Original Paper

Adaptive Curriculum Development on Tourism Vocational Secondary Education

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Abstract

The presence of industrial revolution 4.0 brought various changes and shifts that occurred in industry and had an impact on vocational secondary education which was closely related to industry. This study aims to analyze the curriculum for vocational secondary education in middle of industrial revolution 4.0 era. The method used is literature review through scientific articles indexed in the last 10 years and focus group discussions with teachers, practitioners in tourism sector and curriculum experts. The findings of this study indicate the adaptive curricula as a modified curriculum model that adapts to situations, conditions, and needs in the field. It is necessary to reconstruct curriculum content in Vocational Secondary Education by optimizing cooperation with industry and the world of work. In addition, strengthening the ability of Literacy, Language and Numerical (LLN), Employability Skills (ES), transferable skills (TS) that are integrated in a comprehensive range of subjects are the main assets for vocational secondary education students to be more adaptive in facing and winning the competition for various changes, shifts that occur in the industry and world of work that a very massive.

Keywords

Adaptive curriculum, Tourism, Vocational Students

1. Introduction

The development of one's abilities collectively will shape the character of the nation's civilization. This is in order to educate the nation's life to give birth to individuals who are faithful, cautious, healthy, knowledgeable, creative, independent and democratic citizens (Law No. 20 of 2003). Curriculum as an important component in education (Ermawati & Wagiran, 2019). At the level of implementation, these rights must comply with national standards. Therefore it is necessary to modify or adjust in such a way that the designed curriculum is able to help adjust according to industry needs. The adaptive curriculum

is a curriculum that is modified and adapted or adapted to the needs or conditions, the abilities of students and changes in science and technology (Mzizi, Nompumelelo A., 2014). Adaptive curriculum modification or alignment is applied to the four main components of the curriculum, namely objectives, content, process and evaluation. The industrial revolution 4.0 has brought changes and shifts that are so fast and massive, that the vocational education curriculum needs to adjust responsively to this disruptive phase (Terblanche & Bitzer, 2018).

In facing the industrial revolution 4.0 which is marked by competitive competition and rapid information on all sectors, Indonesia must have strong competitiveness. This is necessary so that the Indonesian nation is able to align itself with other countries. Advances in information and communication technology (ICT) and the era of the industrial revolution 4.0 must be balanced with soft skills (Siswati, 2019). The educational curriculum must be designed to produce capable and ready human resources (Hariyanti, et al., 2020). The abilities that the young generation must have in order to face the 4.0 industrial revolution are the ability to think critically, creatively, innovatively, communicate, work together, and be confident (Tosepu, 2020).

Curriculum policies must elaborate on students' abilities in the pedagogical dimensions, life skills, the ability to live together (collaboration), critical thinking, and creatively. Students must have soft skills, transversal skills, life skills, and skills that are not visibly related to certain occupations and academics

It has also described the development of human life starting in the 21st century in terms of the third wave society and the information society (Toffler, 2011). Such rapid changes in the world must of course be accompanied by educational practices that are relevant to the needs of these changes. Education that is relevant to changing times is education that prioritizes the formation of life skills and soft skills and hard skills. There are four possible models for adaptive curriculum development, namely: duplication model, modification model, substitution model, and omission model. The four models will be further described and studied as follows. They are:
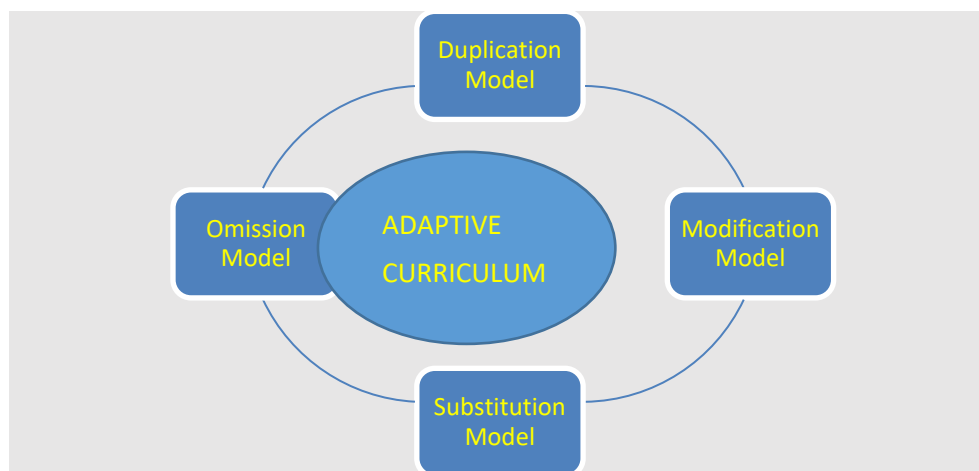

