Conference Paper

Digitalization on Studies by Millenials Researcher

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Abstract

Echo boomers or generation ME, better known as 'Millennials', are people whose daily activities are inseparable from the involvement of technological and information developments. The dependence of echo boomers on modern technology in every line of life is not necessarily parallel to their interest in conducting research on this subject. Therefore, it is necessary to conduct a study that examines the involvement of digitalization in the research of millennial generations. The data sources used in this study were German Department students consisting of students of German study programs and Chinese study programs as well as thesis works produced by students from both study programs between 2015 and 2019. The research data was obtained through interviews and documentation, and the findings data analyzed qualitatively. The results showed that there were not many studies by students involving information technology. The role of digitalization is mostly found in research on the development of learning media, a small portion of which occurs in the application of teaching materials and learning media.

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1. Introduction

The 4.0 industrial revolution that is taking place today is bringing technological disruption to various lines of human life. Through this disruption the process of producing goods and services becomes much faster, more efficient, and provides maximum results. In these circumstances, technological disruptions threaten human existence, where human positions are largely replaced by sophisticated devices so that even without human involvement everything can go well. An example that is familiar to us is the presence of online shopping startups that spoil customers in shopping without having to visit the store or shopping center in their destination or the existence of an online taxi service that shifts the existence of conventional taxis. Therefore, the demand for proficiency in applying technology in the digital age is unavoidable, especially for the younger generation who will enter the workforce.

Lloyds Banking Group and the Tech Partnership (in Brown & Keep, 2018: 34-35) formulate Framework of five Essential Digital Skills that must be possessed by each individual to be able to work well. The five skills include the ability (1) to held an online communication, collaboration and sharing; (2) searching, processing and storing information in digital form properly; (3) transacting goods and services / buying and selling online; (4) resolve a problem by utilizing digital facilities or online services; and (5) ensuring the safety and legality of its online activities. In addition to the five skills above, Kasali (2017: 19) adds the importance of working memory to be owned by millennials in dealing with the tasks at hand. With working memory, someone will be able to process information quickly, agile, and deft in solving a problem or job.

In connection with the skills above, has the learning system in our tertiary institution prepared its students to have these skills? Again quoting Kasali's statement (2017: 19) that working memory is part of the executive function that can be trained from the beginning someone grows to be able to store information that comes from a series of activities that have been experienced. In colleges, it is a challenge for every lecturer to know the quality of students' working memory. In this way lecturers can train students to become individuals who are easily adaptable, resilient and superior, not stubborn and indifferent to the world around them. This opinion is reinforced by Crittenden et al (2019: 7) by expressing that higher education should not only teach knowledge but also must help students learn responsibly to their learning process, develop self-control in utilizing technology, learn the ability to identify things appropriately, and learn how to process and critique existing information.

More than that, in the era of information disclosure such as now students must also be able to identify problems that exist in the surrounding environment and formulate them into a question to then try to find solutions to these questions (Badke, 2012: 11). Explained by Badke, this ability is referred to as the skill to obtain the information needed. With proper and adequate information, a person will be able to make critical judgments and understand all biases, ambiguities, and wrong assumptions. Someone who has good information literacy is certainly able to link things that are found with other information, filter right and wrong, and use information and evidence obtained ethically to find effective solutions to the problems found.In the German Department of State University of Malang, one of the efforts made to encourage the development of student working memory is to involve the student in research conducted by lecturers. Students with their character as digital natives are more skilled in operating digital devices than lecturers who are mostly classified as digital immigrants. With these advantages students can gain direct learning experience from lecturers on various things that are pedagogical.

As stated by Potter (in Lothus and Silseth, 2019: 3) "Being digitally literate means being able to understand learning and social interactions that take place in a digital context, both inside and outside educational settings".

Experiences in the classroom show that digitalization has become one of the distruption of the learning process. It is undeniable that when lecturers are busy explaining material in front of the class, students are also busy with their digital activities by opening their social media timelines, updating "status", replying to chats that enter one by one to their Whatsapp account or even discussing the lecturer standing in front of them in the group conversation. In dealing with a situation like this, will the lecturer forbid students to turn on their smartphones? Or just let it go as long as the learning process goes "well"? Both Crittenden et al (2019: 8) and Kasali (2017: 70) agree that an environment that does not allow learners to access and use digital equipment will make the learning process very torturous. Once again this is a challenge for lecturers when teaching millennial generation.

