)
Q = The ability to create new products questionnaire

All samples of this study were the fifth-semester students of IAIN Samarinda in 2019-2020, Faculty of Education in the Technology and Learning Media subject. Using a random

sampling design, 58 students were divided into two classes, 29 students for the experimental class and 29 students for the control class, were assigned a random sample in this study.

This research collected quantitative data which were obtained from short answers from some tasks; consequences and benefits, tasks to formulate, designing and producing; students were asked to create new products according to certain specifications which include ways for students to design new digital visual media products with the Canva android application provided on all students' Android phones in online learning during this research.

Data Analysis

Quantitative data were analyzed using mean, standard deviation, percentage, and test of One-Way ANOVA. The data were previously checked by Normality Testing using Kolmogorov-Smirnov and Shapiro-Wilk assisted by the IBM SPSS Statistics 24.0 for Windows program to test the section on creating new products for the course of Technology and Learning Media in online learning using Instagram.

The data of users' experiences in processing the Canva application's digital visual media were analyzed using statistical analysis and was carried out online at www.ueq-online.org with clear and valid benchmarks (Schrepp et al., 2017) has accuracy in analysis and has been used by more than 20 world countries, using the User Experience Key Performance Indicator (UX KPI) (Hinderks et al., 2019).

Research Instrument

To measure the effect of creative and online learning on the students' ability to create new products in the form of questions based on the subject, the questionnaires were used to collect closed responses from students. The questionnaires consisted of 30 statements, 20 positive statements and 10 negative statements and were tailored to three stages; problem description,

solution planning, and solution execution. Those three stages were the creation of new products containing three cognitive processes; formulating, planning, and producing (L. W. Anderson & Krathwohl, 2015)

The users' experiences were measured using an instrument from www.ueq-online.org which has been translated into Indonesian consisted of 26 question items and 6 measurement scales: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty.

Normality Test

The result of the normality test showed that the significance value at Kolmogorov-Smirnov for Formulating solution was 0.099, the Planning solution was 0.069, and the value of producing new products was 0.194. Significance at Shapiro-Wilk for Formulating a solution of 0.262, Planning a solution of 0.069, and Producing a new product of 0.060. In other words, the significance value of each data is greater than> 0.05, which meant, the research data was in a normal distribution, The Normal data showed that it can be continued for the One-way ANOVA test. The results of normality test data can be seen in the table:

Table 1: Data Normality Testing Using Kolmogorov-Smirnov and Shapiro-Wilk Tests

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Creating new products	Statistic	df	Sig.	Statistic	df	Sig.
Score	Formulating	.149	29	.099	.956	29	.262
	Planning	.156	29	.069	.934	29	.069
	Producing	.134	29	.194	.931	29	.060

a. Lilliefors Significance Correction

While the average of test results and standard deviation of the users' experiences in processing digital visual media using Canva Android can be seen in the following table:

Table 2: User Experience in Processing Visual Digital Media in the Canva Application

Confidence intervals (p=0.05) per scale						
Scale	Mean	Std. Dev.	N	Confidence	Confidence interval	
Attractiveness	1,342	0,937	58	0,241	1,101	1,583
Perspicuity	1,384	0,975	58	0,251	1,133	1,634
Efficiency	1,155	0,983	58	0,253	0,902	1,408
Dependability	1,263	1,005	58	0,259	1,004	1,522
Stimulation	1,595	1,153	58	0,297	1,298	1,891
Novelty	0,935	0,931	58	0,240	0,696	1,175

Findings/Results

Among the three stages of creating new products, producing new products was the greatest with the significance value greater than> 0.05 both in the Kolmogorov-Smirnov test and in the results of the Shapiro-Wilk Tests. A clear image of the results can be seen in the QQ Plots image as follow:

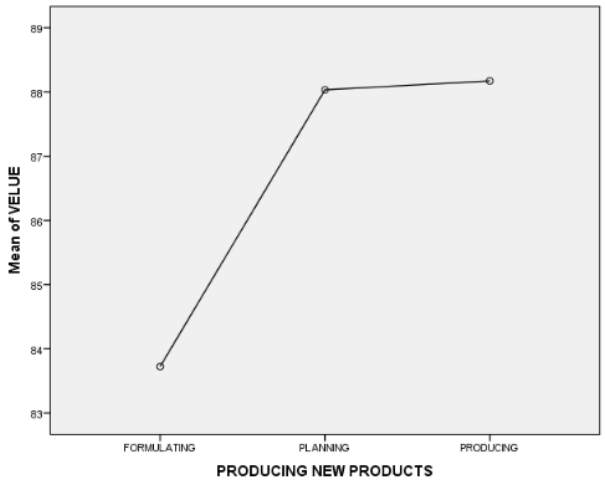

Figure 1: Detrended Normal Q-Q Plots

The research results on the creative learning with online learning through Instagram to find out the ability to create new products for students in the class of Technology and Learning Media found that the average score was 86.64, producing score at 88.17, planning score at 88.03, and the lowest and a bit far different was formulating score at 83.72.

