

The potential of new skills competencies in the field of games at Vocational High School

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Abstract—Vocational High School is a formal education that organizes vocational education at the senior secondary level which aims to prepare individuals to be ready for work. In this 4.0 industrial revolution, Indonesia needs a lot of human resources. The game industry has grown by 9-12%. This shows that there is an opportunity in this gaming industry. The gaming industry is a mix of art and technology. Therefore, people who are skilled in the arts and technology are needed. This research method uses descriptive methods and qualitative analysis. Reported by CNBC (2019), Bekraf requires a digital workforce of around 600 thousand per year and this cannot be fulfilled. This shows the high demand from the digital industry. The survey results released by Bekraf show that the game industry is an industry that is aggressively innovating. There are also very many game enthusiasts in Indonesia. Game players from in Indonesia are ranked 16 in the world. In 2015, high school graduates or equivalent dominated the workforce in the creative industry, especially digital. This shows that Vocational High School graduates have a great opportunity to develop the game industry in Indonesia.

Keywords: *Vocational High School, Game Developer, Competence of Skill*

I. INTRODUCTION

Vocational High School is one form of formal education unit that organizes vocational education at the secondary education level as a continuation of junior high school. Unlike general education, vocational education aims to prepare individuals to be ready to work. In accordance with Regulation of the Minister of Education and Culture (Permendikbud) Number 10 of 2017, namely “The implementation of Vocational High Schools aims to prepare students to have skills / expertise in certain fields so that they are ready to enter the world of work as productive workers and are able to develop themselves to create jobs for themselves through entrepreneurship”.

Based on these objectives, the results of an educational process at a Vocational High School must be able to meet the needs of the world of work. Thus, Vocational High School must be able to become a dynamic and adaptive forum in order to be able to keep up with the development of the industrial world at the local, national and global levels because it must

refer to the needs of the labor market (demand driven) which tend to fluctuate and change so that the Vocational High School system itself is like “aiming at a moving target” (Ace Suryadi, 2010).

The needs of the labor market itself are of course directly proportional to consumer needs and economic developments that occur. In the last decade, a significant increase has occurred in the field of technology along with the rapid development of technology in various aspects of human life. One of the impacts is on the industry which resulted in the birth of the wave of the Industrial Revolution 4.0, the birth of this wave of the Industrial Revolution 4.0 affects the needs of the world of work for the necessary human resources.

So that in the aspect of education, especially vocational education which is so close to the industrial world, it must undergo changes due to the emergence of new industries or the increasing needs of a particular industrial sector. One of the growing and emerging industries is the game industry.

According to data from the Indonesian Game Association (AGI) in 2020, there were 89 game companies either focusing on game development or as game publishers. This data is supported by Kominfo data regarding the growth of the game industry, which experiences growth of 9-12 new industries per year.

Seeing the number of industry availability and the development of the industry that occurs, it can be seen that there is an opportunity for the need for work shares or human resources to meet the needs of the game industry. Meanwhile, the game industry is not a software industry (O'Donnell in Maulana, 2020). Thus, it can be said that the game industry is a unique and special industry because it is a combination of art and technology.

Therefore, skilled human resources and specialists are needed in their fields because this industry is actually different from the software industry, information technology or the like so that more skills are needed besides software design skills. This can be seen from the division of labor in a game industry house which generally consists of: Game Developer, Game 2D Artist, Game Designer, Project Manager, Game Producer, Animator, Game 3D Artist, Story Writer, Creative Director, Game Audio Engineering.

Seeing the opportunities that exist in the availability and development of the game industry in Indonesia with the availability of supply for its human resource needs, an opportunity arises for the birth of a new expertise program at Vocational High Schools targeting the fulfillment of human resource needs in the game industry. Therefore, the objectives of this research include:

1. Knowing the process of forming new expertise competencies
2. Knowing the distribution and area of the game industry
3. Knowing the urgency of the birth of new expertise competencies in Vocational High Schools to fulfill the needs of the game industry's human resources, especially in potential areas.

II. METHODS

This research uses a descriptive method with qualitative analysis, where data related to the formation of Vocational High School expertise competencies, as well as the distribution of game industry areas are described in order to get a picture that is in accordance with the research objectives.

