

Going paperless concept implementation at senior high school in bekasi, indonesia

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Abstract. An important reason for the rise of the paperless learning environment is that society is moving towards a green direction. At the same time, the advancement of technology and how people's consumption of scarce resources affects digital generation and the understanding of the environment in the future have attracted more and more attention. **Objectives:** This study aims to investigate how capable, and available the students at senior high school are at implementing paperless classrooms with substitutes such as the digital mode in learning activities. **Method and results:** Current study implements quantitative descriptive research. For the amount of 108 students majoring in Computer Network Engineering in the Bekasi area from different grade are chosen as a sample, an online questionnaire and interview used to collect the information as primary data. The results of this study found that there are significant influences from Environmental Awareness, digital literacy, and habits as factors in students' readiness to apply this concept. **Conclusion:** The coefficient of determination shows that the Environmental Awareness (X1), Digital Literacy (X2), and Habit (X3) effected the Student's Readiness (Y) to Implement Paperless Concept of 41.3%. The rest, 58.7% will be explained by other factors that will not be discussed in this study.

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1 Introduction

Paper becomes one the aspect usually appears in daily human activities. The form of paper not only in a piece of paper for academic, administration or formal compliance, but there are cardboard, box, tissue, decoration, etc. The increasing number of consumers will influence the amount of paper production. In last year, paper became the primary export product in most countries [1]. Meanwhile, to create 1 ton of paper, approximately 24 trees will be cut down [2]. Besides, since 2013, Indonesia was rise rank ten on top 10 pulp and paper producing countries in the world. Several school activities still actively using paper as their media, such as; election, exam, administration things, etc. Even though nowadays government, organization, and school try to change from physical (paper) into technology, it still needs time to adapt and always seeking the suitable application or technology which will able act as a substitute [3].

Despite the paper usefulness in our daily life, there is an impact of this paper process on the environment; forest (ecosystem and species), and pollution. If the wood has taken over by the company, it means the community near it, will be lost their livelihood. Regarding the production process, emissions and pollution can be high. The research found that one of the solutions to minimize this problem by increasing awareness of the environment. Environmental awareness can be implemented by reducing the use of paper in schools [4]. The ecological knowledge arises with the intensification of contradiction between man and nature. The ecological knowledge arises with the intensification of contradiction between man and nature. Under this psychological effect, people will consciously pay attention to environmental changes and environmental balance, and will consciously maintain the healthy development of the ecosystem [5]. Therefore, the lack of awareness that comes from information can have an important role in the environment [6].

The fast development of the technology industry offers not only a wide selection of goods but also value-added options. This provides an opportunity for the community to own technological goods to fulfil their activities [7]. Digital literacy

is one of the solutions to help reduce the use of paper in school activities. Paperless concept implementation can be successful if you already have digital skills, collaboration, 21st-century skills which already have education on technology. Paperless classrooms outfit students with the innovative abilities that are popular in the 21st-century for employability, e-business and Internet business [8]. The situation requires learning movement will turn into a good preparation ground for students to set themselves up for their future life and profession. Besides, there is another study that found that the habits of the students must help all of that. Habits can be affected after they implement environmental education that builds on environmentally friendly applications [9].

According to some researcher, the utilizing of technology as media learning be a most loved among reliable understudy, while powerless understudy favor uses paper. Furthermore, with time passing, the various of utilizing PC diminishing. Finally, the discoveries show that perusing and composing inclinations of the understudies rely upon the setting wherein these exercises are played out with the length of the content (short/long messages). The reason for pursuing and composing (understanding books, taking tests, doing schoolwork, and so on), and the sort of typography required in action (content/diagrams/conditions, and so on) [10]. Another research about the student' habit shown that there is no significant effect of behaviour test scores between the two groups because there is a lack of this learning in the class that discusses that concept. In the future study, the current study helps us to understand student readiness (before implementation) for habits, environmental awareness, and digital literacy in applying and discussing the concept of paperless. This study investigates how capable, and available the students are in implementing paperless classroom with substitutes such as digital mode.

2 Method

2.1 Data Collection Procedure

This study uses a quantitative descriptive method to achieve the objective. Descriptive research was conducted to describe a phenomenon, events, and events that occur factually, systematically, and accurately. This study describes the events that are the center of research without giving special treatment to these events. Descriptive research can be defined as research held to determine the value of independent variables, either one or more variables (independent) without making comparisons or connecting with other variables [11]. This study describes quantitative data obtained regarding the subject's condition or phenomena from a population. Data collected using an online questionnaire and spread it to senior high school in Bekasi.

2.2 Participants

The population in this research is 148 students in Computer and Network Engineering Major at senior high school in Bekasi. This major is considered the most suitable and related to one of the variables, namely digital literacy, where students more often use technology as learning media and solutions for reducing paper usage. Considering this study were use random sampling, the student background are various which will explain as follows

Table 1. Respondent Profile

Categorize		Percentage
Grade	10	17%
	11	54%
	12	29%
Age	16	34%
	17	33%
	18	17%

2.3 Instrument

The research instrument used in this study is in the form of a questionnaire with the intended to produce accurate data using a Likert scale to measure an attitude, opinion and perception of a person or group of people about a social phenomenon. Likert scale use in this study is from 1 (Strongly Disagree) to 4 (Strongly agree). In the aiming of getting a satisfying research result, the design of a research instrument lattice was compiled. The grid aims to show the relationship between the variables studied and the data sources or theories taken [12].

