

The Importance of Literacy on Product Design Concepts

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Abstract: Reading skills play an important role in life because knowledge is gained through reading. Reading literacy can measure aspects of understanding, using, and reflecting. Literacy education in Indonesia is required to develop Higher Order Thinking Skills, which include analytical, synthesis, evaluative, critical, imaginative and creative abilities. The existence of the School Literacy Movement is a national program from the Ministry of Education and Culture to improve learning, unfortunately this has not been implemented maximally. Because of this explanation, the purpose of this study was to determine the effect of students' literacy on the results of product design concepts based on the factors driving the literacy culture. This research is a qualitative and quantitative research mix. The results of literacy research have a strong influence on the product design concept, therefore literacy needs to be developed and maintained and facilities are needed.

Keyword: *literacy, learning, creative product design concepts*

Introduction

Literacy is commonly known as an individual's competence in processing and understanding information at reading or writing. In its concept, the literacy concerns more than just literacy and thus inseparable from language skills, which is a set of both written and oral language knowledge requiring a series of cognitive abilities, genres and knowledge of culture. According to UNESCO literacy is a set of real skills, more specifically it is the cognitive reading and writing skills that do not rely on the context in which skills are acquired from whom and how they were sought. People's understanding on the meanings of literacy is strongly influenced by their academic spheres, institutional, national culture values, in addition to their personal experience contexts.

Literacy in the context of School Literacy Program, is equally understood as an individual's ability to access, understand, and use anything intelligently through various activities including reading, viewing, listening, writing, and speaking. The current scope of literacy includes individual's knowledge acquisition of how to effectively communicate in their community, thus the vital role of literacy lays on its usefulness to cope with the human life activities at the era of technological advancement. Even more importantly, literacy is required as a benchmark for human literacy as a knowledgeable and civilized being. One way in improving literacy skills is by reading a lot of books. (Styawan, 2018).

Among the types of literacy are: (1) Health literacy is the ability to obtain, process and understand basic information of health and what services are required in making appropriate health decisions. (2) Financial literacy, namely the ability to make an assessment of information and decisions that are effective in the use and also of money management, where the capabilities cover various things interrelated to the financial sector. (3) Digital literacy is a basic technical ability to run computers and the internet media, in addition to having special understanding and being able to think critically and evaluating digital media, being able to design communication content. (4) Data literacy is the ability to obtain information from data, more precisely the ability to understand the complexity of data analysis. (5) Critical Literacy is an instructional approach which critically advocates and examines literary perspectives on the text. (6) Visual

literacy is the ability to interpret, create and negotiate the meanings of information in the form of visual images. Visual literacy can also be interpreted as a basic ability in interpreting written texts into interpretations with visual design products such as videos or images. (7) Technology literacy is the ability of a person to work independently and collaborate with others effectively, responsibly and precisely by using technological instruments to obtain, manage, then integrate, evaluate, create and communicate information. (8) Statistical literacy is the ability to understand statistics. This understanding needs special community's concern, therefore, they can understand the material published in the media. (9) Information literacy concerns one's ability in recognizing at anytime information is needed and the ability to find and evaluate, and then use such recognition in an effective way and being able to communicate the related information in its variant formats thoroughly and clearly (Styawan, 2018). According to Angraini (2016) Literacy is the ability to get along with discourse as a representation of experiences, thoughts, feelings, and ideas precisely in accordance with the goals. Taher (2017) showed that the experimentally-based Creative Problem Solving is a method of learning employed in the context of students' exercises concerning the technological literacy in teaching-learning the physics.

Current issue in the Indonesian education sphere is on the problem arising due to a curriculum change known for KTSP (2006) into the 2013 curriculum, more specifically on the concern of scientific approach, text-based learning, and the Indonesian language as a barrier to all subjects. However, if we are to examine more deeply, especially in regard of the Indonesian language subject, it focuses more on the aspects of creativity and students' literacy ability. Creativity and literacy skills have been the foundation that all people of Indonesia should master, because both can lead the people of nation towards their best progress. In other words, an individual's creative sense and literacy ability can be a measuring parameter for the education quality that will synergically determine the quality of human resources. More specifically, individual's literacy ability can either be found in their ability in reading and writing. Reading and writing are activities that involve creativity, because these two language skills are creative activities. Reading and writing are like two sides of a coin that cannot be separated and influence each other. Therefore, reading and writing must be provided in an integrated manner (Ismayanti, 2017).