Table 3: Descriptive calculation of the mean and standard deviation

Descriptives

Score	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formulating	29	83.72	7.076	1.314	81.03	86.42	70	96
Planning	29	88.03	7.433	1.380	85.21	90.86	70	98
Producing	29	88.17	6.580	1.222	85.67	90.68	76	98
Total	87	86.64	7.259	.778	85.10	88.19	70	98

After getting the descriptive results of mean and standard deviation tests in terms of creating new products, it was found that the homogeneity test result of variants was greater than> 0.05, which means that the value of creating the new products was in the homogeneous category with the significance score 0.870.

Table 4: Homogeneity of Variance Results

Test of Homogeneity of Variances

Score			
Levene Statistic	df1	df2	Sig.
.139	2	84	.870

From the test results of one-way ANOVA, it was found that all aspects tested were lower than <0.05 with the significance value of 0.028, meaning that the data was significant, so it can be concluded that the average score of the three stages in creating new product was significantly different. The ANOVA calculation results are as follows in the table:

Table 5: One-way ANOVA calculation results

ANOVA

SCORE					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	371.057	2	185.529	3.745	.028
Within Groups	4160.897	84	49.534		
Total	4531.954	86			

The Users' Experiences in Processing Visual Media for Creative and Online Learning

Regarding the users' experiences in processing visual media using Canva Android, the average score of all items of the questions can be seen in the table below:

Table 6: Confidence Intervals for Items and Scales

Confidence interval (p=0.05) per item						
Item	Mean	Std. Dev.	N	Confidence	Confidence interval	
1	1,466	1,158	58	0,298	1,168	1,764
2	1,897	1,071	58	0,276	1,621	2,172
3	1,034	1,486	58	0,383	0,652	1,417
4	1,293	1,487	58	0,383	0,910	1,676
5	1,638	1,683	58	0,433	1,205	2,071
6	1,517	1,188	58	0,306	1,211	1,823
7	1,828	1,126	58	0,290	1,538	2,117
8	1,224	1,364	58	0,351	0,873	1,575
9	0,724	1,322	58	0,340	0,384	1,064
10	0,207	1,565	58	0,403	-0,196	0,610
11	1,707	1,284	58	0,331	1,376	2,037
12	1,586	1,451	58	0,374	1,213	1,960
13	1,483	1,203	58	0,310	1,173	1,792
14	1,552	1,046	58	0,269	1,283	1,821
15	0,966	1,376	58	0,354	0,611	1,320
16	1,603	1,154	58	0,297	1,307	1,900
17	1,086	1,328	58	0,342	0,744	1,428
18	1,397	1,611	58	0,415	0,982	1,811
19	1,034	1,184	58	0,305	0,730	1,339
20	1,414	1,077	58	0,277	1,137	1,691
21	0,862	1,420	58	0,365	0,497	1,227
22	1,431	1,365	58	0,351	1,080	1,782
23	1,052	1,317	58	0,339	0,713	1,391
24	0,741	1,409	58	0,363	0,379	1,104
25	1,103	1,224	58	0,315	0,788	1,418
26	1,534	1,112	58	0,286	1,248	1,821

The results of each item of users' experience test on the six scales of UEQ-Online can be seen in the Cronbach's Alpha-Coefficient table below:

Table 7: Cronbachs Alpha-Coefficient

Attractiveness	
Items	**Correlation**
1, 12	0,30
1, 14	0,49
1, 16	0,38
1, 24	0,43
1, 25	0,32
12, 14	0,26
12, 16	0,50
12, 24	0,55
12, 25	0,76
14, 16	0,72
14, 24	0,41
14, 25	0,43
16, 24	0,44
16, 25	0,58
24, 25	0,64
Average	0,48
Alpha	**0,85**

Perspicuity	
Items	**Correlation**
2, 4	0,48
2, 13	0,56
2, 21	0,19
4, 13	0,49
4 , 21	0,50
13, 21	0,29
Average	0,42
Alpha	**0,74**

Efficiency	
Items	**Correlation**
9, 20	0,50
9, 22	0,36
9, 23	0,55
20, 22	0,49
20, 23	0,62
22, 23	0,32
Average	0,47
Alpha	**0,78**

Dependability	
Items	**Correlation**
8, 11	0,36
8, 17	0,43
8, 19	0,42
11, 17	0,50
11, 19	0,40
17, 19	0,76
Average	0,48
Alpha	**0,79**

Stimulation	
Items	**Correlation**
5, 6	0,48
5, 7	0,44
5, 18	0,74
6, 7	0,70
6, 18	0,51
7, 18	0,47
Average	0,56
Alpha	**0,83**

Novelty	
Items	**Correlation**
3, 10	0,32
3, 15	0,20
3, 26	0,42
10, 15	0,01
10, 26	0,38
15, 26	0,33
Average	0,28
Alpha	**0,61**

The Alpha-Coefficient (Cronbach, 1951) is a measurement for the scale consistency. There is no generally accepted rule on the coefficient score. Many authors assume that a scale should show an alpha value> 0.7 to be considered as sufficiently consistent, but these are only the practical rule and not based on the statistical facts. Thus, from the standpoint of methodological, the use of such criteria is not really well-founded (see for example Schmitt, N., 1996). Especially for the small sample (for example less than 50 answers) the score of the

Alpha-Coefficient should be interpreted very carefully. In such cases, a low Alpha can result from sampling errors and may not be an indicator of the scale problem.

