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### Relevance of Vocational High School Curriculum with the Industrial Needs of Making Batik Competences

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#### ABSTRACT

This study aimed to identify the relevance of vocational high school curriculum with the industrial needs particularly related to batik making competences. The data collection was carried out through a survey to 35 batik industries within Priangan area, West Java province, Indonesia. The instrument employed was a questionnaire consisting of batik making competence units based on *Standar Kompetensi Kerja Nasional Indonesia (SKKNI)*, Indonesia National Performance Competence Standards. The respondents of the study were owners of the batik industries requested to measure competence standards on SKKNI in relation to the competences needed within batik industry. The results of the study showed that in general, the competences on the SKKNI taught in vocational high schools were relevant to the competences needed in the industry. There were a few competences classified irrelevant which were Canting and stamping tools. The findings indicated that the competences taught in the schools are in accordance with the standards set in the SKKNI. It is expected that teachers are able to strengthen the competences taught in schools and regularly coordinate with the industry to keep the curriculum updated.

#### 1. Introduction

Curriculum relevance is one of the processes of synchronizing the existing curriculum with various needs within the society (Feroz, 2018), the industry (Thanikachalam, 2015; Thapa, 2018), and the development of technology (Muktiarni et al., 2018). Conceptually, the curriculum relevance should be based on the principles of “refer to what”, “refer to how”, and “relevant when” (Doherty, 2015). The curriculum relevance is a part of curriculum sustainability (Chen, Wu, & Tsai, 2018), curriculum evaluation (Ziebell & Clarke, 2018), and curriculum mapping (Khoerunnisa et al., 2018). Some of the commonly used terminologies in curriculum relevance are “curriculum in line with” (Ellahi, Ali Khan, & Shah, 2019) and alignment curriculum.

Alignment curriculum is one of the most popular and most frequently used curricula in the context of curriculum relevance. It also is an evaluation process between the documents of the intended and enacted curricula (Kurz et al., 2010). Alignment curriculum discusses the relationship

between learning goals (Wijngaards-de Meij & Merx, 2018) and learning outcomes (Mølstad & Prøitz, 2019). Additionally, alignment curriculum talks about relevance between the contents in the national education standards and those in the subject curriculum (Reitsma, Marshall, & Zarske, 2010).

National educational standards of a country should be a reference of curriculum content development. The content standards of a curriculum describe the competencies to be taught by teachers and to be owned by students (Noddings, 2013). National standards of curriculum should also pay attention to the needs of local schools, culture, and identity of an area (Ditchburn, 2012; So, Kim, & Lee, 2012). A nationally standardized curriculum should be evaluated periodically to seek relevance with the industrial needs reflected in the field (Kunyk et al., 2016). Curriculum national standards should also consider the aspects of teachers' competencies which will become the core of learning (Smith, Anderson, & Blanch, 2016).

In Indonesia, the national standards of the curriculum are written in the so-called *Standar Kompetensi Kerja Nasional Indonesia* (SKKNI), which means Indonesian National Performance Competence Standards. SKKNI is a reference of determining competence standards, including those of learning batik in vocational high schools (VHS). Learning or making batik in VHS is a competence where students need to garnish fabrics with a certain pattern. In short, the process of making batik consist of (1) Creating a pattern on a piece of paper; (2) Moving the pattern on the fabric; (3) Writing with waxes on the main line of the pattern; (4) Filling out the pattern on the main ornament with lines or dots; (5) Dyeing technique dab on the desired pattern for a given color; (6) Coloring with overall dyeing technique of batik cloth; and (7) Removing waxes with hot water mixed with soda ash (Widiaty, Riza, & Abdullah, 2015). According to SKKNI, there are three main competences of batik comprising preparation, processing, and finishing phases. Each competence contains competence units which in details are presented in Tables 3, 4, and 5.

This study aims to identify the relevance of VHS curriculum majoring in batik and its industrial needs. It is expected that the results are able to give description on the competence priorities needed in the industry to be an evaluating material for future curriculum relevance. With the existence of link and match between the competences taught in VHS and the industrial needs, there will be a more ideal reference and guidance of curriculum. Graduates of VHS majoring in batik are easily adaptable within the industry due to their competences and expertise in accordance with the industrial needs. The main reference used for the relevance analysis of the curriculum are competence units in the documents of batik SKKNI.

