Improving Visual Communication Design Students' Creativity, The Role of SNS and Collaborative Learning

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Abstract. Visual Communication Design, as one of the creative economy sub-sectors, is Indonesia's economic driving force, thus universities are expected to produce creative Visual Communication Design practitioners to encourage innovation, supported through the use of technology, namely Social Networking Sites (SNS). Despite the increasing studies of SNS as today's digital culture, there is a lack of study regarding the benefit of SNS to improve Visual Communication Design undergraduates' creativity in Indonesia, especially its function as a collaborative learning tool. The objective of this paper is to find the determinants of SNS usage among the students, known to have a role in higher education regarding the development of Visual Communication Design students' creativity through the influence of collaborative learning. TAM (Technology Acceptance Model) model is used to analyze the intention of using SNS. The research samples were Visual Communication Design students at Universitas Multimedia Nusantara as well as representatives from regions with the highest level of visual design business in Indonesia, namely Yogyakarta, Bandung, and Jakarta, with 206 participants. The data results were analyzed by using the descriptive statistical analysis technique and inferential statistical analysis technique in the form of PLS-SEM. The findings are that the use of SNS has an impact on students' creativity, both directly or indirectly through collaborative learning.

Keywords: social networking sites, creativity, visual communication design, collaborative learning, education.

1 Introduction

The creative industry is one of Indonesia's economic driving forces. A Research in 2016 by Creative Economy Agency, creative economy contributed 7.38% and 7.44% GDP (Gross Domestic Product) of the total national GDP in 2016 and 2017, projected to grow positively with an estimated value of more than 1,000 trillion rupiahs in 2017 and increase to 1.102 trillion in 2018. Visual Communication Design, as one of the creative economy sub-sectors, offers high contribution due to its capability in affecting other creative economy sub-sectors. This sub-sector, which is mostly concentrated in Yogyakarta, Bandung, and Jakarta, made IDR 579.3 billion in 2016 with a GDP growth rate of 8.98% [1]. Its human-based resources, which emphasizes aspects of ideas, intellectuality, and skills, unlike the natural resources which will run out one day, [2], is suitable to Indonesia's current condition,

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considering that Indonesia is ranked fourth as the country with the largest population, namely over 273 million people [3].

Unfortunately, the progression of this sector is still considered to be low, due to unfavorable environmental and technological conditions [1]. The potential of the Visual Communication Design sector can be boosted by a better education, supported by the proper use of technologies to create more qualified practitioners [4]. The quality of designers is correlated to their intellectuality as creative individuals, which refers to a person's ability to express original thoughts and outputs or have novelty values [2]. Therefore, the government and the higher education institutions need to consider using an academic approach, centered on a culture of innovation related to the development of students' creative mindsets, supported through the use of adequate digital-based facilities.

SNS (Social Networking Sites) or social media have long influenced the daily lives of the younger generation, especially in the lives of students [5]. SNS is known to be used for educational purposes [6], [7], and promoted students' creativity [6], [7], encouraged by students' habit to actively socialize in social media. Previous research has shown that the main motive of students in using SNS is to socialize and communicate with others (social aspect) than to share work (cognitive aspect) [8]. This online socialization activity has become students' habit, both in learning and/or to fill their spare time, and proved to have a direct influence on students' creativity. Helou opined that SNS use in socializing could bring together people with the same interests to broaden ideas that will later impact the development of knowledge and critical thinking of students [5], which in turn affects their creativity [7].

In addition, previous research has also emphasized the importance use of SNS in facilitating collaborative learning that can trigger critical thinking of students [7]. This is because the elements of collaborative learning reflected the characteristics of creativity [9]. For that reason, it can also be concluded that the relationship between the use of SNS and students' creativity is indirectly influenced by the presence of collaborative learning.

The lack of research regarding the relationship between the online socialization activities using SNS (Social Networking Sites) with the development of Visual Communication Design students' creativity (directly), and through collaborative learning activities (indirectly), encouraged this study. TAM (Technology Acceptance Model) model is needed as a basis for knowing students' intention in using SNS.

2 Literature Review

2.1. Perceived Usefulness, Perceived Ease of Use, and Perceived Enjoyment.

TAM (Technology Acceptance Model) model has been used in several studies to evaluate the user's behavior intention in using new technology [10], especially SNS, consisted of perceived usefulness, perceived ease of use, and perceived enjoyment.

2.1.1. Perceived Usefulness (PU)

As suggested in the TAM model, wherein the adoption of new technology, especially SNS, depends on the perceived usefulness. Previous studies had proven that perceived usefulness is one of the main determinants of students' intention in using SNS, where perceived usefulness is defined as to what extent does an individual believes that a new technology or system would improve their work performance [6]–[8], [11].

H1: Perceived Usefulness affects the use of Social Networking Sites.