As explained earlier, life skills possessed by students need to be trained and honed. To practice the ability to analyze and think critically, every undergraduate student is required to produce scientific work in the form of a final project or thesis as a condition of graduation at the end of his study period. This is in line with the definition of the thesis as stated in the Pedoman Penulisan Karya Ilmiah (Writing Guidelines for Scientific Work) Universitas Negeri Malang (2017: 1) that the thesis is a scientific work that shows the ability of undergraduate students to study the implications of the development or implementation of science and technology that pay attention to and apply the value of the humanities is in accordance with their expertise based on rules, procedures, and scientific ethics in order to produce solutions, ideas, designs, works, or art criticism.

The role of research in college life is not small. As mentioned by Webber et al. (in Sugito et al., 2017: 229), several research results show that the involvement of students in conducting research can develop academic and social abilities. By conducting research, students gain benefits such as analytical skills, synthetic thinking, and increasing confidence in the ability to make presentations and speak in forums.

In relation to student relations and research, Griffin et al. (in Noble & McGrath, 2016: 3-4) states the importance of young people becoming lifelong learners related to skills related to information technology and communication that is constantly. Undergraduate students who are also at an early adult age, through research activities can practice developing critical thinking skills. This ability is divided into two, namely surface level critical thinking and deep level critical thinking. Surface level critical thinking includes: (1) making conclusions or judgments without going through justification; (2) holding

to prejudices or assumptions (such as irrational attitudes that are not liked towards individuals, groups, or their ideas); (3) stating that a person shares conclusions or judgments made by others; and (4) failure to state the advantages or disadvantages of suggestions, conclusions, or judgments. On the other hand, deep level critical thinking involves: (1) making conclusions or judgments supported by justification; (2) outlines the strengths or weaknesses of suggestions, conclusions, or judgments; (3) states that someone shares conclusions or judgments made by others and supports them with relevant facts, evidence, experience, or examples; and (4) making valid assumptions based on available indicators (Hew & Cheung, 2012: 20).

Since the first class of German Department was graduated in 2003, of course there have been many thesis works produced by students. As the Chinese Study Program (CSP) joined the German Department in 2011, more and more themes were successfully adopted by students in their scientific work. However there are many these that have been produced by graduates, whether the topics discussed in the scientific work have touched on the issue of technological advances in the digital age as well as their daily lives that cannot be separated from digital devices. Therefore this research needs to be done to find out how far students are interested in conducting research on technology optimization or how much influence digitalization has on students' research.

2. Method

This research uses a descriptive qualitative research model. It is said so because this research seeks to describe the involvement of digitalization in the research of millennial generations. This is in line with the opinion of Barbour (2014) about qualitative research, namely qualitative research can make visible and unpick the mechanisms which link particular variables, by looking at the explanations, or accounts, provided by those involved. Millennial generation referred to in this study is German Literature Department students who fit their character as a generation born in the mid-1990s to early 2000. Another term for this generation is generation me or echo boomers (https://www.kominfo.go.id/content/detail/8566/know-generation-millennial/0/highlight_media).

2.1. Data and Sources of Data

There are two data sources in this study, namely all these written by German Department students from the March 2015 to March 2019 issues as well as 20 students from German Study Program (GSP) and 10 students from Chinese Study Program (CSP) who will and

or are currently taking Thesis subjects. The time period of publication was determined based on the consideration that the first graduate of the Chinese Study Program was in 2015. The research data were information about forms of digitalization both developed and applied in student research. Interview data contain information, among others, about matters that influence the determination of the research title and the relationship between the research being carried out and previous research.

2.2. Research Instruments

The presence of researchers in this study is very important, because researchers conducted all activitiesincluding design, data collection, and data analysis, to the formulation of conclusions. Therefore, it can be said that the researcher is the main instrument in this study. Supporting instruments also used by researchers are documentation tables and interview guidelines.

2.3. Data collection technique

This study used two techniques to collect data, namely documentation and interview techniques. The documentation in question is a collection of thesis works that are in the form of manuscripts and have been archived in the German Department of UM. The documentation table contains information about the year, thesis title, author, type of research and products developed or applied. The design of the documentation table can be seen in table 1 below. Meanwhile, interview techniques applied to data sources seek to find in-depth information about how students formulate research themes and the role of digital technology in their research.First, confirm that you have the correct template for your paper size. This template has been tailored for output on the US-letter paper size. If you are using A4- sized paper, please close this file and download the file "MSW_A4_format".