Figure 1. Models of Adaptive Curriculum

1)   Duplication Model. Duplication means imitating or creating. To imitate means to make things the same or the same. The duplication model can be applied to the four main components of the curriculum, namely objectives, content, process and evaluation.

2)   Modification Model. It means to change of the path and or items to improve the fit between the objects. In this case the curriculum is implemented based on some modification by considering purposes to be gained, participants or students who attend, and the environment of learning.

3)   Substitution Model. Substitution means replacing. In relation to the curriculum model, substitution means replacing something in the general curriculum with something else. The replacement model (substitution) can occur in terms of learning objectives, materials, processes or evaluation.

4)   Model. Omission means eliminating. In relation to the curriculum model, omission means an attempt to remove something (part or whole) from the general curriculum. Omission means that something in the general curriculum is not delivered or not given to vocational students. The difference with substitution is that in the substitution there is an equivalent substitute material, while in the omission model there is no substitute material.

Vocational education is very close to industry and the world of work, of course, must pay attention to the needs and demands of the industry (Gamble, 2016; Mukhtar & Ahmad, 2015; Sanders et al., 2016). The tourism industry is the largest contributor to foreign exchange in Indonesia for 2015-2018 as shown in Table 1 below:

Table 1. Total Foreign Exchange in the Tourism Sector

Country	Total Foreign Exchange in Tourism (Miliar US $)			
	2015	**2016**	**2017**	**2018**
Indonesia	**10.761**	**11.206**	**13.139**	**16.426**

Source: BPS, 2018

The conditions shown in Table 1 are the background that should be investigated further in order to prepare competent prospective workers in the tourism sector. Therefore, the vocational education curriculum in the tourism sector must continue to increase the competency capacity of its graduates to be absorbed properly. Competency readiness of vocational education graduates in the tourism sector will be optimal if it is supported by a curriculum that prepares graduates according to various industrial demands and needs. This study aims to find a model of the adaptive curriculum for vocational education in the tourism sector that is responsive to changes and shifts in the tourism industry that have occurred so fast and massive in the era of the industrial revolution 4.0.

In terms of literacy and numeracy skills. Literacy is the ability to read, write, speak and listen in ways that will allow us to communicate effectively to a variety of different audiences and to make sense of

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the world. Reading and writing, when integrated with speaking, listening and viewing and critical thinking, constitutes valued aspects of literacy in modern life. Literacy is a critical component to ensure all students have the best chance to succeed in their studies and everyday life (Kangan Institute, 2021).

It can be defined as general and basic competences. The ability to think about, and with, language and mathematics is needed in a variety of contexts, be it personal, social, or professional. Literacy is the ability to reason using language. Literacy is not only the ability to read, literacy is the ability to analyze a reading and the ability to understand the concepts behind the writing. Meanwhile, numeration is the ability to analyze using numbers. These are two things that will be important in real life. Numerical literacy is the knowledge and skills to: Use a wide variety of numbers and symbols associated with basic mathematics to solve practical problems in a wide variety of contexts of everyday life. Analyze the information presented. in various forms (graphs, tables, charts, etc.) and then use the interpretation of the results of the analysis to predict and make decisions Numeration skills In simple terms, numeration can be interpreted as the ability to apply number concepts and arithmetic operations skills in everyday life. For example at home, work, and participation in community life as well as citizens. Or the ability to interpret quantitative information that is around us. This ability is shown by being comfortable with numbers and being able to use practical mathematical skills to win meet the demands of life. In addition, this ability also refers to the appreciation and understanding of information expressed mathematically, for example graphs, charts, and tables. Those are the basic skills that need to be possessed as skills in order to survive and work in real life in society.