If the score of the Alpha-Coefficient shows a massive deviation from a reasonable target value, for example, 0.6 or 0.7, can be because some items of the scale were interpreted mistakenly. In such cases, make sure to check every single item score and the correlations between the items. A common misinterpretation of an item due to the context of the evaluation might happen, that is why the corresponding scale should be interpreted very carefully.

To support the findings of this study about the users' experiences in processing digital visual media using the Canva android application were categorized as "above average, good, and very good". See the following graphic image:

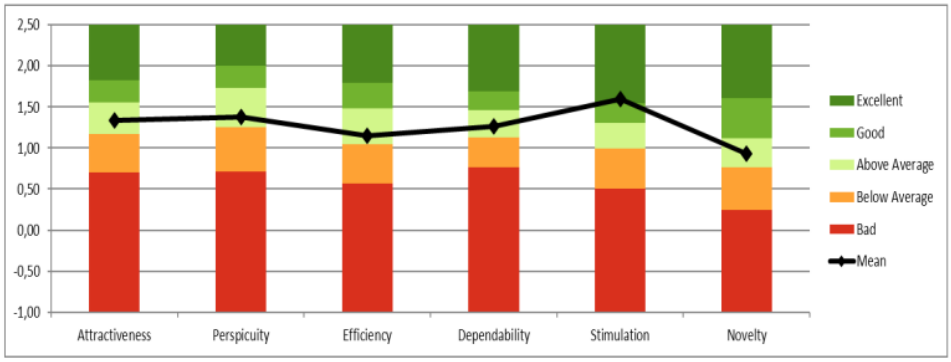

Figure 2: Benchmark of the Users' Experiences in processing Visual Media

The above graph in Figure 2 was the finding of research from the calculation of each item score. The following table shows the findings of the average test results more clearly:

Table 8: The Users' Experiences in Processing Visual Media

Scale	Lower Border	Bad	Below Average	Above Average	Good	Excellent	Mean
Attractiveness	-1,00	0,7	0,47	0,39	0,27	0,67	1,34
Perspicuity	-1,00	0,71	0,54	0,48	0,27	0,5	1,38

Efficiency	-1,00	0,57	0,48	0,43	0,32	0,7	1,16
Dependability	-1,00	0,77	0,36	0,33	0,23	0,81	1,26
Stimulation	-1,00	0,5	0,49	0,32	0,24	0,95	1,59
Novelty	-1,00	0,25	0,52	0,35	0,49	0,89	0,94

Discussion

The results of the test with One-Way ANOVA for the data of creative and online learning using Instagram on the ability to create new products, it was found that all items tested were below <0.05, the ANOVA calculation result with a significance value of 0.028 smaller than < 0.05 means that the data was significant. It can be concluded that the average score of the three stages in creating the new product was significantly different. From the three assessment components in three cognitive sections of creating (K. Anderson, 2001); formulating, planning, and producing new product, the creating item was at the highest level.

The effect of creative learning using Instagram on the students' ability to create in the Technology and Learning Media course in the cognitive category had a significantly different value. This proved that in the classroom environment (maintaining creativity in the classroom), the learning environment is one of the most important factors – determined largely whether creative potential will be supported (or suppressed), in short, class context matters. Recognizing that the classroom environment has an impact on the development of creative potential is important, but understanding what is needed to develop a creative learning environment that optimally supports creative learning is also important (Beghetto & Kaufman, 2014). Creative learning factors in supporting the development of creative skills in children and youth: flexible use of time and space; availability of suitable materials; working outside the classroom/school (Davies et al., 2013). Different from this research, another research investigated the creative process, interactive visual analytics differs from other forms of digital creativity, because it uses an analytical model, depending on the mental image of the analyst and involves the repeated process of generating and evaluating ideas in digital

media, as well as planning, implementing, and refining the related actions (Cybulski et al., 2015). Other researchers focused on the use of smartphones for learning creativity and provided a valid instrument and smartphone-based awareness approach for learning creativity everywhere (Yeh et al., 2020).

