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## Vocational Education Curriculum: Between Vocational Education and Industrial Needs

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### ABSTRACTS

This study aims to describe curriculum development in vocational education based on the development of Information Technology and the needs of the industrial world. This study used the literature review method from scientific articles in ten years (from 2011 to 2021) using several specific keywords to obtain the data needed. The results of this study showed that vocational schools in Indonesia need to form graduates who have soft skills and hard skills that have a match or conformity with the business and industries. Thus, vocational education graduates when entering the real world will not have difficulties adapting to the development of technology in the industry. Based on this study, any incompatibility in the community and special skills can be avoided through the implementation of a vocational education curriculum.

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## 1. INTRODUCTION

Vocational Education is education with a curriculum in it that is tailored to the fields and expertise of students (Suryani & Hamdu, 2021). Vocational High School is one of the vocational schools in Indonesia which plays an important role in producing qualified graduate candidates who are ready to work, equipped with knowledge, skills and work attitudes in accordance with their fields and in accordance with the needs of the Business World and the Industrial World (Yahya et al., 2017; Patmanthara & Hidayat, 2018; Pambudi & Harjanto, 2020).

Along with the development of Information Technology and the industrial world, the curriculum must also be adjusted to the times (Billett, 2003; Retnawati et al., 2016; Vähäsantanen, & Eteläpelto, 2011; Hodge, 2016; Wheelahan, 2015). Vocational High School is required to prepare graduates according to industry needs so that they can keep up with market demands that continue to grow and change. Thus, vocational schools must adhere to the 'Link and Match' policy which produces insights into the future with quality, excellence, professionalism, added value, and economy in providing vocational education (Morris, 2013; Tran, 2013; Yanming, 2017). Are Vocational Schools able to adapt their curriculum to the industrial world? In preparing graduates who are in accordance with the world of Industry, adequate facilities and infrastructure are needed, such as practical facilities to support the implementation of vocational education (Morris, 2013; Tran, 2013). However, there are not many graduates who are ready to work, because the school curriculum is different from the industrial world. Will the curriculum that develops following the industrial world produce ready-to-work graduates compared to the current curriculum? What are the inhibiting factors in implementing curriculum development in accordance with developments in Information Technology and the industrial world? (Rahdiyanta et al., 2019; Main et al., 2020).

The role of teachers in the curriculum development process is very important, and teachers who have direct experience in the industry will be great help to prospective graduates (Oke & Fernandes, 2020). This study aims to describe curriculum development in vocational education based on the development of Information Technology and the needs of the industrial world.

## 2. METHODS

This scientific article is based on the Literature Review method with a Synthesis Matrix. Literature Review is a Literature Review method that identifies, assesses, and interprets all findings on a research topic, to answer pre-defined research questions. In the Synthetic Matrix, comparing the objective data, methods, samples, findings of similarity, and uniqueness from various sources in 2011-2021. Then it can be analyzed through synthetic matrix table to be analyzed according to the need to answer the research questions that have been made previously.

## 3. RESULTS AND DISCUSSION

The learning system, then education and education personnel, students and educational units, where this system is connected to one another, so that a new literacy emerges, namely digital literacy, technological literacy and human literacy (Wardina et al., 2019). In the face of the industrial revolution 4.0, the need to crystallize curricula, teaching materials, teaching techniques to create where students can innovate, be creative, imaginative in using technology, there is an open online collaboration globally that is carried out flexibly.