Validity is the level of reliability and validity of the measuring instrument used. The instrument is said to be a valid means to show the measuring instrument used to obtain the data is valid or can be used to measure what should be measured [13]. The reliability test to measure consistency by Cronbach's alpha analysis results is 0.53 for environmental awareness, 0.75 for digital literacy, 0.55 for habit, and 0.85 for student readiness. This is concluded by seeing that each variable has a Cronbach's Alpha value equal to or more than 0.5. This indicates that the statement made is considered appropriate and can be used for research purposes.

2.4 Data Analytical Procedure

The data that has been collected in this study describes using descriptive statistics, the presentation of data using tables and data analysis using the mean. Mean is the arithmetic mean or often abbreviated as mean. Mean is the data average which is attained through summarizing the data and divided up by the observation amount. Considering that the research data used are primary, then to meet the requirements determined before the hypothesis test through the t-test and F test, it is necessary to test some of the classic assumptions used, namely normality, multicollinearity, and heteroscedasticity.

3 Results and Discussion

The Paperless concept, which was built as a form of concern for the environment, requires Indonesians, especially the younger generation, to have an awareness of

this. Environmental awareness will emerge with an intensification of the contradiction between human and nature. Under this psychological effect, people will consciously pay attention to the changes and balance of the environment. Besides, they will consciously maintain the development of the ecosystem to be healthier. This action is very important to pay attention to seeing that environmental awareness is the first step in implementing the Paperless concept.

The application of the paperless concept can be started in the nearest environment. Apart from family, each day students will spend around 5-6 hours at school. Based on this, schools can be a means of implementing this paperless concept. Reducing the use of paper in the teaching and learning process does not mean eliminating the use of paper 100%, this can be overcome by the collaboration of using paper and technology in the teaching and learning process. The use of electronic devices is also not a taboo at this time; it is not uncommon for every individual to have more than one electronic device, such as cellphones, tabs, and laptops.

From the regression coefficient of research result explain each rate of independent variable on the dependent variable. The lowest one, the Environmental Awareness has a positive impact where it will influence student readiness for the amount of 22.9%. The second rank, the Digital literacy positively influence student readiness by 32.4%. The highest one, Habit has supported rate for 55.6% increase in student readiness. The habit can be defined as one of the ways to help a student prepare on changing from the traditional way to more modern by implementing a paperless concept.

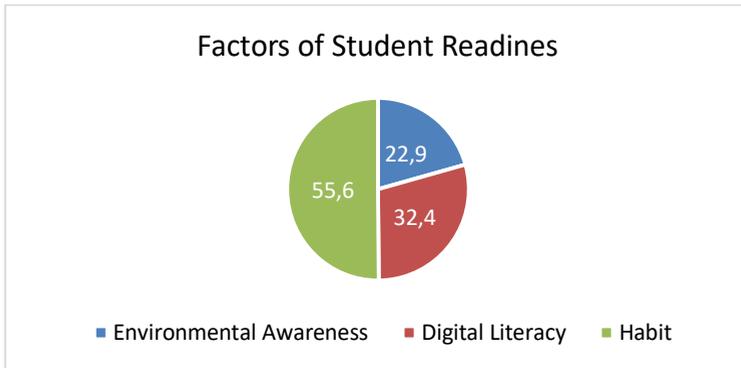


Fig. 1 Percentage of Factors Influence Student Readiness

Environmental Awareness (X1) towards Student Readiness (Y)

Reducing the use of paper daily will minimize the dependency to use paper, for example, in school academic activities. Like schools that have implemented the Paperless concept, they have begun not to use paper in recording lessons, collecting assignments, and others. This concept should apply to all schools in Indonesia. Wherefrom the perspective of high school students, 83% agree that Teaching and Learning Activities can reduce the use of paper to protect the environment.

From the data presentation, the environmental awareness of high school students as the nation's youth in Indonesia is a good starting point for the country regarding the sustainability and sustainability of its natural resources as 93% of them agree that excessive use of paper will cause environmental damage. This ecological damage puts Indonesia on a real risk and threat condition if the people are still indifferent to protecting the environment.

The H1 results indicate that the Environment Awareness variable influences students' readiness in implementing the paperless concept in school. This variable gets a probability with a significance level of 0.46, which is lower than 0.05. This means that the environmental awareness variable significantly influences students' readiness in implementing the paperless concept in school. Based on previous research, it shows that building a culture of environmental care can be done by

applying the activity of paperless usage [14]. This proves that previous studies have the same results as this study.

Therefore, to use the concept of paperless in school, students must have environmental awareness about the importance of protecting the environment with various activities that are replaced with environmentally friendly. Something similar is also found by Zaenuri (2017), to apply the concept of reducing the use of paper, knowledge education about the environment is necessary to build students' awareness of the environment [9].