Online learning (A. Davis, n.d.) using Instagram can be applied in online learning through social media and e-learning and applied simultaneously in distance learning conditions. Social media has been effective for online learning (Jenkins & Dillon, 2013; Ogbonnaya, 2019; Zha et al., 2016), as e-learning in online learning has been implemented in almost all countries, in Thailand with good e-learning management (Vicheanpanya, 2014), online learning is applied in the Covid-19 pandemic era (Adnan & Anwar, 2020). With many proper learning models in online learning today, blended learning using social media (Syaiful Romadhon et al., 2019) blended learning (Nortvig et al., 2018) using flipped learning (Elfeky et al., 2020; Julia et al., 2020; Kinteki et al., 2019; Tekin et al., 2020).

New media that provide support for learning activities (W. O. Lee et al., 2015), providing the support that the developed-learning media is effective in improving the learning quality in multimedia learning with students studying multimedia courses, before and after using e-learning of Edutech Smart (Suartama et al., 2020) multimedia for learning for professional teacher education (Salehudin, Nurbayani, et al., 2020).

The level of users' experiences in processing visual media through the Canva android application on online learning through Instagram with an average score of test results on six scales; Attractiveness 1.34, Perspicuity 1.38, Efficiency 1.16, Dependability 1.26, Stimulation 1, 59, the Novelty 0.94. The highest score was on the Stimulation scale at 1.59 which was categorized as "Very Good" while the lowest score was the Novelty scale at 0.94 which was categorized "above average".

The users' experiences showed that the students who processed digital visual media through the Canva Android application found convenience and stimulation and those were very meaningful for their enthusiasm in processing visual media that will be published on Instagram. This result is supported by many users' experience studies, such as the results of user experience research by (J. Park et al., 2011; Pucillo et al., 2014).

Instagram is a medium to publish the new products of the students' masterpiece, that is digital visual media products. In line with the current research, Zappavigna, (2016) conducted the research on the use of social media Instagram, Instagram to learn graphic design which showed the value of learning outcomes (Salehudin et al., 2019). although there were a lot of previous researches on Facebook and YouTube (Chintalapati & Daruri, 2017; Moghavvemi et al., 2018), the current research suggested that Instagram can be effectively used as an online learning tool.

Conclusion

There not much research has been done on creative and online learning using visual media through Instagram, so it is interested in doing this research to find new contributions of knowledge to the world, especially in the world of education and learning in Indonesia.

Creative and online learning using Instagram on the ability to create new products in Technology and Learning Media course is significant and can be applied well. The ability to create is a strong boost from creative learning carried out with visual media through Instagram, students like this practice considering the easiness to process visual media through the Canva Android application and it can be directly published on Instagram. Instagram can be used for online learning because it has some supported tools such as streaming, IGTV, visual worksheets, comment boxes, and stories storage sheets. Instagram fosters positive encouragement for students who learn creatively. Whereas for the users' experiences level in

processing visual media through the Canva application on Android, the highest score was on the Stimulation scale of 1.59 or "Very Good" and the lowest score was Novelty 0.94 which categorized "Above Average ". This means that by the strong creative encouragement to create, the students were able to process the new products which were tailored to the agreed design, particularly the design which were appropriate to the template of Instagram, including all capabilities on the six scales of users' experiences.

Recommendations

The researchers of current research recommend higher education institutions to use social media Instagram as a tool option for online or distance learning because Instagram has supported tools for teaching and learning activities. Instagram has been favored by students around the world as the best social media and it has also been well available on all students' Android. Creative learning can support online learning well if it is developed with other variables such as visual or verbal skills in using Instagram for online learning probably using Visual Verbal questionnaire instrument.

Limitations

Creative and online learning using visual media through Instagram, as well as user experience processing Instagram digital visual media are limited to:

- The visual media processing application is the Canva application on Android which needs a computer or mobile device.
- It is required adequate internet access
- Online learning using Instagram streaming and publication of student work on Instagram.

- Limited to the digital visual media processing materials based on Instagram as the social media.
- Assessment of learning outcomes in this study is limited to the cognitive aspect of "creating".

References

Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Journal of Pedagogical Sociology and Psychology*, *2*(1), 45–51.

Aljuboori, A. F., Fashakh, A. M., & Bayat, O. (2020). The impacts of social media on University students in Iraq. *Egyptian Informatics Journal*, *xxxx*. https://doi.org/10.1016/j.eij.2019.12.003

Amponsah, S., Kwesi, A. B., & Ernest, A. (2019). Lin's creative pedagogy framework as a strategy for fostering creative learning in Ghanaian schools. *Thinking Skills and Creativity*, *31*, 11–18. https://doi.org/https://doi.org/10.1016/j.tsc.2018.09.002

Anderson, K. (2001). *A Taxonomy For Learning, Teaching, And Assessing, Abridged Edition*. MA: Allyn and Bacon.

Anderson, L. W., & Krathwohl, D. R. (2015). *Kerangka Landasan Untuk Pembelajaran, Pengajaran, dan Asesmen (Revisi Taksonomi Pendidikan Bloom)* (W. A. Lorin & R. K. David (eds.)). pustaka pelajar.