2.1.2. Perceived Ease of Use (PEU)

Perceived ease of use is defined as to what extent does an individual believes that a new technology or system would be easy to use (free of effort, easiness, less difficulty). The more trouble-free a new application is used compared to other technologies, the more likely it will be accepted by users. Past studies concluded that there is a positive relationship between perceived ease of use and the use of SNS because SNS has features and systems that are easy for students to understand, encouraging them to use it again [6], [12].

H2: Perceived Ease of Use affects the use of Social Networking Sites.

2.1.3. Perceived Enjoyment (PE)

SNS has been perceived to be personally fun and enjoyable to use among the students. Preceding researchers explained that the level of pleasure (perceived enjoyment) while using SNS had an impact on a person's behavior and desire to access SNS more often [6], [8], [13], [14], thus perceived enjoyment is significant in motivating students to use SNS.

H3: Perceived Enjoyment affects the use of Social Networking Sites.

2.2. Social Networking Sites Use (SU), Student's Creativity (SC), and the Mediating Role of Collaborative Learning (C).

Theoretically, SNS had been revealed to have a positive relationship with students' creativity, due to its social aspect. In addition, socializing can also encourage collaborative learning activities, which leads to knowledge sharing, thus motivate the students' creative behavior. Late researchers have discussed the relationship between the use of SNS, students' creativity, and collaborative learning. The results described that students who actively use SNS have more opportunities to interact with other people (socialize) and/or participate in the community through collaborative learning, which in turn will affect their creativity [6]–[9], [15], [16]. Therefore, SNS can improve students' creativity directly and indirectly through collaborative learning.

H4a: The use of Social Networking Sites affects Collaborative Learning.

H4b: Collaborative Learning affects Students' Creativity.

H4c: The use of Social Networking Sites (SU) affects Students' Creativity.

H4: Collaborative Learning mediates the relationship between the use of Social Networking Sites and Students' Creativity.

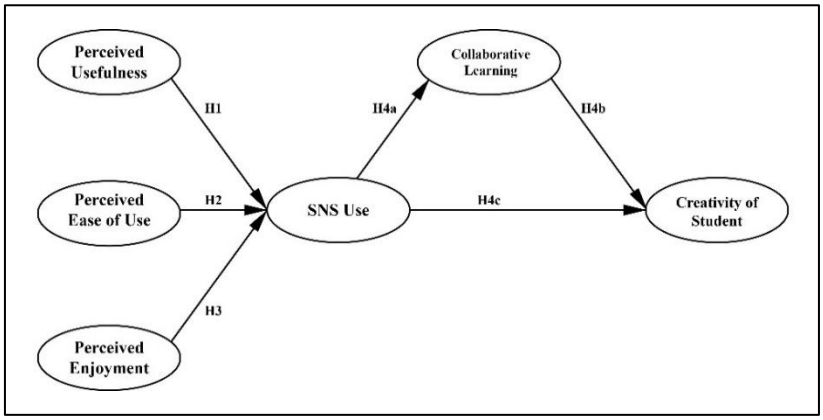

Fig 1. Model Diagram

3. Methodology and Data Analysis

3.1. Data Collection.

The respondents were 206 Visual Communication Design students, each who were an active user of SNS (> 3 hours per day). The data collection was conducted online and distributed mainly in Universitas Multimedia Nusantara, followed by those that studied in Institut Kesenian Jakarta, Universitas Trisakti, Universitas Tarumanagara, Institut Seni Indonesia Yogyakarta, and Institut Teknologi Bandung. The respondents were classified into five characteristics: age, gender, education level, university, and time length in using SNS, while the main questions were evaluated using a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2. Data Analysis.

PLS-SEM was used to analyze the quantitative data. This study used descriptive statistical analysis (frequencies) and inferential statistical analysis (outer and inner model). For outer model analysis, in terms of validity, the measurement uses the value of the factor loading (outer loading) with Average Variance Extracted (AVE). The factor loading value is greater than 0.60 (> 0.60). The Average Variance Extracted value must be greater than 0.50 (AVE ≥ 0.50). Reliability testing of the outer model was carried out using the Cronbach Alpha value with a value equal to or more than 0.6 ($\alpha \geq 0.6$) and Composite Reliability (CR) with a value equal to or greater than 0.70 (≥ 0.70), but in exploratory research 0.60 to 0.70 can still be found [17]. Inner model analysis was used to test the seven proposed hypotheses, using the t-value (T-value ≥ 1.96) and p-value (P-value ≤ 0.05) of the data result [18].

4. Research Result and Discussion

4.1. Research Result

The results of the descriptive statistical test showed that the majority of the respondents were 17-20 years old (81.07%), followed by those aged 21-24 years (17.96%) and the rest 0.98% are those aged 25 years and over. Most of the respondents are female (70.39%) compared to male with only 29.61% of the total respondents. Based on their education level, the highest ratio went to those who were Bachelor students, followed by Master and Ph.D. students, 86.89%, 12.14%, and 0.97% respectively. The participants were mostly students from Universitas Multimedia Nusantara (77.18%), followed by Institut Seni Indonesia Yogyakarta (10.19%), Institut Kesenian Jakarta (5.83%), Institut Teknologi Bandung (4.85%), lastly Universitas Trisakti and Universitas Tarumanagara which shares the same amount of ratio (0.97%). All of the respondents use SNS more than 3 hours per day.