Productive literacy is defined as the activity in producing literary works through writing in part of providing knowledge of understanding. IT-based productive literacy is intended to revolutionize teachers' mentality towards their knowledge recipients in producing the digital-based of the Indonesian language knowledge. The form of movement to intensify IT-based productive literacy for teachers, among others, *Sagusatab* (one teacher one tablet), *Sagusamik* (one teacher one comic), *Sagusablog* (one teacher one blog), *Sagusanov* (one teacher one innovation), *Sagusaku* (one teacher one book), and *Sagusakti* (one teacher of one KTI) (Hairul, 2017).

The idea of media literacy into education was inspired by the 21st Century Learning Framework which reflected the concept of digital citizenship, namely the provision of skills in media literacy as a way of supporting global citizen development. The concept of media literacy has actually begun to be practiced in the national curriculum and literacy movement at every level of education from elementary to high school. Therefore, it a right time for students to be provided with knowledge of media literacy in the world of education starting from the curriculum, teaching and students given the knowledge of the importance of media literacy. This is applied as a form of literacy culture development in the education world as well as anticipatory and critical steps towards information chaos in the technological era. (Ainiyah, 2017).

Balfas (2008) develops literacy skills through context-based literary learning. Contextual based learning has been tested to find out the level of excellence of students, both on learning outcomes and other cognitive aspects, such as high thinking skills, even on attitudes and behavior. The five forms of learning literature with contextual methods are the realization of relationships, experience, application, cooperation, and transfer. The purpose of this literary learning activity is to apply learning outcomes in internalizing and facilitating students' practical needs. For example, a drama art that has been composed can be followed up by staging it. Poetry, short stories, and novel composed by students can be followed up with exhibition activities, posting them on wall magazines, or published in the school magazines, in addition to submitted as literary writing competitions.

Competition in the field of science and technology is a great opportunity for young intellectuals to develop their competence and potential. However, the strength of youth lies in the ability to think that is idealistic, fresh, and not blunt. Invigorating literacy culture by actively reading, writing, being an opinion leader, activating research, and mastering English is the right way to hone critical power, ground discourse, and overcome problems, both domestically and globally. Syahriyani A, 2018

Scientific learning can improve the profile of students' scientific literacy skills on aspects of competence and aspects of knowledge on environmental pollution material (Asyhari, 2015). This scientific literacy-based learning has an effect on improving student learning outcomes and can increase student activity. Haristy D R et al, 2013

Literacy has a significant role in creative-productive learning. These roles include (1) literacy movements in elementary schools are able to foster critical thinking skills that are indispensable in the application of creative-productive learning, (2) literacy skills are needed in exploration activities in creative-productive learning by reading, writing, sorting information to solve problems and find new concepts, (3) literacy skills will empower students to explore, observe, interview, conduct experiments, and be wise in sorting information from various sources so as to increase the effectiveness of the application of productive creative learning in Schools. Purwo S, 2017

The School Literacy Program (SLP) is an overall effort to make schools a learning organization whose citizens are literate throughout their lives through public involvement. The general purpose of School literacy program is to develop students' character through the cultivation of a vocational high school literacy ecosystem that is realized in literacy movements in vocational schools so that they become lifelong learners. The purpose of SLP is to develop the character of vocational school students, building a school literacy ecosystem in vocational schools, making vocational schools a learning organization, practicing knowledge management activities in vocational schools maintaining the sustainability of literacy culture in vocational schools (Widyani, et al, 2016)

The stages of implementation of LSP are by growing interest in reading through 15 minutes reading activities (Regulation Education Ministry of Education and Culture No. 23 of 2015), Improving literacy skills through activities to respond to enrichment books and improving literacy skills in all subjects using enrichment books and reading strategies in all eyes lesson.