Through literature study, data relevant to the topic of discussion is collected through various reading sources such as encyclopedias, books, journals, and the internet. The results of the data collected will be interrelated and analyzed to obtain important information about the urgency of the birth of a new Vocational High School expertise program in fulfilling the game industry's human resources and data on the distribution area of the game industry.

III. RESULTS

Along with the dynamic industrial world, also the industrial revolution 4.0. Where in the industrial revolution 4.0 is characterized by technology that begins to integrate closely with humans, for example robots, quantum computing, biotechnology, vehicle automation, the internet, virtual and physical systems that become one unit, etc. New professions and jobs are also emerging. New jobs related to the digital world include; digital marketing, video creators, data analysts, interface designers, etc. These new digital-related jobs are in high demand and growing rapidly in Indonesia.

Reported by CNBC (2019), the Creative Economy Agency (Bekraf) urgently needs a digital workforce of around 600 thousand people per year and still cannot be fulfilled. This shows that the large demand from the digital industry needs to be taken seriously by the Indonesian government. Because this digital industry sector is a promising opportunity for Indonesia to improve the economy. Because based on a survey conducted by Bekraf in 2015, the creative economy sector managed to contribute a Gross Domestic Product (GDP) of 852.24 trillion or around 7.38% of the total GDP.

In this case, efforts to increase and meet labor needs can be supplied from several sectors, one of which is the education sector. By encouraging education providers to improve the ability of graduates and also always follow the development and needs of the industry, of course this will be directly proportional to the absorption of graduates from various levels or levels of education. Especially in vocational education, both at the secondary school level and higher education level.

According to (Bruri, 2017), the nature of vocational education must adjust to the needs of the world of work which causes vocational education to be more flexible and must quickly adapt to changes. In responding to the rapid changes in the digital industrial world, vocational education, especially at the secondary level through the Ministry of Education

and Culture, must carry out various programs that support the development of expertise in accordance with the development of the industrial world. With that, the President issued INPRES No. 9 of 2016 concerning the revitalization of VOCATIONAL HIGH SCHOOL, according to his instructions to the Minister of Education and Culture to make a map of Vocational High School development and improve links and matches with the industrial world.



Figure 1. Special survey results for creative economy

It can be seen in the survey data released by the Creative Economy Agency in 2017, showing that in 2015 the educational status of the Indonesian workforce was still highest in high school graduates. That means the absorption of graduates in the field of creative economy, especially digital, is more by high school / vocational high school students. This makes vocational high school graduates have a great opportunity to fulfill the labor needs in Indonesia's digital industry which is still lacking. The formation of new expertise competencies in Vocational High School itself does require an in-depth analysis of the Main Economic Activities (KEU) of each region. According to (Siswantari, 2015), the absorption of Vocational High School alumni in the job market means that income is created for Vocational High School alumni, which means that it will encourage the income of the Gross Regional Domestic Product (GRDP).

The opening of this expertise competency must also pay attention to the spectrum of expertise of vocational secondary education (Kemendikbud RI, 2016), this new expertise competency will have to go through various stages which ultimately is the determination of the opening of new expertise competencies with the following process diagram, show in Figure 2.

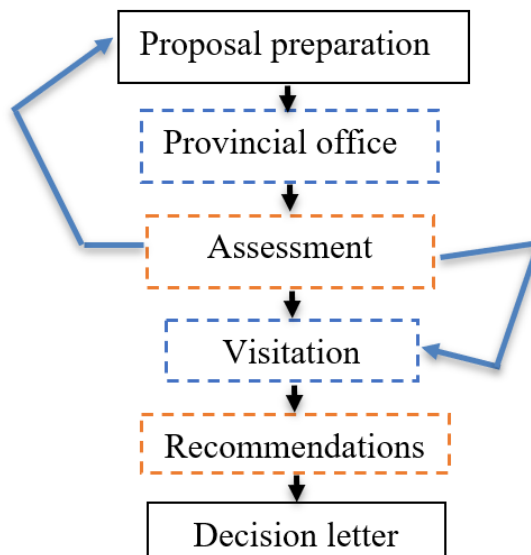


Figure 2. Diagram of establishing new expertise competencies process in Vocational High Schools

III. DISCUSSION

The establishment of new skill competencies in Vocational High School can also be described in the following Figure 3.