In terms of employability, The International Labor Organization (ILO) defines employability skills as skills, knowledge, and competencies that increase a person's ability to find and maintain a job, develop in the workplace and be able to deal with change, get another job if he wants to quit or be laid off and can return to the world (ILO, 2013). Work easily at different times of its life cycle. In other words, employability is defined as the ability to have skills, knowledge, understanding and personality that make a person able to choose and feel comfortable with his job so that he becomes satisfied and ultimately becomes successful.

Based on the Decree of the Minister of Manpower number 161 of 2015 concerning the Determination of Indonesian National Work Competency Standards for the Education Category for the Basic Class of Education Services in the Field of Standardization, Training and Certification, employability skills are defined as basic abilities that support job implementation, consisting of 8 (eight) aspects, namely: communication, teamwork, problem solving, initiative and effort, planning and organizing, self-management, learning skills, and the use of technology.

There are eight aspects of Employability Skills. They are: (i) Communication skills that contribute to productive and harmonious relationships between professional colleagues and customers; (ii) Team work skills that will contribute to working relationships and productive outcomes; (iii) Problem-solving skills that contribute to producing productive outputs; (iv) Initiative and entrepreneurial skills (initiative and enterprise skills) that contribute to innovative outputs; (v) Skills in planning and organizing

(planning and organizing skills) that contribute to short-term and long-term strategic planning; (vi) Self-management skills that contribute to the growth and self-satisfaction of the profession; (vii) Learning skills that contribute to continuous improvement / improvement and expansion of outcomes and expansion of organizational personnel and operations; and (viii) Skills in using technology (technology skills) that contribute to effective and efficient task execution.

Employability skills or work skills need to be possessed by human resources at all career levels in the world of work. Thus, workers can always work effectively and efficiently, so as to have a positive impact on the progress of the company. This means that only companies whose workers have good work skills can develop properly. The development of the global economy, information and communication technology demands a level of competence that is able to quickly anticipate any changes and developments, so that the demands for work skills continue to develop as well. So work skills must continue to be honed along with these changes and developments. Furthermore, sharpening work skills can be divided in several skills. They are as the following. (i) Hone communication skills. They consist: Speak clearly and directly, without being complicated; Listening carefully to instructions and information; Carefully read and interpret work instructions; Read and interpret safety and security signs; (ii) Hone skills to work in groups (team work skills). They consist: Applying group work to specific situations; Contribute positively to the planning and execution of the implementation; Participate in team decisions; Work cooperatively with others; (iii) Hone problem-solving skills (problem-solving skills). They consist: Analyze the impact or risk on each action; Adjusting work methods in response to changing situations and conditions; (iv) Sharpening initiative and enterprise skills. They consist: Identifying potential risks; Independent in adapting to changing working conditions or differences in work areas; Identify potential efficiency improvements; Identify the potential for business improvement and development; (v) Sharpen planning and organizing skills (planning and organizing skills). They consist: Manage time and priorities for completing work; Identify and acquire the right equipment; Identifying potential risks and preparing appropriate responses; Follow procedures and techniques relevant to the equipment and work performed; (vi) Hone skills in self-management (self-management skills). They consist: Responsible for planning and priority of organizing own work and completing assigned tasks; Monitor your own performance to ensure the job gets done properly and on time; Identify the work standards expected in the workplace; (vii) Hone skills for learning (learning skills). They consist: Learn new ways of working, seek information to improve the performance of people and work documents such as regulations, policies, procedures etc.; Identify equipment characteristics, limitations and technical capabilities, and Learn the causes of risk and ways to eliminate risks; (viii) Hone technology skills (technology skills). They consist: Using technology suitable for work processes, use appropriate technology to monitor and report work progress; Using appropriate communication technology to support smooth communication and work.