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TABLE 1: Documentation table

No.	Year	Title	Autor	Research Type	Product

2.5. Data analysis technique

After the data is collected, data analysis is carried out. In this research, the analysis technique chosen is content analysis. As stated by Krippendorf (in Drisko & Maschi, 2016: 2) that in general content analysis is "a research technique for making replicable and valid inferences from texts (or other meaningful matters) to the contexts of their use". The following steps describe the analysis of the data that has been collected.

1) Analysis of Documentation Data

● Summarizing the results of analysis from documentation data.

2) Analysis of Interview Data

● Making transcripts of interviews.

● Providing data codes. This code indicates the identity of the data source, for example: GSP/N/1 and CSP/S/2. The meaning of the first code is that the data source comes from the German Study Program (GSP), which will or will not (N) compile the thesis with the first interview serial number (1). The second code means that the source of the data comes from the Chinese Study Program (CSP) who is or is already (Y) working on a thesis with the second interview sequence number (2).

● Compacting facts with the aim of obtaining facts from data that has been collected for sorting according to their categories/types of questions.

● Interpreting the findings facts.

● Summarizing the results of interpretation/analysis.

3. Results and Discussion

Based on the results of data collection with documentation techniques, the source of data in the form of thesis documents of German Literature Department students with a

predetermined time period was successfully collected from as many as 276 titles. All titles came from 64 titles produced in 2015, 72 titles in 2016, 78 titles in 2017, 61 titles in 2018, and one title in 2019. The least number of titles in 2019 was due to the time of data collection which has been scheduled at the beginning of the year, so that most of the final semester students are still in the process of working on their thesis and not many have passed their thesis exams. After the data has been analyzed, it is known that only a small portion of these studies involved digital elements. Exactly 10 studies in 2015, 15 studies each in 2016 and 2017, 14 studies in 2018, and no research at all on digital technology in 2019. A detailed description of data distribution can be seen in table 2 below.

- Making a checklist of whether there is involvement of digital elements in the studies.
- Identifying the forms of digital products produced or applied in the research.
- Making a structured statement about the finding data.

TABLE 2: Data Distribution

Year of publication	Number of thesis produced	Number of thesis discussing digital technology
2015	64	10
2016	72	15
2017	78	15
2018	61	14
2019	1	0
Totally	**276**	**54**

From the description above it can be concluded that the students' interest in conducting research on digital technology is not so much. Of course this is contrary to their daily lives as millennial generation that is inseparable from the use of gadgets, smartphones, and other sophisticated devices. When asked about the things that influence the determination of the theme or title of thestudy, respondents gave various answers. Respondents who are currently or have written a thesis are mostly students who have taken teaching practice in schools so that the experience has an enormous influence on the sustainability of their final assignment. Considerations about the ease of obtaining a research permit and understanding of the characteristics of the research subjects at the school where they conduct the practicum are the factors. On the other hand, respondents who have not yet experienced the experience tend to pay more attention to aspects within themselves, such as interests or interests in the field of research, problems experienced by each individual, and even their belief in their own abilities. There was a respondent who expressed his concern about the smoothness of the research process to be carried out due to time and cost constraints. Other parties

who were influential in determining the title of the thesis were colleagues, supervisors, and tutors. Of the thirty respondents only six people mentioned that the title of their research was influenced by previous theses, even though they had reviewed the paper. Respondents explained that the review activity was carried out among others to avoid the similarity of research topics and to be able to further develop the results of previous studies.

The above conditions reflect the attitude of students who are not ready to face challenges, prefer to be in a comfort zone, give priority to personal pleasure, and are less adaptive to technological developments. This character is a fixed mindset that should be changed into a growth mindset, which is a manageable character. With growth mindset someone will still want to learn, ready to accept new challenges ahead, have the assumption that hard work is important, and always ready to receive negative feedback in order to make corrections (Kasali, 2017: 9).

Although experts say that digital literacy includes technological skills, critical thinking skills, and practices that are appropriate to the context (Meyers et al in Lothus and Silset, 2019: 3), it is undeniable that in this digital age there are fears of low literacy that can negatively affect the ability of critical thinking generation Y. This can be seen from the answers of respondents when asked what sources they read in the process of working on a thesis. Only a few respondents mentioned journals, books, or the internet as reference material, most of them prefer to read the finished thesis work because in it they have available theories they want.