Digital Literacy (X2) towards Student Readiness (Y)

Currently, the existence of applications and websites as support tools for the teaching and learning process by utilizing an internet connection, using electronic assistive media and devices is not strange anymore; this certainly supports the learning process carrying the paperless concept. This fact is supported by the findings that 61% of the total respondents or 66 high school students stated that they know that there are applications and webs which help in their learning process, such as; Quipper, e-mail, Google Classroom, etc. With a higher number, 66% or 71 respondents believed they knew how to use online learning facilities. This can be interpreted although there are 61% of students who know some applications or the web, more than that, there are 66% of students who believe that with adequate facilities, nowadays it is easier to get, know, and even learn various things.

The data shows that 87% of students know how to make reports using technology media (in this discussion laptops taken as an example) this includes but is not limited to information about how to make technology-based reports. However, there needs to be an effort to improve the abilities of the other 16% of students so that the equal distribution of abilities in the future will be achieved. Digital Literacy is not only the ability to use devices but also the ability to sort and filter what is being distributed, as well as ensure the validity of the information they get. There were 32%, or 35 students stated their belief in the ability to be able to distinguish which sources of information were reliable, then 56% of the other students still believed in the validity

of the sources of the information they got. This is driven by the large amount of hoax information that is spread but uses the identities of certain parties without the permission of those concerned, making it appear true. It is at this time that the students' critical thinking, analysis and curiosity abilities will be tested.

H2 results indicate that the Digital Literacy variable has an influence on students' readiness in applying paperless concepts in school. This variable gets a probability with a significance level of 0.02, which is lower than 0.05. The hypothesis is accepted; the digital literacy variable significantly influences the readiness of students in applying the concept of paperless in Senior High School in Bekasi. If seen from previous research that discusses digital abilities by Baby (2020), which results in that mode of paperless classrooms, students acquire a number of digital skills from a paperless classroom, and these skills will eventually help them to develop real-life skills such as self-learning and collaboration with peer learners [8]. This is in accordance with the variables of this study, where literacy has an influence on the readiness of students in implementing the concept of paperless in school.

Habits (X3) towards Student Readiness (Y)

Habit is a behavior that humans repeatedly do for the same thing. To create the Paperless concept in the classroom, students must have a habitual experience of being environmentally friendly and also about digital. Schools with the Paperless concept can produce young people who have innovative abilities and are highly competitive. As a matter of fact, which is already very popular in the 21st century for employability, electronic business, and internet business [8].

The author found that 86% of high school student gets used to reading their learning materials through gadgets. It can be interpreted that high school students are familiar with using technology as a way to meet their learning reference needs. On the other hand, the author found that there was a distraction when students were learning online or reading material using gadgets. Usually, opening social media (such as Instagram, YouTube, Twitter and so on) that not have any correlation

to their studies could distract their attention. More than half of the respondents experienced such disruption, which made their study time was wasted.

The third hypothesis states that habits have an influence on students' readiness in applying the concept of paperless in school. For this variable has a significant value of 0.00 which means lower than 0.05. Then this hypothesis is accepted. This means that habits have a significant effect on students' readiness in implementing this concept. Habit on the student is influenced by how earlier they have been exposed to use the gadget as their facilities to do activities related to school. The earlier study stated, the student who introduces gadget as one of their study tools are more expert than the newest one [15]. This support by a study from King (2014), using technology was a help to reduce the use of paper, easy to use, ability to adjust. Hence, technical support about how to use it and people routine will enhance their ability to use technology [16]. Moreover, Ferguson (2017) study results that the habit of working will optimally with the strong support and commitment of all school members: teachers, education personnel, principals, and school committees [15]. This indicates that there is a habitual influence on the implemented paperless concept.

4 Conclusions

Based on the analysis result has been discussed, the researcher got some conclusion as follows:

1. Based on the T-Test results that carried out, then the following is the conclusion for each independent variable on the dependent variable:

- The Environmental Awareness variable that has tested shows that it has a significant influence on the readiness of students in applying the concept of paperless in school. It indicated by the probability value of less than 0.05.
- Digital Literacy variables that have tested show that it has a significant effect on the readiness of students in applying the concept of paperless in school.

- Habits variables tested to show that it has a significant effect on the readiness of students in applying the concept of paperless in school. It indicated by the probability value of less than 0.05.
 - There is a significant effect on the independent variable (environmental awareness, digital literacy, and habit) on students' readiness to implement the paperless concept.
2. Based on the F-Test results, it is shown that there was an influence of environmental awareness factors, digital literacy, and habits around 41.3% on the readiness of the students to apply the paperless concept at senior high school in Bekasi. Therefore, 58.7% was determined by other factors not discussed and explained in this study.
3. Based on the results shown from several analyses, this research indicates that the Digital Literacy variable has the most significant influence on students' readiness in applying the concept of paperless in their schools. If students have increased digital capabilities, then their availability in implementing this concept will increase as well.

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