In applying LSP, various interventions and habituations are carried out for the benefit of families, schools and communities. Among the interventions that can be carried out is by referring to the Education and Culture Regulation of the Ministry of Education No. 23 of 2015 concerning the development of characteristics, carried out through various trainings and seminars, the same thing concerning habituation through demonstrating both good character and discipline by principals, teachers, and other school residents as the first step in habituation. The

LSP at the Vocational School covers a variety of practical activities and can be done in vocational schools, by socializing the following: (1) improving reading movement as a movement which aims at educating the nation through reading which consciously carried out by all school residents . Each students, is therefore, guided, accompanied and directed to do independent reading activities, namely reading books or other non-learning resources, which can basically be done through a series of supporting activities as follows; A. Familiarize reading regularly at least 15 minutes before learning activities. b. Develop collective reading activities both between teachers and students (with the teacher model being an example). c. Fostering individual's awareness in reading literary works by writing down a list of the reading books, there needs to set up a reading program, i.e., through a continuous silent reading which is often abbreviated as SSR), with the rules: 1) civilizing reading at every opportunity; 2) get used to discussing with books that have been read, rewriting or making reviews, and presentations; and 3) making works or writing impressions or summaries after reading (the results are used for the title of the work). d. Plant a mading that enlivens the bulletin or student magazine in each school. e. Require every teacher in the field of study to apply discussion and presentation methods to several learning activities. f. Provides class book angles. g. Documenting the students' work (short stories, poetry, etc.) into book form. h. Giving students about non-academic awards for reading habits. I. Hold literacy celebrations and exhibitions throughout the year.

One of the subjects in Vocational High School that needs to be encouraged with the ability of literacy are creative and entrepreneurial product subjects, these subjects have competencies, among others: Students can carry out specific tasks using tools, information, and work procedures that are commonly done and solve problems in accordance with the work field of creative and entrepreneurial products (CEP), students can display performance under the guidance of measured quality and quantity in accordance with work competency standards. Students can demonstrate the skills of reasoning, processing, and presenting effectively, creatively, productively, critically. Independent, collaborative, communicative, and solutive in the abstract realm related to the development of what he learned in school, and students can be able to carry out specific tasks under direct supervision. The material in this CEP includes; definition of entrepreneurship, business opportunities, intellectual property rights, design and packaging concepts, work processes, worksheets, cost calculations, testing, production, etc. Therefore, in this CEP course high thinking skills are needed, which include analytical, synthesis, evaluative, critical, imaginative, and creative abilities. From the explanation above, in this study will discuss the influence of literacy in learning on students' creativity in creating product design concepts in CEP subjects.

Method

In the Mixed methods research design is a procedure to collect, analyze, mix quantitative and qualitative methods in a study or a series of studies to understand research problems (Cresswell & Plano Clark, 2011). The basic assumption is the combined use of quantitative and qualitative methods. Based on these assumptions, provide a better understanding of the problem. The design starts with quantitative data, after that collects qualitative data to help explain or elaborate on quantitative results. The thinking background for this approach is quantitative data and the results provide an overview of the research problems more analysis, especially through qualitative data collection is needed to refine, expand, or explain the general quantitative picture.

The research subjects were students of class XI DPIB B of SMK Negeri 2 Surakarta, amounting to 32 students. The research data includes the results of questionnaires from students about literacy, questionnaires from teachers about the implementation of literacy, the work of students in the form of creative product design concepts and literacy supporting data from schools. How to collect data with questionnaires from respondents, namely students and teachers, observation and documentation of supporting data in schools about literacy. Data analysis for the data of the results of questionnaire students' literacy ability using regression analysis, while the data from the questionnaire from the teacher about the implementation of literacy in schools using qualitative analysis.