## 2. Method

This study aimed to identify the curriculum of VHS majoring in batik between the competences taught in schools and the needs in the industry. The main respondents of the study were the owners of batik industry in Priangan areas, West Java province, Indonesia. The names of batik industries serving as research subjects in this study are described in Table 1 (Yan Sunarya, 2016).

Table 1. Names of batik industry in the areas of Priangan, West Java, Indonesia

NO	NAME OF INDUSTRY	ORIGIN	NO	NAME OF INDUSTRY	ORIGIN
1	Batik Pancawati	Kota Bogor	19	Namira Batik	
2	Batik Tradisiku		20	Batik Pudini	
3	Rukun Batik Ciamis	Kabupaten Ciamis	21	Batik Rasya	
4	Rumah Batik CK (Cicik Kurniasis)	Kabupaten Cianjur	22	Batik Ratna Sari	Garut
5	Batik Nusa Karya		23	Batik R.P.G (Ralisa Putra Garut)	
6	Gallery Menong	Purwakarta	24	Batik SHD	
7	Batik Geulis		25	Batik Sirung	
8	Batik Kenarie	Sukabumi	26	Batik Tulen	
9	Pondok Batik Kreasi Sukabumi		27	Viera Batik & Tenun	
10	Batik Agnesa		28	Lembur batik Cimahi	Cimahi
11	Deden Batik		29	Batik Anggraeni	
12	Dimas Batik	Tasikmalaya	30	Puri Batik "Sekar Putri" Showroom & Workshop	
13	Melinda Batik		31	Rumah Batik Lembang	Bandung
14	Batik Nagariharja		32	Batik Komar	
15	Nanda Batik		33	Hasan Batik	
16	Batik Nurjaman		34	Sanggar Batik Umimay	Sumedang
17	Batik Roni	Garut	35	Batik Nafira	
18	Batik Beken				

The data were collected through questionnaires distributed to 35 batik industry owners in Priangan areas, West Java, Indonesia. The questionnaires contained a number of competence units related to the process of batik making. There were 25 items in the questionnaires consisting of 11 items of batik making preparation competence units, 6 items of batik making processing, and 8 items of final processes of batik making. The data analysis was done by calculating the percentage out of scale of relevance levels with five levels (Ziebell & Clarke, 2018).

Table 2. Criteria of competence relevance analysis

Score	Criteria
1	Very irrelevant
2	Irrelevant
3	In doubt
4	Relevant
5	Very relevant

### 3. Results and Discussion

The results of the data analysis of this study are divided into three main parts which are curriculum relevance analysis in the competences of batik making preparation phase, batik making processing phase, and batik making finishing phase.

#### 3.1 Competences of batik making preparation phase

The results of the data analysis of batik making preparation phase competences comprise 11 competence units as shown in Table 3.

Table 3. Results of data analysis of competences of batik making preparation

No	Competence Unit	Score					Percentage	Mean	Standard Deviation
		1	2	3	4	5			
1	Manual designing of batik pattern	0	0	0	4	31	97,71	4,89	0,32
2	Computerized designing of batik pattern	0	1	1	21	12	85,14	4,26	0,66
3	Batik pattern making	0	0	0	10	25	94,29	4,71	0,46
4	Removing batik pattern by copying	0	1	0	19	15	87,43	4,37	0,65
5	Compounding batik wax	0	1	0	7	27	94,29	4,71	0,62
6	Compounding batik coloring	0	1	0	4	30	96,00	4,80	0,58
7	Canting makers	2	12	2	10	9	66,86	3,34	1,35
8	Printing tool makers	2	12	2	8	11	68,00	3,40	1,40
9	Natural dying by fermentation makers	1	5	5	15	9	74,86	3,74	1,09
10	Natural dying by boiling makers	1	5	2	17	10	77,14	3,86	1,09
11	Supervisors ironing the cloth before batik making processes	0	3	3	19	10	80,57	4,03	0,86