KETERANGAN	DOKUMEN
1. Penyusunan usulan pengajuan pembukaan kompetensi keahlian baru	1. Naskah Kajian 2. Kurikulum 3. Jumlah dan Kualifikasi pendidik dan tenaga kependidikan 4. Sarana dan prasarana 5. Pembiayaan pendidikan 6. Sistem evaluasi dan sertifikasi 7. Dukungan industri
1. Usulan diajukan ke Dinas Pendidikan Provinsi	1. Naskah Kajian 2. Bukti pengajuan usulan
1. Usulan dinilai oleh Tim Penilai/Verifikasi	1. SK Penetapan Tim Penilai 2. Kriteria penilaian
1. Visitasi Tim Penilai/Verifikasi	1. Laporan Visitasi
1. Tim menerbitkan rekomendasi kepada Kepala Dinas Pendidikan Provinsi	1. Hasil Penilaian 2. Rekomendasi
1. Kepala Dinas memutuskan penetapan pembukaan kompetensi keahlian baru	1. Surat usulan penetapan 2. Hasil Penilaian 3. Rekomendasi
1. Penetapan Pembukaan Kompetensi Keahlian	1. SK Penetapan pembukaan Kompetensi Keahlian

Figure 3. Opening new expertise competencies process in Vocational High Schools

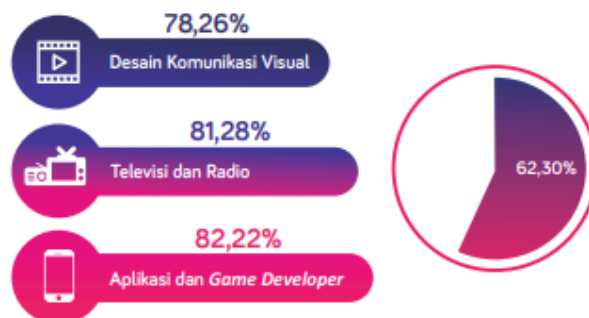


Figure 4. Results of the Creative Economy Special Survey

The interesting thing in the survey results released by Bekraf is that the game developer industry is the most intensively innovating or proved by statistics is around 82.22%. Because it cannot be denied that game enthusiasts in Indonesia are quite high and continue to grow. According to data reported by lokadata, in 2017 there were around 43.7 million online game players in Indonesia. They contributed revenue of around 880 million US dollars. Online game players in Indonesia are also ranked 16th in the world.

This huge market makes a lot of jobs needed. In this field, several jobs can also be developed which will be provided by a company that manages this gaming field. The trend of working in the field of start-ups or companies that are identical to digital is quite popular among the millennial generation. This is because the age percentage of workers in this field is age 15-24 at 17.8% and age 25-59 years at 75.5% (Creative Economy Agency, 2017).

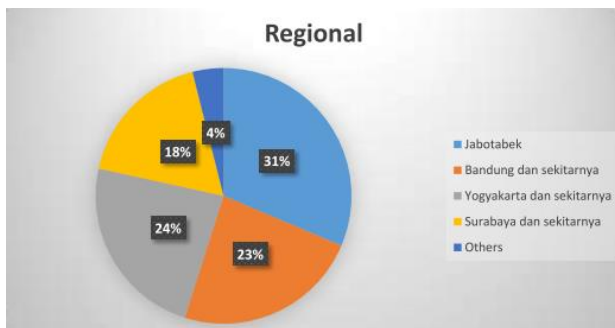


Figure 5. Distribution of game developers by region

Based on the 2015 mapping data of the Indonesian game industry released by (Kominfo, 2016), the most regional distribution of game developers in Indonesia is in the Jabodetabek area with a percentage of 31% above Yogyakarta and Bandung.

It shows that when referring to the principles of the formation of Vocational High School expertise competencies discussed earlier, these areas can be considered. Then seeing from this field of work is prioritizing skills, then the organizers of vocational education at the secondary school level must pay more attention to certification of expertise and also training in accordance with the field of work. The process of standardization and curriculum creation must also involve companies engaged in gaming so that there is a symbiotic mutualism. If Vocational High School graduates can meet the standards of the gaming industry, the possibility of graduate

absorption will be greater and will have an impact on improving the Indonesian economy.

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