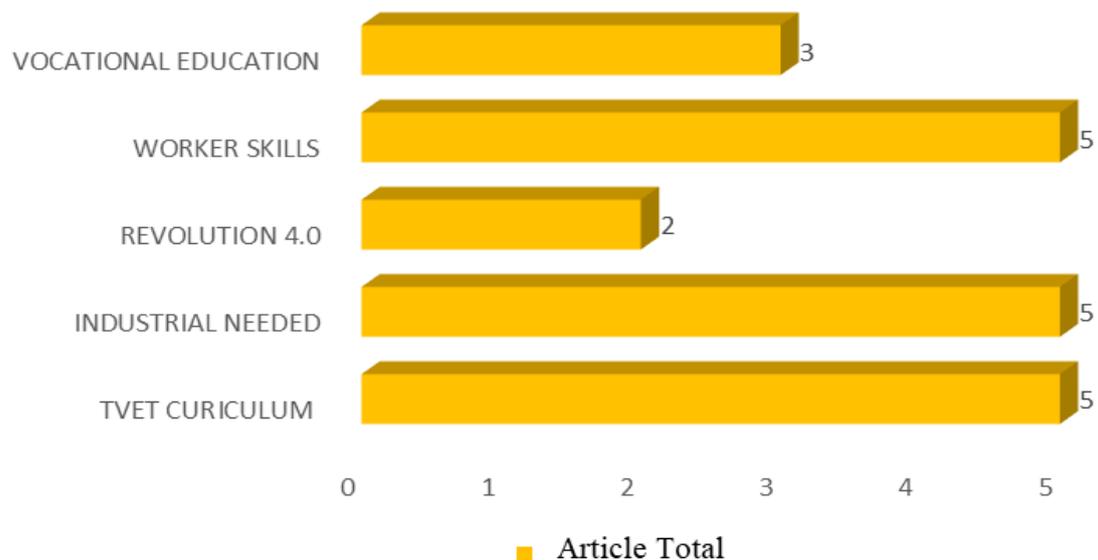
The role of teachers in vocational education is inseparable from the changes in learning in the era of R1 4.0. This must be able to keep up with technological developments. However, if people do not follow, people will certainly experience lags.

Teachers must also have competency according to vocational, teachers must have teaching design, teaching and learning guidance, research on teaching content, research on teaching methods, career and interpersonal relationship guidance, management support for school and class, cooperation (Pantić & Wubbels, 2010). Educators in the face of the 4.0 era must also be able to respond to change, act as a companion for students to find and create independent learning, besides that educators must develop their skills in managing student data, career guidance through the use of big data (Sagita & Khairunnisa, 2020). Here it can be seen that even though there are technological developments, changes in the face of the industrial revolution era, the teaching role is still needed, but the role must also be adjusted, such as being a facilitator, as a companion for students. In this study used some scientific article as shown in **Figure 1** and **Table 1**.

Lack of facilities and infrastructure that hinder the process of direct practice in industry, this makes it difficult to align school curricula with developments in the industrial world. As well as teachers who have no direct background or experience in the industrial world.

#### **4. CONCLUSION**

With the development of information technology and the development of the industrial world, vocational high schools are required to align school curricula with industrial developments. However, due to limited facilities and infrastructure, it hampers the direct practice process in the industry. Another factor is that teachers who teach in vocational high schools do not have direct background or experience in the industrial world. If the school curriculum can be harmonized with developments in Information Technology and the industrial world, then unemployment at the vocational high school level will decrease, the resulting graduates will have a work-ready attitude in accordance with their field of expertise. It can be ascertained that a curriculum that is aligned with the development of Information Technology and the world of industry will succeed in producing graduates who are ready to work. Thus, the alignment of the curriculum in accordance with developments in information technology and the industrial world has not been implemented. Alignment of the curriculum with the development of information technology and the industrial world can be realized if the facilities and infrastructure are adequate, have sufficient costs to carry out direct practice in industry, and have teachers who have direct experience in the industrial world.



**Figure 1.** Total article used and keywords.

**Table 1.** Most relevant article synthesis matrix.

Experiment		Control		Experiment		Control	
Total Students	%	Total Students	%	Total Students	%	Total Students	%
0	0	1	4	0	0	0	0
0	0	0	0	0	0	0	0
3	12	2	8	0	0	0	0
3	12	7	28	0	0	1	4
13	52	8	32	3	12	9	36
5	20	6	24	9	36	7	28
1	4	1	4	13	52	8	32
25	100	25	100	25	100	25	100
6	24	7	28	22	88	15	60
19	76	18	72	3	12	10	40
69		67		89		83	
0.646 Experimental class				0.040 Control class			
0.7 High				0.5 Moderate			

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**6. AUTHORS' NOTE**

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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