In terms of Transferable Skill. It can be defined as skills that can be transferred at work to complete work. From, all skills possessed by someone transferable skills are the main skills needed to enter the

world of work because these transferable skills are portable skills that are owned someone and is ready to be taken advantage of to get work done at work. Since several years ago transferable skills were developed by some university. The basic principle of developing student transferable skills is that they can be developed through improving the quality of learning during the study period. This concept until now it continues to be developed in both universities, especially it has not been measured. A good competency foundation is built from good soft skills materials. Soft skills that are developed should be selected from transferable aspects so that the transferable skills possessed by students can actually be used to complete work in their place later. The characteristic of transferability skill are as the following: (i) Ability to communicate effectively in a work team (remember that communication skills included in soft skills); (ii) Ability to negotiate win-win solutions (Please also keep in mind that negotiation skills are soft skill); (iii) Ability to assess the benefits of using IT properly; (iv)Ability to work in groups by complying with the division of labor and Responsibility; (v) Ability to respect others based on owned competencies; (vi) Ability to lead the team fairly and democratic.

Furthermore, personality traits are considered very important to developed among others: (i) Be responsible & not; responsible; (ii) Honest; (iii) Initiatives; (iv) Faithful; and (v) Independent. Besides that, other personality traits should also be developed are: (i) Self-confidence (because God will provide strength and guidance if someone intends to do good); (ii) Generous (not stingy) materially and non-material, for example in terms of sharing knowledge and skills or shows the values which according to certain measurements are considered good; (iii) Hard worker; (iv) Care for the work and social environment.

The basic framework for the 2013 Curriculum for Vocational High Schools is as follows. (i) develop a balance between developing attitudes spiritual and social, curiosity, creativity, cooperation with intellectual and psychomotor abilities; (ii) the school is part of the community that gives planned learning experiences that learners apply what is learned in the school to the community and make use of community as a source of learning; (iii) develop attitudes, knowledge and skills as well apply it in a variety of situations in schools and communities; (iv) allow sufficient time to develop various attitudes, knowledge and skills; (v)competencies are expressed in the form of class core competencies further detailed in the basic competencies of the Subject; (vi) the core competence of the class becomes the organizing element elements) basic competencies, where all the basic competencies and the learning process is developed to achieve competence stated in the core competency; (vii) Basic competencies are developed based on principles accumulative, mutually reinforcing and enriching between subjects and levels of education (organization horizontal and vertical).

The distribution of core competencies (KI) of the SMK curriculum is designed in line with the increasing age of students in certain classes. Through core competencies, vertical integration of various basic competencies in different classes can be maintained.
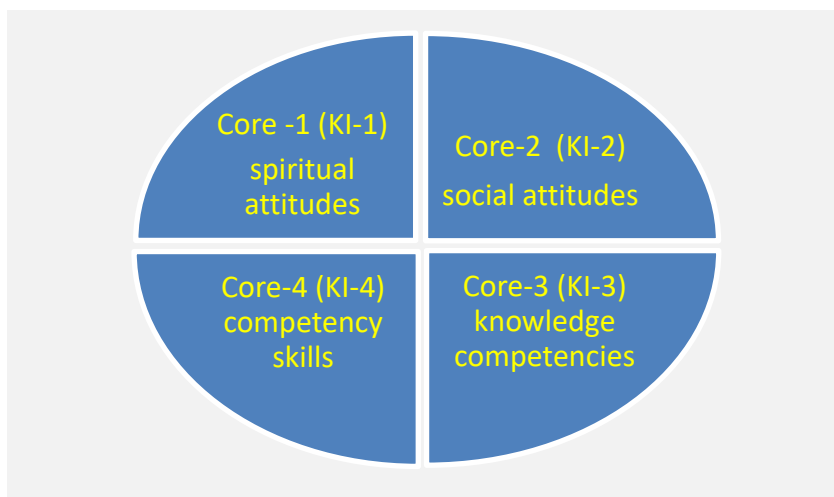
Figure 2. Core Competences in Curriculum 2013