Beghetto, R. A., & Kaufman, J. C. (2014). Classroom Contexts For Creativity. *High Ability Studies*, *25*(1), 53–69. https://doi.org/10.1080/13598139.2014.905247

Chintalapati, N., & Daruri, V. S. K. (2017). Examining the use of YouTube as a Learning Resource in higher education: Scale development and validation of TAM model. *Telematics and Informatics*, *34*(6), 853–860. https://doi.org/10.1016/j.tele.2016.08.008

Cho, J. Y. (2017). An investigation of design studio performance in relation to creativity, spatial ability, and visual cognitive style. *Thinking Skills and Creativity*, *23*, 67–78. https://doi.org/10.1016/j.tsc.2016.11.006

Cochrane, T., & Antonczak, L. (2015). Designing Creative Learning Environments. *Interaction Design and Architecture(s) Journal*, *24*(July), 125–144.

Creswell, J. W. (2012). *Educational Research; Planning, Conduction and Evaluating Quantitative and Qualitative Research*. Pearson Education. Inc.

Cybulski, J. L., Keller, S., Nguyen, L., & Saundage, D. (2015). Creative problem solving in digital space using visual analytics. *Computers in Human Behavior*, *42*, 20–35. https://doi.org/https://doi.org/10.1016/j.chb.2013.10.061

Daniel, F. J. (2001). Education and Creativity. *Creativity Research Journal*, *13*(3&4), 317–327.

Davies, D., Jindal-snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013a). Creative learning environments in education — A systematic literature review. *Thinking Skills and Creativity*, *8*, 80–91. https://doi.org/10.1016/j.tsc.2012.07.004

Davies, D., Jindal-snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013b). Creative learning Environments in Education — A Systematic Literature Review. *Thinking Skills and Creativity*, *8*, 80–91. https://doi.org/10.1016/j.tsc.2012.07.004

Davis, A. (n.d.). *Theory and Practice of Online Learning* (T. Anderson & F. Elloumi (eds.)). Athabasca University.

Davis, T., & Frederick, T. V. (2020). The Impact of Multimedia in Course Design on Students' Performance and Online Learning Experience: A Pilot Study of an Introductory Educational Computing Course. *Online Learning*, *24*(3), 147–162. https://doi.org/10.24059/olj.v24i3.2069

Diamant, E. (2008). Unveiling the mystery of visual information processing in human brain. *Brain Research*, *1225*, 171–178. https://doi.org/10.1016/j.brainres.2008.05.017

Elfeky, A. I. M., Masadeh, T. S. Y., & Elbyaly, M. Y. H. (2020). Advance organizers in flipped classroom via e-learning management system and the promotion of integrated science process skills. *Thinking Skills and Creativity*, *35*(November 2019), 100622. https://doi.org/10.1016/j.tsc.2019.100622

Ellis, V. A. (2016). Introducing the Creative Learning Principles : Instructional Tasks Used to Promote Rhizomatic Learning Through Creativity Introducing the Creative Learning Principles : Instructional Tasks Used to Promote. *The Clearing House : A Journal of Educational Strategies*, *8655*(July). https://doi.org/10.1080/00098655.2016.1170448

Esquivel, G. B. (1995). Teacher Behaviors that Foster Creativity. *Educational Psychology Review*, *7*(2), 185–202.

Giaoglio, Ekaterina, W. J. (2014). *The Power of Visual Storytelling: How to Use Visuals, Videos, and Social Media to Market Your Brand*. McGraw-Hill Education.

Heath, S. B., & Wolf, S. (2005). Focus in Creative Learning : Drawing on Art for Language Development. *Focus in Creative Learning*, 38–45.

Henriksen, D., Richardson, C., & Mehta, R. (2017). Design thinking: A creative approach to educational problems of practice. *Thinking Skills and Creativity*, *26*, 140–153. https://doi.org/https://doi.org/10.1016/j.tsc.2017.10.001

Hinderks, A., Schrepp, M., Domínguez Mayo, F. J., Escalona, M. J., & Thomaschewski, J. (2019). Developing a UX KPI based on the user experience questionnaire. *Computer Standards and Interfaces*, *65*, 38–44. https://doi.org/10.1016/j.csi.2019.01.007

Hochman, N., & Manovich, L. (2013). Zooming into an Instagram City: Reading the local through social media. *First Monday*. https://doi.org/10.5210/fm.v18i7.4711

Hussein, A., & Hussain, M. (2019). Social-media based assessment of academic programs. *Studies in Educational Evaluation*, *62*(November 2018), 149–157. https://doi.org/10.1016/j.stueduc.2019.06.003

Jang, J. Y., Han, K., Shih, P. C., & Lee, D. (2015). *Generation Like: Comparative Characteristics in Instagram*. 1–4. https://doi.org/http://dx.doi.org/10.1145/2702123.2702555

Jeffrey, B. (2008). Creative learning identities. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, *36*(3), 253–263. https://doi.org/10.1080/03004270802217694

Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity : distinctions

and relationships. *Educational Studies*, *30*(1), 37–41. https://doi.org/10/1080.0305569032000159750

Jenkins, J. J., & Dillon, P. J. (2013). Learning through YouTube. In *The Plugged-In Professor: Tips and Techniques for Teaching with Social Media*. Woodhead Publishing Limited. https://doi.org/10.1016/B978-1-84334-694-4.50008-9

Jónsdóttir, S. R. (2017). Teacher Stories: Eight Teachers on four School Levels Working With Creativity in Teaching and Learning. *Thinking Skills and Creativity*, 1–25. https://doi.org/10.1016/j.tsc.2017.02.008

Julia, J., Dolifah, D., Afrianti, N., Isrokatun, I., Soomro, K. A., Erhamwilda, E., Supriyadi, T., & Ningrum, D. (2020). Flipped classroom educational model (2010-2019): A bibliometric study. *European Journal of Educational Research*, *9*(4), 1377–1392. https://doi.org/10.12973/eu-jer.9.4.1377

Jumaat, N. F., Ahmad, N., Abu Samah, N., Ashari, Z. M., Ali, D. F., & Abdullah, A. H. (2019). Facebook as a platform of social interactions for meaningful learning. *International Journal of Emerging Technologies in Learning*, *14*(4), 151–159. https://doi.org/10.3991/ijet.v14.i04.9363

Kertamukti, R., Nugroho, H., & Wahyono, S. B. (2019). Digital Life Middle-Class on Instagram: Like, Share and Comment. *In The 10th IGSSCI (International Graduate Students and Scholars' Conference in Indonesia) NEWMEDIA AND THE CHANGING SOCIAL LANDSCAPE OF CONTEMPORARY SOCIETIES: How Are New Media Reshaping the Whole Aspects of Life of Contemporary Societies?, KnE Social P*, *the 10th IGSSCI*, 310–322. https://doi.org/10.18502/kss.v3i20.4944

Kinteki, R., Setyosari, P., Sumarmi, & Ulfa, S. (2019). The Effect Of Flipped Classroom Models And Selfefficacy On Students Concept Understanding Andapplication Of The Hydrology. *Ecology, Environment and Conservation Paper*, *4*, 116–122.

Lee, D. Y., & Lehto, M. R. (2013). User acceptance of YouTube for procedural learning: An extension of the Technology Acceptance Model. *Computers and Education*, *61*(1), 193–208. https://doi.org/10.1016/j.compedu.2012.10.001

Lee, W. O., Hung, D. W. L., & Teh, L. W. (2015). New Media and Learning in the 21st Century; A Socio-Cultural Perspective. In *Springer International Publishing*. Springer International Publishing. https://doi.org/10.1007/978-981-287-326-2

Liu, Y. (2010). Social Media Tools as a Learning Resource. *Journal of Educational Technology Development and Exchange*, *3*(1), 101–114. https://doi.org/10.18785/jetde.0301.08

Marsh, W., Copes, H., & Linnemann, T. (2017). Creating visual differences: Methamphetamine users perceptions of anti-meth campaigns. *International Journal of Drug Policy*, *39*, 52–61. https://doi.org/10.1016/j.drugpo.2016.09.001

Martin, F., Stamper, B., & Flowers, C. (2020). Examining student perception of readiness for online learning: Importance and confidence. *Online Learning Journal*, *24*(2), 38–58. https://doi.org/10.24059/olj.v24i2.2053

Mayer, R. E. (1989). Cognitive Views of Creativity : Creative Teaching for Creative Learning. *Contemporary Educational Psychology*, *14*, 203–211.

Mittal, V., Kaul, A., Gupta, S. Sen, & Arora, A. (2017). Multivariate Features Based Instagram Post Analysis to Enrich User Experience. *Procedia Computer Science*, *122*,

138–145. https://doi.org/10.1016/j.procs.2017.11.352

Moghavvemi, S., Sulaiman, A., Jaafar, N. I., & Kasem, N. (2018). Social media as a complementary learning tool for teaching and learning: The case of youtube. *International Journal of Management Education*, *16*(1), 37–42. https://doi.org/10.1016/j.ijme.2017.12.001

Newton, L. D., & Newton, D. P. (2014). Creativity in a 21st Century Education. *Durham Research Online*, *44*(4), 575–589. https://doi.org/10.1007/s11125-014-9322-1

Nortvig, A., Petersen, A. K., & Balle, S. H. (2018). A Literature Review of the Factors Influencing E-Learning and Blended Learning in Relation to Learning Outcome , Student Satisfaction and Engagement. *Electronic Journal of E-Learning*, *16*(1), 46–55.

