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International Journal of Advanced Science and Technology Vol. 29, No. 5, (2020), pp. 4866 - 4876 4866 ISSN: 2005-4238 IJAST Copyright 2020 SERSC Using Instagram to Support Creative Learning and Project Based Learning Mohammad Salehudin1a, Dorce Sisfiani Sarimin2b, Rolly Harvie Steven Rondonuwu2c, Muhammad Yunus3d , Intan Safiah3e 1Institut Agama Islam Negeri Samarinda, Indonesia, 2Politeknik Kesehatan Kemenkes Manado, Indonesia, 3Universitas Syiah Kuala, Indonesia. aSalehudin@iain-samarinda.ac.id, bsisfiani@poltekkes-manado.ac.id, , crollyhs@poltekkes-manado.ac.id, dyunus.msalem@unsyiah.ac.id eintan.afia@unsyiah.ac.id Abstract The learning process addresses to achieve high and desirable conceptual understanding and application.

However, in basic graphic design lesson, not all the available learning strategies could be used to achieve significant conceptual understanding and application. Creative learning assisted by Instagram social media and project-based learning are two available learning approaches that are suitable to improve conceptual understanding and application.

This research aims at examining the interaction influence of learning models assisted by Instagram social media and the user experiences towards conceptual understanding and application on basic graphic design subject. This research employed quantitative research approach using quasi-experimental non-equivalent control group design. The subject of this research was 146 students of Vocational High School (VHS) which consisted of four classes. The data analysis was using MANOVA through SPSS 24.0.

The results confirm that there is an interaction influence of learning models assisted by Instagram social media and the user experiences towards conceptual understanding and

application learning outcomes. The findings also affirm that to increase conceptual understanding among students with high and low user experiences, creative learning model assisted by Instagram social media.

Meanwhile, to achieve conceptual application among high user experience students, project-based learning assisted by Instagram social media is the most suitable learning model and to achieve conceptual application among low user experience students, creative learning assisted by Instagram social media is the most suitable one. Keywords: creative learning, project-based learning, social media, instagram, graphic design, learning outcomes 1.

Introduction Creative learning is seen more increasingly important in the context education and 21st century skills; creativity as one of the skills which enable individual to keep up with the current rapid development of technology and plays a role as one priority skills. Newton & Newton, (2014) in the UNESCO conference 2006, stated creativity as one available solution for global issues it encourages a creative thinking in the school setting and informs a practical implementation in the world.

In addition, creativity is seen as one potential in the 21st century that is explored in the context of instructional technology [2]. Learning process is one of the creativity product in which it is a phenomena where an individual communicate with the new concept [3] — sharing in playing a role in making creative contributions to others (Beghetto & Potter, 2016;4).

It was revealed that the level of creativity of students was dependent on their educational programs [5]. Creativity curriculum encourages schools to do creative learning [6]. For examples, curriculum designed by music teacher encourages creative teaching and imposes creative thinking during the learning process among students [7].

Creative curricula have been conducted in America [8] and Creative Learning with Game curriculum workshops that International Journal of Advanced Science and Technology Vol. 29, No. 5, (2020), pp. 4866 - 4876 4867 ISSN: 2005-4238 IJAST Copyright 2020 SERSC took place at the Fun and Games 2010 conference has been performed [9]. creative curriculums have been done in America and Creative Learning with Game curriculum workshops that took place at the Fun and Games 2010 conference [9].

Creativity is required, because it is able to build the potential for innovation, benefit and use in all human activities, for example the role of creativity in service systems that can improve service innovation [10] and even the success of service innovation is highly dependent on creativity [11]. However, the application of creative learning in the

secondary education, especially in Indonesia, has not become the main goal in learning.

Although it is already integrated in learning but has not been specifically developed for that purpose. A number of obstacles to creative learning [12] as a problem as well as a factor driving creative learning are curricular support, contextual and personal factors of students which consists of four core themes namely context, content, impact and factors of personal change [13] attention that focuses on learning tasks, classroom practice, interactions between students and teachers, and physical arrangements and availability of resources [14] [15].

Possible ways and potential to foster student creativity [16] [15] [17] is to explore the creative process through planning and presenting artwork [18], collaborating in making short videos [19], collaborates regularly with professional visual artists at school [20], give students choices, accept different ideas, increase self-confidence, and focuse on students' strengths and interests.