The formulation of SMK core competencies uses the following notation : Core Competency-1 (KI-1) for the core competence of spiritual attitudes; Core-2 Competencies (KI-2) for the core competencies of social attitudes; Core-3 Competencies (KI-3) for core knowledge competencies; and Core-4 Competencies (KI-4) for core competency skills. Description of Core Competencies for vocational Secondary School level can be seen in the following table.

Table 2. Core Competencies (KI) of Vocational Secondary Schools

Core Competencies Grade X	Core Competencies Grade XI	Core Competencies Grade XII
1. Live and practice the teachings religion which is embraced.	1. Live and practice the teachings religion which is embraced.	1. Live and practice the teachings religion which is embraced.
2. Live and Practice honest behavior, discipline, responsibility, care (mutual cooperation mutual cooperation, tolerant, peaceful), polite, responsive and pro-active and show attitude as part of the solutions over various deep problem interact effective with social environment and natural as well as deep put yourself up	2. Live and Practice honest behavior, discipline, responsibility, care (mutual cooperation mutual cooperation, tolerant, peaceful), polite, responsive and pro-active and show attitude as part of the solutions over various deep problem interact effective with social environment and natural as well as deep put yourself up	2. Live and Practice honest behavior, discipline, responsibility, care (mutual cooperation mutual cooperation, tolerant, peaceful), polite, responsive and pro-active and show attitude as part of the solutions over various deep problem interact effective with social environment and natural as well as deep put yourself up

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as a reflection nation within world association

3. Understand, apply and analyze factual knowledge, conceptual, and procedural based on taste want to know about Science, technology, art, culture, and humanities in insight humanity, nationality, state, and related civilizations the cause of the phenomenon and events in field of work that is specifics for solve problem.

4. Processing, reasoning, and serve deep the realm of the concrete and related abstract realm with development from which he learned at school online independent, and capable carry out the task specifics below supervision live.

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The following is the example of Basic Competences of Introduction to Tourism in Tourim Vocational Secondary School Curriculum 2013.

Table 3. Basic Competences of Introduction to Tourism

Core Competencies (KI)	Basic Competencies (KD)
1. Live and practice the teachings Religion	1.1 Living the gift of God Almighty, through understanding the intricacies of tourism and able to maintain, preserve human body integrity as acts of practice according to religion which he embraces
2. Live and Practicing behavior honest, disciplined, responsibility, care (mutual cooperation, cooperation, tolerant, peaceful), courteous, responsive and pro-active and show attitude as part of the solution above various problems in	2.1 Have internal motivation and show deep curiosity discover and understand a variety aspects related to tourism
	2.2 Demonstrate scientific behavior (honest, discipline, responsibility, care, courtesy, environmentally friendly, mutual cooperation) deep make condition observations tourism as part of the attitude scientific

interacting effective with the environment social and natural as well in placing yourself as a reflection of the nation in the world.	2.3 Demonstrate peace-loving behavior and tolerance in building cooperation as a form of responsibility in implementation of work attitude for preserving tourism
3. Understand, apply and analyze factual knowledge, conceptual, and procedural based curiosity about Science, technology, art, culture, and humanities in human insight, nationality, state, and related civilizations causes of phenomena and occurrences in fields specific work for solve the problem.	3.1 Describe the meaning, terms and tourism history 3.2 Describing the types and characteristics of the product as well as a tourist attraction 3.3 Describing schemes, elements of industry tourism 3.4 Describing the type and scope career in the tourism industry 3.5 Describe tourism service businesses 3.6 Describe the business facilities 3.7 Describe the attractiveness efforts travel 3.8 Describe impacts and conditions tourism industry 3.9 Describing the authorized capital tourism industry development 3.10 Describe the organization tourism (international, regional and national)
4. Cultivate, reason, and serve in the realm concrete and abstract realms associated with development from that	4.1 Comparing tourism history in a territory 4.2 Evaluating various tourist objects exist in Indonesia