Ogbonnaya, U. I. (2019). Adoption and Perceived Usefulness of Social Media by Pre-service Teachers in Nigeria. *International Journal of Interactive Mobile Technologies (IJIM)*, *13*(6), 52–67. https://doi.org/https://doi.org/10.3991/ijim.v13i06.10299

Park, B., Korbach, A., & Brünken, R. (2020). Does thinking-aloud affect learning, visual information processing and cognitive load when learning with seductive details as expected from self-regulation perspective? *Computers in Human Behavior*, *111*, 106411. https://doi.org/10.1016/j.chb.2020.106411

Park, J., Han, S. H., Kim, H. K., Cho, Y., & Park, W. (2011). Developing Elements of User Experience for Mobile Phones and Services : Survey , Interview , and Observation Approaches. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *23*(4), 279–293. https://doi.org/10.1002/hfm.20316

Prattichizzo, G. (2015). Social Media Is the New Punk User Experience, Social Music and DIY Culture. *Journal of Literature and Art Studies*, *5*(9), 749–762. https://doi.org/10.17265/2159-5836/2015.09.008

Pucillo, F., Cascini, G., Milano, P., Giuseppe, V., & Masa, L. (2014). A framework for user experience, needs and affordances. *Design Studies*, *35*(2), 160–179. https://doi.org/10.1016/j.destud.2013.10.001

Runco, M. A. (2003). Education for Creative Potential. *Scandinavian Journal of Educational Research*, *47*(3), 317–324. https://doi.org/10.1080/00313830308598

Sadik, A. (2009). Improving pre-service teachers' visual literacy through flickr. *Procedia - Social and Behavioral Sciences*, *1*(1), 91–100. https://doi.org/10.1016/j.sbspro.2009.01.018

Salehudin, M., Degeng, N. S., Sulthoni, & Ulfa, S. (2019). The influence of creative learning assisted by instagram to improve middle school students' learning outcomes of graphic design subject. *Journal for the Education of Gifted Young Scientists*, *7*(4), 849–866. https://doi.org/10.17478/jegys.626513

Salehudin, M., Hamid, A., Zakaria, Z., Rorimpandey, W. H. F., & Yunus, M. (2020). Instagram user experience in learning graphic design. *International Journal of Interactive Mobile Technologies*, *14*(11), 183–199. https://doi.org/10.3991/ijim.v14i11.13453

Schrepp, M., Hinderks, A., & Thomaschewski, J. (2017). Construction of a Benchmark for the User Experience Questionnaire (UEQ). *International Journal of Interactive Multimedia and Artificial Intelligence (IJIMAI)*, *4*(4), 40–44. https://doi.org/10.9781/ijimai.2017.445

Suartama, I. K., Riwahyuni, E., Abbas, S., Hastuti, W. D., M, U., Subiyantoro, S., Umar, & Salehudin, M. (2020). Development of E-Learning Oriented Inquiry Learning Based on Character Education in Multimedia Course. *European Journal of Educational Research*, *9*(4), 1591–1603. https://doi.org/10.12973/eu-jer.9.4.1591

Syaiful Romadhon, M., Rahmah, A., & Wirani, Y. (2019). Blended learning system using social media for college student: A case of tahsin education. *Procedia Computer Science*, *161*, 160–167. https://doi.org/10.1016/j.procs.2019.11.111

Tanggaard, L. (2014). A Situated Model of Creative Learning. *European Educational Research Journal*, *13*(1), 107–116.

Tekin, P. Ş., Ilgaz, H., Adanır, G. A., Yıldırım, D., & Gülbahar, Y. (2020). Flipping e-learning for teaching medical terminology: A study of learners' online experiences and perceptions. *Online Learning Journal*, *24*(2), 76–93. https://doi.org/10.24059/olj.v24i2.2030

Thalluri, J., & Penman, J. (2015). *Social Media for Learning and Teaching Undergraduate Sciences : Good Practice Guidelines from Intervention*. *13*(6), 455–465.

Toyn, M. (2008). Creativity Using Digital Video. *Practitioner Research In Higher Education*, *2*(1), 29–35.

Ulger, K. (2016). The creative training in the visual arts education. *Thinking Skills and Creativity*, *19*, 73–87. https://doi.org/https://doi.org/10.1016/j.tsc.2015.10.007

Vicheanpanya, J. (2014). E-Learning Management System Model for Thai Society. *International Journal of Information and Education Technology*, *4*(1), 67–70. https://doi.org/10.7763/IJIET.2014.V4.371

Warren, R., & Good, G. (1979). The Verbalizer–Visualizer Questionnaire: Further normative data. *Perceptual and Motor Skills*, *48*(2), 372.

Yeh, Y., Chang, C.-Y., Ting, Y.-S., & Chen, S.-Y. (2020). Effects of Mindful Learning Using a Smartphone Lens in Everyday Life and Beliefs toward Mobile-based Learning on Creativity Enhancement. *Journal of Educational Technology & Society*, *23*(4), 45–58.