In line with this response, when respondents were further questioned about the magnitude of the influence of previous research on the research to be or is being carried out, twelve respondents stated that the previous research had a very large influence, eight people stated quite influential, three said they had little effect, one people stated that it had no effect at all, and five others did not know because they had not gone through the thesis process. According to respondents, the previous thesis was not only useful as a reference for their research, many ideas and images can be obtained to identify research problems. In addition, respondents also revealed that the shortcomings found in previous studies inspired them to improve it, and no less important was also mentioned by respondents that through the review activities they can avoid plagiarism and can develop something new. As stipulated in Peraturan Menteri Pendidikan (Minister of Education Regulation) No. 17 of 2010 concerning prevention and management of plagiarism in higher education which requires academics to be more careful in writing scientific works in order to avoid moral and social sanctions.

Of the 54 studies utilizing digital technology that have been carried out by students, most (43 studies) are research and development that produce products to support the learning process, the rest are applied research that discusses the use of digital technology-based learning media both in schools and in universities. Digital based learning media developed or implemented by students are very diverse. Broadly speaking, these media can be classified into four forms, namely multimedia, platforms, mobile applications, and digital applications. The most discussed products in research are multimedia (see graphic 1) such as flash-based media and visualization of learning materials. Visualization chosen by students aims to present material that is considered abstract in a more concrete form and can help learners understand. Birkets said (in Cladis, 2018: 10) that visualization is an important part of understanding through real images. In addition, another digital product that has emerged in student research is mobile application-based learning media that can be accessed easily through an Android or IOS system. Other digital applications such as podcasts are reviewed not as much discussion about the use of learning platforms in the form of Moodle or Learning Management System.
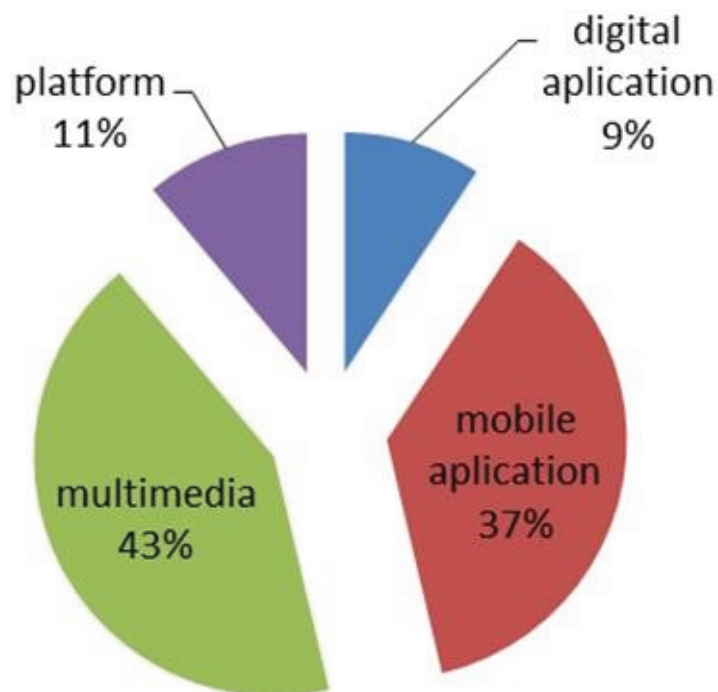
Figure 1: The form of digital-based media discussed in research

After a more in-depth study of the digital media above, it was found that most of the digital products were in the form of games about the materials contained in the learning design. Of course this is inseparable from the character of the student researcher itself as an echo generation who is very fond of the game with various appreciations that

will be obtained from it. As expressed by Afifah (2016: 86), game characters that always provide fun and challenges encourage their players to be interested in completing these challenges. Digital games developed for learning have been shown to increase student retention and perseverance in learning (Mawarni and Muhtadi, 2017: 86).

4. Conclusion

From the description above it can be concluded that the discussion about digitalization in research by millennial generation, especially students of the Department of German Literature, State University of Malang is minimal. This condition should not occur because it is not in accordance with the character of students as digital natives born in an era where the internet is not new anymore. Therefore, higher education institutions can encourage their students to be able to optimize their skills not only for personal satisfaction, but also to use them for the benefit of the wider community, one of them through research. With its potential, the millennial generation should be able to think complexly, not just be creative but also be able to reflect on what has been done, be responsible, and be able to find solutions to the problems around it.

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