2. Method

The method used is a qualitative approach through focus group discussions with reinforcement and comparisons that are relevant to this research through theoretical studies and literature review of scientific articles. The scientific articles used as references and references to literature reviews from 2011-2020 are sourced from indexed and accredited journals. The results of the literature review served as the basis for the implementation of this research, then in-depth study through FGD. Focus Group Discussion (FGD) was conducted with tourism experts from the elements of teachers, industry practitioners and curriculum experts. Then the triangulation stage is the method for synthesizing the correctness of the data through document searches or other research results either corroborating or comparing. Furthermore, data analysis is in narrative form in order to provide a comprehensive overview of the results of this study.

3. Results and Discussion

Change will always occur at any time, without changes in education to be left behind and the nation's generation cannot catch up with progress (Deloitte, 2015; Ghufron, 2018). Adaptation or modification and innovation are always needed, especially in the field of education (Abdullah et al., 2020) as a way of dealing with various educational problems. Adaptive curriculum and learning based on industrial

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revolution 4.0 are intended as an idea, idea or particular action in the field of curriculum and learning that is considered new to solve educational problems, especially in Vocational High Schools (SMK) in the tourism sector. All changes will carry risks, but the strategy maintains the structure of a curriculum, methods, models and media. Various problems of curriculum innovation are related to the relevance of learning materials to student needs (Salleh & Sulaiman, 2020), between the quality of learning in schools and users of graduates in the work field. Relating to quality cognitive, affective and psychomotor, as well as opportunities exist in the world of work.

The changes that occurred in the era of the industrial revolution 4.0 required increased competence to survive, humans must have three main literacies, namely: data, technology and human literacy. This type of human literacy is related to leadership skills, the ability to work in teams, and the skills to understand other people's cultures and build relationships with people across cultures (Wongso, 2019). The findings in this study indicate the need for an adaptation of the Vocational High School (SMK) curriculum in tourism that adapts to industry demands and needs through approaches and cooperation with industry as an effort to prepare competent graduates in the tourism sector. The general description of the SMK adaptive curriculum model can be described in Figure 3:
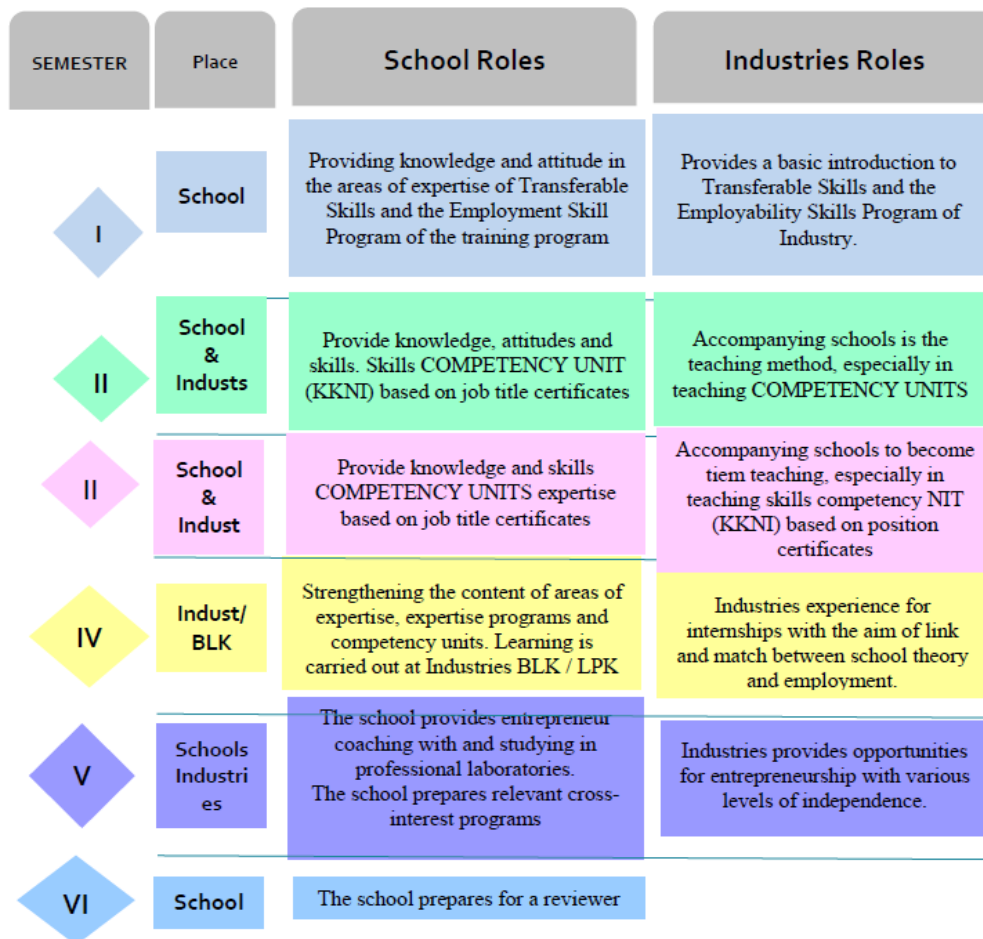