[21] creates a pleasant space for teacher and student interactions and builds trust for creative learning interactions [22]. However, the task for teachers and practitioners to find teaching models that involve all or most of this advice seems overwhelming. Thus, the purpose of this study is to investigate the effect of the interaction of earning models assisted by Instagram social media and user experience on learning outcomes (understanding and application of concepts), user experience in the form of publications on Instagram social media, account ownership and student templates as a place to publish his/her work on Instagram, as well as learning outcomes of understanding concepts and learning outcomes of application concepts as part of students' cognitive knowledge learning outcomes.

The author has formulated the primary research question as follows: Is there any interaction and influence on the learning model assisted by Instagram social media on the learning outcomes as well as the user experience during the learning process? In this context, this research examined both conceptual understanding and conceptual application acquired by students.

To examine the variable, it compares two Literature Review According to [13] in his research, it establishes a novel and recent conception of creative learning as one learning approaches that respect and facilitate individual changes to creative direction. Some scholars of educational science also share similar belief and perspective and consider that learning is always a creative process made by student [23].

A numerous research have been conducted to examine creative learning [24]. Some

research have been conducted by presenting the relationship between creativity and learning process [24]. A case study by [25] examine the implementation of learning strategies using creative learning principles on fine art courses in secondary schools around urban areas.

Gajda, Beghetto, & Karwowski [26] reveal a positive correlation between creativity and academic achievement which were performed by using creative learning approach. Also, TASC learning model was affirmed to be successful in developing creativity among gifted students [27]. In addition, Creative Learning Principle (CLP) was used in the curriculum of art and drawing course [25] [28].

The role of creativity within the learning process in school is highly vital. Without having sufficient creativity, student will only work on the very narrow cognitive degree. Creativity plays an essential role in the learning process by working and paying attention International Journal of Advanced Science and Technology Vol. 29, No.

5, (2020), pp. 4866 - 4876 4868 ISSN: 2005-4238 IJAST Copyright 2020 SERSC to the emotional aesthetics responses on the learning [4]. Further, Guilford declares that creative action performed by an individual is a form of learning example. Furthermore, some argues that creative learning means creative action [4].

By the same token, creative thinking assists them to be able to express sti, niand eeliby performing scaffolding during learning process in school [29]. Creative thinking could be enhanced through social modelling, classroom strengthening and classroom ecology [16]. Spatial ability and visual cognitive styles [30] possessed by student support creative learning enhancement [6] [31].

In addition to crative learning as one learning approach that focuses on student, project-based learning method is one of the learning approaches that directs student to understand scientific setting since the early age. The learning approach allows students to perform scientific experiment in classroom which is guided by the teacher as the facilitator.

Problem-solving and communication skills [32] are recent and novel paradigm of learning model which are resulted from school reformation [33]. To encourage an independent learning among students, project-based learning is the most available learning model. Project-based learning model combines two different elements; problem- based and project-based learnings which aim at encouraging student to find the potential solution and demanding them to be able to learn independently through scientific stages required to answer questions [22].

Project-based learning model as experimental learning model in some research demonstrates significant results statistically [34] to explore its influence and interaction on udent'ivement during the learning process [35]. Also, it was examined among students in particular courses and training institution [36]. It was also assessed for the measurement of C hemstedge on teas behavialnges [37].

Furthermore, somalhasbeen ed o evealt'per ve on the use of PjBL in the context of science education within elementary school [38]. In the context of novel and recent learning approaches, mobile technology has been widely used, particularly among the novice learners [39]. One of the available mobile platforms used in the learning process is an instructional media based on Android platform.

It changes the way the students communicate and interact within the learning process [40]. Social media in the mobile cellular offers various possibilities and opportestdevest's eatvi [41]. The use of social media during the learning process offers particular benefits that are able to enhancfther udent potency.

Through photos and images shared in the social media, it allows students to identify certain design (its pattern and how to replicate) and further enables them to be able to develop their own design by using their imagination and creativity after identifying the posted design. Student imagination will be aroused by looking and identifying the photo shared in the Instagram [42].

Besides, within Instagram, the contents are independently or originally made by the uploader [43]. Photo intensive social media applications have gained increased adoption on social media users through Instagram [44] Instagram for learning [45]. Research conducted by Yang & Hsu [47] affirm that there is pedagogical support for the use of social media in teaching.

The main argument for adopting social media in learning is that social media applications provide several formats, directions and communication channels which can improve educational outcomes. Instagram is very interested and offers significant attractiveness because it is more focused on photos and short duration videos compared to other social media such as Twitter which focuses on microblogging. Therefore, Instagram is easier to be used and offers significant enjoyment [48].