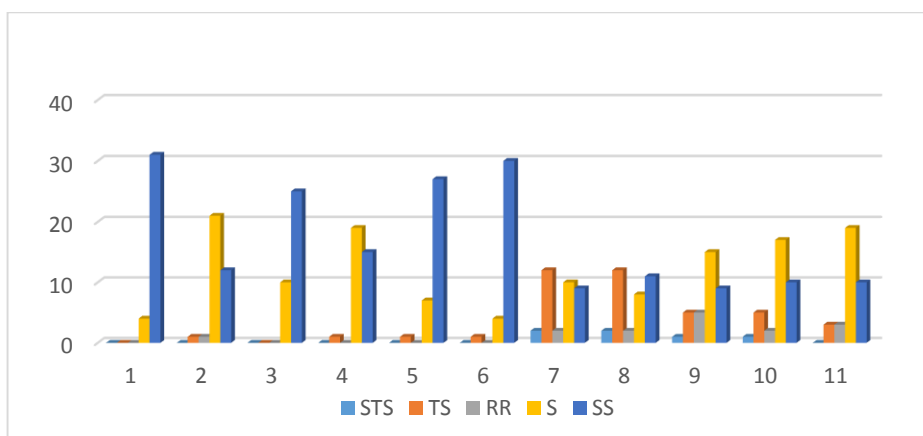


Figure 1. Graphic data of competences on batik making preparation

Table 3 and Figure 1 show the general competences of batik making preparation needed in the industry. However, there are two competences with two lowest percentages which are Canting makers (66.86%) and printing tool makers (68%). This is due to the inconstant use of both the tools; there are only used when there is a new pattern. The second layer lowest percentage goes to two skills including fermented coloring and steamed coloring (74.86% and 77.14% in order). Curriculum relevance should be able to bridge the school lessons and the industrial needs. Every industry has its own standards and expectations; therefore, schools should meet the requirements needed by the employees (Bauer, Brooks, & Sandrock, 2014). If the standards and expectations are not fulfilled, there seems to be a waste of time and energy in the process of teaching and learning.

The rest of the competences have gone above 80% meaning that they are in accordance with the needs of batik industry. To cope with the issue of low competence units, all of the units classified into this category can be combined into one lesson. For instance, both canting and printing tool, which were previously taught for credits respectively, can be integrated into one unit within 3 credits. This way, the rest of 1 credit can be a slot for another competence unit more urgently needed in the industry. Analysis of curriculum relevance in the aspects of skills, values, and attitude are ultimately needed to map out competences relevant the job performance (Young & Conboy, 2013). Therefore, remapping credit hours of lessons gives a lot of benefits in optimizing competences really relevant with the industrial needs.

### 3.2 Competences of batik making processing phase

The results of data analysis of curriculum relevance in the aspects of batik making processing relevant to the industrial needs reveal that there are 6 competence units as shown in Table 4.

Table 4. Results of data analysis of batik making processing competences

No	Competence Unit	Score					Percentage	Mean	Standard Deviation
		1	2	3	4	5			
1	Workers on handmade batik	0	1	0	4	30	96,00	4,80	0,58
2	Workers on printed batik	1	2	0	10	22	88,57	4,43	0,98
3	Workers on walling	0	0	3	12	20	89,71	4,49	0,66
4	Workers on dyed batik	0	0	0	5	30	97,14	4,86	0,36
5	Workers on sparkling batik dying	0	3	1	13	18	86,29	4,31	0,90
6	Workers on natural dying	0	4	2	17	12	81,14	4,06	0,94