Table 1. Questionnaire grid for students

No	Question
1	Intensity of reading a book before learning
2	Types of books that you have
3	Types of books that have been read
4	Number of books owned
5	Types of books that are preferred
6	Writing a book
7	Interest in reading
8	Time / duration of reading books in a day
9	Interest in reading newspapers
10	Interest in reading online newspapers
11	Places to look for teaching materials
12	Types of learning resources at school
13	Intensity read reading in the library
14	When you come to the library in one semester
15	Books in the library make love to read
16	Interest in reading material, stories, information online on the internet
17	Interest in reading story books such as Harry Potter, the number of volumes that have been read
18	Types of story books that you like, the number of volumes you have read
19	Joint reading programs at school before learning
20	Joint reading sessions at school before learning

Table 2. Questionnaire grid for teachers

No	Question
1	The existence of a reading corner / classroom book corner
2	Existence reading corner
3	Implementation of reading movements 15 minutes before learning (according to Minister of Education and Culture number 23 of 2015)
4	Activities of students responding to the enrichment book TO improve literacy skills.
5	Reading strategies in all subjects in order to improve literacy skills
6	Culture of reading together for teachers and students (the teacher is an example).
7	The movement to discipline reading literary works to completion by making a list of books that have been read
8	Culture enlivens the mading and / or bulletin / magazine of students in each school.
9	The obligation of each teacher in the field of study to apply the method of discussion and presentation to several learning activities.
10	Documentation of students' work (short stories, poetry, etc.) into book form
11	Students writing in the newspaper
12	Non-academic awards for students' reading habits
13	Celebrations of literacy throughout the year and exhibitions.
14	e literacy tools
15	Electronic teaching materials
16	Appreciation of art and culture

Results and Discussion

Student literacy skills

Hypothesis testing of students' literacy abilities conducted by simple linear regression analysis obtained regression equation:

$$Y = 517 + 0.607 X$$

X = independent variable (literacy ability)

Y = dependent variable (creative product design concept)

And the regression value (r) is 0.91 which means that students' literacy skills have a high influence on the results of creative product design concepts.

Implementation of literacy in schools Based on data from the teacher's information that the implementation of literacy

Facilities of reading corner / classroom book corner are available, reading corner has been actively used but now decreases, reading movement 15 minutes before learning (according to Regulation Education Ministry of Education and Culture No. 23 of 2015) regulations have not been implemented, to improve literacy skills there are activities of students responding to enrichment books, In order to improve literacy skills, there is a reading strategy in the subject, but not all of them. There is no culture of reading together for teachers and students (the teacher becomes an example). There is no discipline to read literature until it is finished by making a list of books that have been read. There is a culture of enlivening the making and / bulletin / magazine of students in each school. There is an obligation for every teacher in the field of study to apply the method of discussion and presentation to several learning activities. There is no documentation of students' work (short stories, poetry, etc.) in book form, There is no paper of students published in the newspaper, There is no non-academic award for students' reading habits, There is no yearly literacy celebration and exhibition, There are facilities e literacy, There are electronic teaching materials, There is no appreciation of art and culture. Based on information on the application of literacy in schools, only around 60% has been implemented. It can be concluded that the implementation of the school literacy program has not been implemented optimally.

Based on library reviews

The library has library management, which includes buildings, library materials, labor and services. Based on the National Standard Library, library building area of SMK Negeri 2 Surakarta is still not effective, because the building with an open service system or serving the public only has an area of 183.7m², in addition some rooms are less than area 5m². Based from the aspect of the number of library materials, a comparison of the collection of public works or fiction books by 23% and non-fiction books relating to the curriculum by 77%. The library also does not meet library management standards according to IFLA / UNESCO, which is caused by one of them in the aspect of library building that is not designed to meet the needs of visitors with disabilities. Pratama, AS, 2018.

Based on the results of research that students' literacy abilities, especially information literacy, data literacy, digital literacy, technology literacy are very influential on learning and creativity, especially creative products. For that, it needs to be developed and preserved by

providing facilities such as implementing the literacy school program according to the SLP guidelines and providing facilities and facilities that are easy to access literacy.

Conclusion

Students' literacy skills have a high strong positive influence on learning outcomes, especially creative product design concepts. As for the influencing, among others, students' self-ability about literacy, supporting facilities to access literacy which includes the implementation of school literacy program and library facilities.

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