The analysis of changes and style models were done to observe the difference in photo styles on Instagram [49] and design for movements with technical and basics (Shaw, 2016). Further research have been conducted and revealed that one application

producing high levels of reaction and sentiment on social networks is Instagram [50].

International Journal of Advanced Science and Technology Vol. 29, No. 5, (2020), pp. 4866 - 4876 4869 ISSN: 2005-4238 IJAST Copyright 2020 SERSC Stuart (1974) explains that the concept of graphic design pays attention to the aspect of cognitive and affective effect potencies from the composed design, specifically with regard to the recall and attitude towards the presentation presented [51].

Learning graphic design has General Standards — standards for using colors, text printing, illustrations and photos, cartoons, video clips, vocal sounds, sound effects and music [52]. Therefore, graphic design subjects will be more appropriate to use creative learning models and project-based learning models, because both learning models can sharpen the parts of the brain associated with pure cognitive by developing and using all brain power; offering a maximum and optimal learning process [53].

It further enables students to communicate a novel concept acquired [3]. Not to mention, it supports students when dealing with failure during the learning process by showing new pattern of learning from the previous mistakes [54]. Over and above, it supports creative thinking of students within the complex discourses of classroom [31].

Therefore, in the end, creative learning approach flies sts leang outcom enhament [55]. In he oomtaxonomr ed by Lorin Anderson Krathwohl, within creative learning model, it emphasizes on C2 and C3 learning outcomes application. It deals with cognitive sphere operational working such as demonstrating, composing image, employing, exploring, and manipulating.

Students are guided to acquire specific skills and abilities to select or identify appropriately to be applied in the new situation. Also, students are expected to be able to implement what they acquired. This is closely correlated with procedural knowledge [56] (Lorin & David, n.d.). Conceptual application in several taxonomies includes in the cognitive realm. 2.

Method Research design The design of this research was quasi-experimental with non-equivalent control group. The sample of this research was not taken randomly. Instead, it was purposively determined to further observe the equality between control and experimental groups. The sample of this research was the students of vocational high school majoring Information Technology in State Vocational High School 7 Samarinda, Indonesia.

This research consisted of four variables. The first was Creative Learning Model assisted

by Instagram Social Media as the independent variable. Then, the user experiences of design in the Instagram was the moderator variable. Learning outcomes regarding the conceptual understanding and conceptual application served as the dependent variables in this research with the degree of user experiences (high and low) as the moderator factor. Participants The participants of this research were four classes which consisted of 146 participants.

Two classes were taken as experimental group and two classes control classes. Each class consisted of 36 participants. The participants of this research were the tenth grade students of Information Technology Vocational High School (SMK IT Negeri) 7 Samarinda itsecsemerofacc 2019. subjs age range was between 14 and 15 years old. The participants were students majoring Multimedia (MM) and Computer and Network Engineering (TKJ).

The entire participants were fulfilled the attendance and assessment requirements, attended the pretest and posttest. The following Table 1 describes the gender of the participants. Table 1. Description of subject based on classes Class Gender N Experiment Male 32 Female 42 International Journal of Advanced Science and Technology Vol. 29, No.

5, (2020), pp. 4866 - 4876 4870 ISSN: 2005-4238 IJAST Copyright 2020 SERSC Total 74 Control Male 29 Female 45 Total 74 Total Male 59 Female 87 Total 146 Age 14-15 tahun Data Collection The entire 146 students of Vocational High School (73 students of experimental classes and 73 students of control classes) were attended iti eston udent'Irni outcomes assessment. The test was administered to identify the initial ability before determining the research sample (pretest).

After the pretest score obtained and processed, two classes were determined: control classes taught by project-based learning and experimental classes taught by creative learning model. All students in both classes were assisted by Instagram social media. They accessed Instagram by using their own mobile phones and ed o he hools nter ion. sc ows st to bring their own mobile phone in classroom for learning.

The procedures of the quasi- experimental research are explained as follows: Table 2. Experimental Procedures Meeting- 1 2 3 4 5 6 7 8 Class O1 Experimental classes O2 O3 Control classes O4 Remarks: O1- O2= Assessment (pretest) O3- O4 = Assessment (posttest) The assessment scale used in this research consisted of 29 items of instrument from basic graphic design conceptual understanding.

As for the conceptual application test instrument, it used an essay test consisted of 12

items. The ítems of the instrument have been examined in terms of its validity and reliability. Then, it was performed an identification of students user experience who took a role as the research subject using fixed instrument of UEQ.