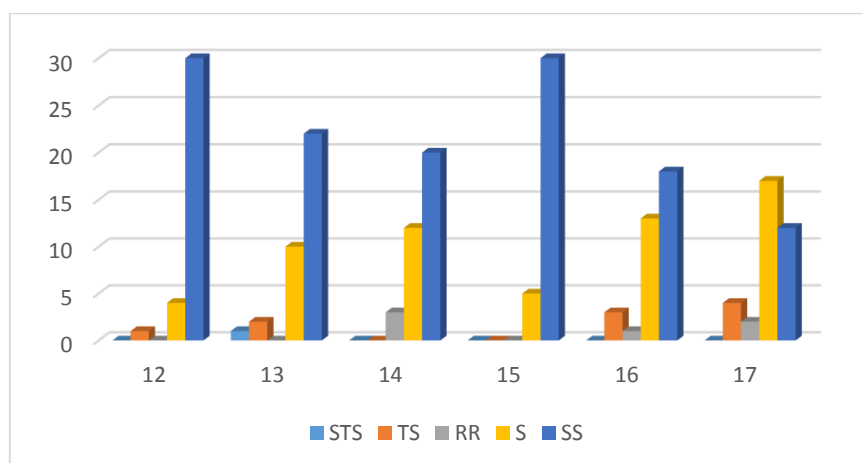


Figure 2. Graphics on competence data of batik making processing

Both table 4 and figure 2 show that each competence unit has percentage higher than 80%. This is due to the fact that the processing phase is something people the industry does every day so that each of the competence units should absolutely be owned by VHS students majoring in batik. It is also shown in Table 2 that all the six competences are categorized into core competences. These core competences are explicitly stated as the main parts of the competence standards in batik making. In this context, the core competence standards have been referring to the needs of the batik industry making them relevant to the principles of industry-driven (Azevedo, Apfelthaler, & Hurst, 2012; Baumann et al., 2014).

### 3.3 Competences of batik making finishing

The results of data analysis of the curriculum relevance in the aspects of batik making finishing face prove that there are 8 competence units as described in Table 5.

Table 5. Results of data analysis of competence units of batik making finishing phase

No	Competence Unit	Score					Percentage	Mean	Standard Deviation
		1	2	3	4	5			
1	Workers on coding	0	0	0	10	25	94,29	4,71	0,46
2	Workers on currying	8	14	5	7	1	48,00	2,40	1,14
3	Supervisors of batik workers	1	1	0	26	7	81,14	4,06	0,76
4	Quality control of batik	0	0	0	24	11	86,29	4,31	0,47
5	Supervisors of batik production process	0	3	1	21	10	81,71	4,09	0,82
6	Supervisors on health and job security	0	4	0	23	8	80,00	4,00	0,84
7	Supervisors on cloth washing and rinsing	0	1	4	21	9	81,71	4,09	0,70
8	Supervisors on dissolving fat on the cloth	0	2	3	20	10	81,71	4,09	0,78

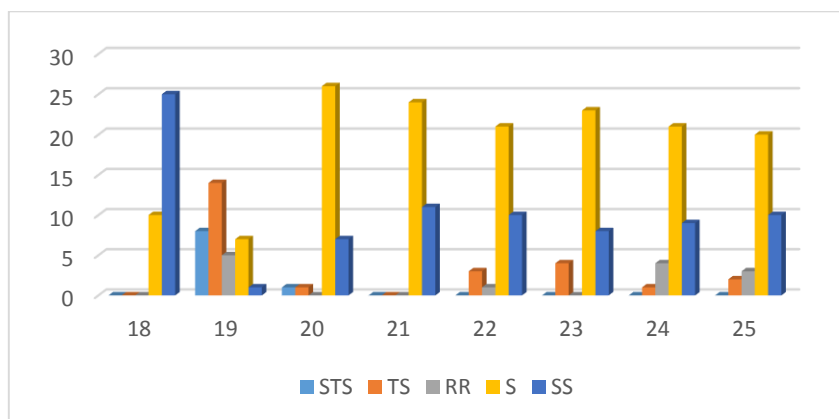


Figure 3. Graphic data of competence units of batik making finishing phase

Table 5 and Figure 3 show that most competence units of batik making finishing phase are above 80% expect for workers on currying which reaches 48%. This is due to the rare use of such technique nowadays in the industry. Therefore, it is recommended that this technique be removed from the curriculum. If it needs to be in the curriculum, it is to be an introductory course so that the rest if the credit hours can be used by other competences unit more commonly used within the industry. The process of reevaluating and reselecting certain subjects based on their importance and priority is a part of gap reduction between competences owned by the students and those needed in the industry (Shyan & Lin, 2013).

#### 4. Conclusion

A relevance analysis between the curriculum implemented in schools and the needs of the industry is obligatory, particularly in the context of vocational high school education where its graduates are prepared for the industry. The relevance analysis will have clear description of competences units relevant and irrelevant with the industrial needs. Therefore, curriculum evaluators will have accurate input to develop future curriculum.

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