Using Smart-PLS, Table1 illustrates the result of the inferential statistical analysis, showed that each of the variables is valid and reliable.

Table 1. Results of Validity & Reliability Testing and Factor Loading

Variable Name	AVE	α	CR	Highest Factor Loading Score
Perceived Usefulness (PU)	0.524	0.835	0.868	PU2 = 0.787
Perceived Ease of Use (PEU)	0.564	0.804	0.865	PEU6 = 0.831
Perceived Enjoyment (PE)	0.510	0.839	0.879	PE6 = 0.811

SNS Use (SU)	0.666	0.874	0.909	SU4 = 0.875
Collaborative Learning (C)	0.643	0.890	0.915	C4 = 0.842
Students' Creativity (SC)	0.575	0.853	0.890	SC1 = 0.797

The seven hypotheses of this study were all accepted except H1. Table 2 presents the t-value and p-value of the variables' engagements.

Table 2. Results of T-value and P-value

Variable Engagement	*T-Value*	*P-Values*
C -> SC	6.501	0.000
SU -> SC	5.816	0.000
SU -> C -> SC	4.379	0.000

Variable Engagement	*T-Value*	*P-Values*
PU -> SU	0.397	0.691
PEU -> SU	2.198	0.028
PE -> SU	3.852	0.000
SU -> C	6.274	0.000

4.2. Discussion

This research demonstrated that each of the discussed variables was well represented by its indicators. The data results showed that H1 was rejected and contradicted with the preceding studies [6]–[8], [11], reporting that there was no relationship between perceived usefulness and SNS usage among the Visual Communication Design students. We found that the indicator which most represents variable perceived usefulness is its function to achieve a better work performance, while in this study, the students use SNS mainly to socialize, not to improve performance in completing work or assignments. Past studies opined that the determinants affecting the students' perception of the SNS's usefulness can vary between individuals. In general, SNS might be considered useful for them, but not necessarily as a specific tool for work-related purposes [12]. H2 and H3 are accepted, suggested both perceived ease of use perceived enjoyment had a positive and significant relationship with SNS usage among the undergraduates, in line with the preceding researches [6], [8], [14]. H4a, H4b, H4c, and H4, suggested a significant relationship between SNS usage, collaborative learning, and students' creativity, consistent with past researches [6]–[8], [15], [16]. The outcomes of this study presented that the willingness of Visual Communication Design students to interact with people with the same interests will encourage them in developing new skills and acquiring new knowledge, obtained through collaborative learning. This study also emphasized the terms of creativity, measured as individuals who are able to find or create new, fresh, and original ideas or creation, and report the direct effect of SNS usage on students' creativity, where the willingness to connect with new individuals who have the same interest will directly create discussion activities that led to the creation of novelty ideas. Collaborative learning can also mediate SNS usage and students' creativity, but the impact was not as strong as the direct impact. This is because collaborative learning is an activity that is conducted in an environment that is deliberate and carried out regularly or repeatedly with the same members to learn certain topics, solve problems, and complete tasks [19]. The use of SNS without the need for collaborative learning will be freer and more flexible, so that students can discuss any topic or subject indefinitely, thus supporting the development of students' mindset that promoted innovation and originality.

5. Summary

In conclusion, this study revealed that perceived usefulness wasn't deemed significant among Visual Communication Design students related to SNS usage. On the other hand, the undergraduates use SNS mostly to socialize and considered SNS to be easy to use and enjoyable. This study also highlighted that although collaborative learning had been found to play a role in the positive relationship of SNS usage and the Visual Communication Design students' creativity, its impact was not critical. Thus, universities are expected to consider collaborative learning activities through the use of SNS in the Visual Communication Design teaching system as a way to increase students' creativity.

6. Implication and Suggestion for Future Research

The implication of this study is that Education Institutions or Universities should collaborate to design applications or sites that have SNS features or at least implement the existing SNS that is considered to have met the criteria needed in the VCD students learning process, which can support collaborative learning approach, interactive, and in addition, support feedback/sharing among students, lecturers, as well as practitioners.

Regardless of the important findings, that are also some suggestions that need to be considered for future studies. For instance, this study was conducted during the Covid-19 pandemic. Therefore, it is advised to also discuss the influence of external conditions on Intention to Use, as it may bring different research outcomes in the future. Second, future research is suggested to investigate variables outside our model, especially other mediator variables besides collaborative learning that could affect the relationship between SNS usage and students' creativity. Third, it might be interesting to conduct a study that further discusses the cognitive and hedonic aspects of SNS usage. Finally, further investigation regarding other technology adoption beyond SNS related to improving Visual Communication Design learning system suitable in Indonesia will be of great value.

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