Furthermore, experiment was performed on the experimental clases and it maintained the normality of control clases. The experimental clases were taught using creative learning model and control clases were taught using Project-based learning model. Data Analysis This research was included in quantitative research.

The data analysis technique in this research used MANOVA (Multivariate Analysis of Variance) with the use of statistical processing program, SPSS for Windows version 24. The entire parametric assumption tests above were administered on the significance value of 5%. The MANOVA test was administered since this research involved several dependent variables [58].

Variance analysis used was intended to consider the questions and hypotheses proposed in this research. Six hypotheses were examined in this research, each of them was relevant to the research variables, the last two variables International Journal of Advanced Science and Technology Vol. 29, No. 5, (2020), pp.

4866 - 4876 4871 ISSN: 2005-4238 IJAST Copyright 2020 SERSC are (1) the interaction influence between independent variable and moderator variable and how does it influence the dependent variable (conceptual understanding) (2) the interaction influence between independent variable and moderator variable and how does it influence the dependent variable (conceptual application). The prerequisite tests including homogeneity and normality tests were also administered.

To measure the degree (high and low) of user experience among the students, online analysis was performed; it was accessed from www.UEQ.com 3. Results and Discussion Conceptual understanding and conceptual application are the learning outcomes or the objectives that must be acquired by students after going through the learning process.

In this research, the learning objectives that were intended to be revealed were are conceptual understanding and conceptual application of graphic design subject. Both learning outcomes were obtained through creative learning model assisted by Instagram social media and project-based learning assisted by Instagram social media. In this research, Instagram played a role as an assisting media that help student in the learning process.

Instagram was used in both learning models to observe the influence of the recent

technology favorable to students in the learning process. It is undeniable that most students nowadays have an Instagram account individually and they are capable of accessing it anywhere and anytime. The findings in this research indicated that learning models (both creative and project-based learning) assisted by Instagram social media offer positive results in terms of learning outcomes. Based on the Table 3 below, the obtained value of F-ratio of the learning models for the conceptual understanding was 12.950 and the obtained value of F- ratio of the learning models for the conceptual application was 5.133 with the 2 degrees of validity.

The significance value obtained was 0.000 and 0.025. The obtained F-ratio value of learning models assisted by Instagram social media interaction and the user experience on the conceptual understanding learning outcomes was 10.986 with the significance value of 0.001 and on the conceptual application learning outcome was 29.418 with the significance value of 0.000.

This research used the significance value of 0.05 (a .05). Therefore, it can be concluded that there is a significant difference on the average score of learning outcomes after being taught by creative and project-based learnings assisted by Instagram social media. Table 3. Tests of Between-Subjects Effects Source Dependent Variable Type III Sum of Squares df Mean Square F Sig.

Corrected Model Understanding 3520.987a 3 1173.662 59.990 .000 Application 2562.370b 3 854.123 37.256 .000 Intercept Understanding 1030178.107 1 1030178.107 52655.813 .000 Application 1029706.097 1 1029706.097 44914.870 .000 Learning models Understanding 253.356 1 253.356 12.950 .000 Application 117.687 1 117.687 5.133 .025 UX Understanding 2794.302 1 2794.302 142.826 .000 Application 1635.066 1 1635.066 71.320 .000 Learning models * UX Understanding 214.929 1 214.929 10.986 .001 Application 674.421 1 674.421 29.418 .000 Error Understanding 2739.013 140 19.564 Application 3209.602 140 22.926 Total Understanding 1050744.000 144 Application 1046512.000 144 Corrected Total Understanding 6260.000 143 Application 5771.972 143 a.

R Squared = ,562 (Adjusted R Squared = ,553) International Journal of Advanced Science and Technology Vol. 29, No. 5, (2020), pp. 4866 - 4876 4872 ISSN: 2005-4238 IJAST Copyright 2020 SERSC b. R Squared = ,444 (Adjusted R Squared = ,432) Thus, the findings can be concluded that when the teacher implement learning model assisted by Instagram social media, there is a significant difference on the conceptual understanding learning outcome, According to the marginal average estmation analysis, as presented in the Table 4, the degree of both learning models were revealed.

The findings affirm that the average score of the creative learning model obtained higher score than project-based learning model on both high and low user experiences. Table 4. The comparison of conceptual understanding average score of the user experience (UX) on the learning models assisted by Instagram social media UX N Learning models assisted by Instagram social media Creative learning Project-based learning High 73 89,80 89,59 Low 73 83,38 78,25 According to Table 5, after implementing the learning models assisted by Instagram social media, significantly there is a slight difference on the conceptual application learning outcomes.