Zappavigna, M. (2016). Social media photography: construing subjectivity in Instagram images. *Visual Communication*, *15*(3). https://doi.org/10.1177/1470357216643220

Zha, Z. J., Mei, T., & El Saddik, A. (2016). Social media analytics and learning. *Neurocomputing*, *172*, 1–2. https://doi.org/10.1016/j.neucom.2015.04.082

MS_EUJER_ID_2103081206.docx

ORIGINALITY REPORT

14%

SIMILARITY INDEX

PRIMARY SOURCES

1	Mohammad Salehudin, Abdulloh Hamid, Zuhkhriyan Zakaria, Widdy H.F Rorimpandey, Muhammad Yunus. "Instagram User Experience in Learning Graphic Design", International Journal of Interactive Mobile Technologies (iJIM), 2020 Crossref	83 words — 2%
2	www.innovationarabia.ae Internet	57 words — 1%
3	www.tandfonline.com Internet	55 words — 1%
4	pdfs.semanticscholar.org Internet	39 words — 1%
5	www.researchgate.net Internet	34 words — 1%
6	"Information Technology and Systems", Springer Science and Business Media LLC, 2021 Crossref	32 words — 1%
7	www.creativityculture education.org Internet	29 words — 1%
8	Dadang Syarif Sihabudin Sahid, P. Insap Santosa, Ridi Ferdiana, Edi N. Lukito. "Evaluation and measurement of Learning Management System based on user experience", 2016 6th International Annual Engineering Seminar (InAES), 2016 Crossref	28 words — 1%

9	hal.inria.fr Internet	28 words — 1%
10	www.abacademies.org Internet	24 words — < 1%
11	Elena L. Grigorenko. "Creativity: a challenge for contemporary education", Comparative Education, 2018 Crossref	19 words — < 1%
12	I Kadek. "Development of E-Learning Oriented Inquiry Learning Based on Character Education in Multimedia Course", European Journal of Educational Research, 2020 Crossref	18 words — < 1%
13	"Social Computing and Social Media. Applications and Analytics", Springer Science and Business Media LLC, 2017 Crossref	18 words — < 1%
14	www.eu-jer.com Internet	18 words — < 1%
15	Babette Park, Andreas Korbach, Roland Brünken. "Does thinking-aloud affect learning, visual information processing and cognitive load when learning with seductive details as expected from self-regulation perspective?", Computers in Human Behavior, 2020 Crossref	17 words — < 1%
16	dergipark.org.tr Internet	16 words — < 1%
17	etheses.whiterose.ac.uk Internet	15 words — < 1%
18	bradthiessen.com Internet	14 words — < 1%
19	lup.lub.lu.se	

	Internet	12 words — < 1%
20	Paul Ayres. "Something old, something new from cognitive load theory", Computers in Human Behavior, 2020 Crossref	12 words — < 1%
21	jinev.iaut.ac.ir Internet	12 words — < 1%
22	olj.onlinelearningconsortium.org Internet	12 words — < 1%
23	Baqar Ali Zardari, Zahid Hussain, Aijaz Ahmed Arain, Wajid H. Rizvi, Muhammad Saleem Vighio. "QUEST e-learning portal: applying heuristic evaluation, usability testing and eye tracking", Universal Access in the Information Society, 2020 Crossref	11 words — < 1%
24	phd.lib.uni-corvinus.hu Internet	10 words — < 1%
25	core.ac.uk Internet	10 words — < 1%
26	ijone.org Internet	10 words — < 1%
27	etheses.dur.ac.uk Internet	10 words — < 1%
28	Yolanda Ave Queen, Markus Iyus Supiandi, Benediktus Ege. "PENGARUH MODEL THINK PAIR AND SHARE BERBASIS MEDIA TREE CHART TERHADAP HASIL BELAJAR KOGNITIF PADA MATERI KEANEKARAGAMAN HAYATI", JPBIO (Jurnal Pendidikan Biologi), 2019 Crossref	9 words — < 1%

29	jurnal.fkip.unila.ac.id Internet	9 words — < 1%
30	repository.ub.ac.id Internet	9 words — < 1%
31	journals.sagepub.com Internet	8 words — < 1%
32	www.athensjournals.gr Internet	8 words — < 1%
33	www.watpon.com Internet	8 words — < 1%
34	Gary K. W. Wong. "The behavioral intentions of Hong Kong primary teachers in adopting educational technology", Educational Technology Research and Development, 2016 Crossref	8 words — < 1%
35	www.univ-tridinanti.ac.id Internet	8 words — < 1%
36	repository.radenintan.ac.id Internet	8 words — < 1%
37	Ji Young Cho. "An investigation of design studio performance in relation to creativity, spatial ability, and visual cognitive style", Thinking Skills and Creativity, 2017 Crossref	8 words — < 1%
38	scholar.uwindsor.ca Internet	8 words — < 1%
39	Gayle Brewer. "Chapter 1 Introduction: Creativity and Education", Springer Science and Business Media LLC, 2015 Crossref	6 words — < 1%

EXCLUDE QUOTES	ON	EXCLUDE MATCHES	OFF
EXCLUDE BIBLIOGRAPHY	ON		