Based on the findings, students with high user experiences learning by creative learning obtained low average score and students with low user experience learning with creative learning obtained high average score. Meanwhile, students with high user experiences learning with project-based learning assisted by Instagram obtained high average score and students with low user experiences obtained low average score. The detailed average score is presented in the following Table 5. Table 5.

The comparison of conceptual application average score of the user experience (UX) on the learning models assisted by Instagram social media UX N Learning models assisted by Instagram social media Creative learning Project-based learning High 73 87,37 89,91 Low 73 84,94 78,75 In this research, each variable tested encompasses its strength which supports and encourages better and higher conceptual application learning outcomes.

[59] argue that students will have greater imagination and acquire significant material acquisition when dealing with new condition and situation (in this context is the use of Instagram). Eventually, it is expected that the learners are able to broaden their knowledge and cognitive abilities to deal with real-life situation in the context of learning.

The findings of this research support the statement of [60] that students will be more motivated and involved when they have an access to alternative learning approaches. It further allows a creative assessment opportunity which involves experimental procedures and risk-taking assistance in the learning environment. It is also iliwitJennif Maers'2013)periexpritlnioceeds adopt creative learning strategy considering the use of mobile technology, particularly for young learners.

The achievement of greater and significant learning outcomes was due to several contributing factors [56]. Based on the observation performed by the researcher, the contributing factors are the technology used during graphic design lesson, the uncomplicated access of Instagram, and the creative learning approach which explores st creativity. International Journal of Advanced Science and Technology Vol. 29, No. 5,

(2020), pp.

4866 - 4876 4873 ISSN: 2005-4238 IJAST Copyright 2020 SERSC External and internal supports acquired by the students play a role as an enforcement to learn graphic design subject. Graphic design subject combines cognitive knowledge abilities and instructional technology to achieve effective learning outcomes [61]. Through creative learning model, students are able to explore their imagination, creativity, skills, and presentation of the graphic design.

Principally, creative learning m mana st'd daiy lnio acquire ap -rooted knowledge through creative approaches along with standardized problem-solving. Creative solution commonly correlates with the previous knowledge obtained [25]. The hypotheses testing in this research affirm a significant influence. The learning outcomes obtained were acquired from the strength of the learning models assisted by Instagram social media.

These learning models allow students to experience a meaningful and authentic learning process. In addition, these models offer an opportunity to enhance creative problem-solving procedure, critical thinking ability, and provide students a chance to explore, understand, and respect themselves within their community [62].

The use of Instagram social media during the learning process offers a stimulation to students that explore their potencies, passions, and interests as well as paying attention to the creative learning characteristics; including relevance, control, authorship, and innovation. Jeffrey & Woods [63] have came into a conclusion that the higher the interest, it allows student to have higher control upon the learning process.

Such relevance is beneficial to identify motivation, enjoyment and enthusiasm in the learning process. The control performed by the students, in the near future, will be beneficial for the acquired knowledge of students. In this context, Instagram social media plays a role to strengthen the creative learning.

Instagram is the most popular and widely used social media in the worldwide [64]. Instagram offers abundant benefits for learning resources [65]. It allows the users to communicate their experiences through photo where they can choose their own way to present and manipulate the moments [66]. This social media is suitable for student who love taking and sharing pictures.

Generally, students indicate a positive attitude and belief regarding the use of social media within the educational context [67]. Not to mention, social media is preferable

among the adolescents for comparative characteristics study [68]. 4. Conclusion To sum up briefly, this research confirms a prove that the students who learnt with creative learning model assisted by Instagram social media acquired more preferable interaction on the conceptual understanding learning outcomes; both high and low user experiences.

Additionally, more desirable interaction of conceptual application learning outcomes among the high user experiences was found on project-based learning. However, the conceptual application learning outcomes of students with low experiences were better found on the creative learning assisted by Instagram social media. Creative learning allows student to perform identification which is directed to creative and imaginative activities as well as high self-confidence during the learning.

The findings of this research, however, confirm a limitation that within graphic design subject lesson, it does not assess using a complicated indicator. Furthermore, the learning models assisted by Instagram social media in this research which involved the user experiences were not comprehensively elaborated based on the characteristics and the measurement of user experiences.

Therefore, it is suggested for the future research to take into consideration comprehensively the user experience of Instagram social media in the learning model as a primary element in examining academic performance. Particularly, creative learning is highly suggested to be used to improve and enhance sts cr eative and critical thinking abilities.

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