Figure 3. Adaptive Curriculum Management Model

In Figure 3, the collaboration between schools, industry and the world of work and BLK / LPK has been described. This adaptive curriculum model was created to provide space for industry and the world of work as well as BLK / LPK to be directly involved in the vocational education curriculum. The implementation that is expected by SMK students is that they are capable and have the ability of capable Transferable Skills (TS) and Employability Skills (ES) through the forging and involvement of IDUKA / BLK / LPK. The results of this study, the adaptive curriculum model in Figure 3 is outlined through the existing curriculum structure in the Vocational School of Tourism in the Culinary Expertise Program, as illustrated in Figure 4 below:

No	Nama Mapel	Kelas X		Kelas XI		Kelas XII		BLOK
		1	2	1	2	1	2	
	A. Umum (LLND)	24	24	14	14	14	14	1.872
1	Pendidikan Agama dan Budi Pekerti	3	3	3	3	3	3	324
2	PPKn	2	2	2	2	2	2	216
3	Bahasa Indonesia	4	4	3	3	3	3	360
4	Matematika	4	4	2	2	2	2	288
5	Bahasa Inggris dan Bahasa Asing Lainnya	3	3	4	4	4	4	396
6	Seni	2	2	-	-	-	-	72
7	Penjas	2	2	-	-	-	-	72
8	Informatika	4	4	-	-	-	-	144
	B. Kelompok Kejuruan	20	20	30	30	30	30	2.448
1	Transferable Skill	10	-	-	-	-	-	180
2.	Employable Skill	10	-	-	-	-	-	180
3.	Pelayanan Makan dan Minum	-	20	-	-	-	-	360
4.	Pembuatan Makanan Kontinental	-	-	30	-	-	-	540
5.	Pembuatan Makanan Indonesia	-	-	-	30	-	-	540
6.	Pembuatan Produk Pastry	-	-	-	-	18	-	324
7.	Pembuatan Produk Bakery	-	-	-	-	-	18	324
	C. Lintas Minat	-	-	-	-	12	12	432
	Total A+B+C	44	44	44	44	44	44	4.752
	D. Ekstrakurikuler	2*	2*	2*	2*	2*	-	

Figure 4. Examples of Culinary Expertise Program Curriculum Structure

Figure 4 provides an overview of the adaptive curriculum structure in the Culinary Expertise Program. Literacy, Language and Numerical (LLN) subjects can be implemented in several subjects including Religion, Citizenship Education, Mathematics, English and Indonesian, Arts and Sports. All subjects under the LLN are intended to educate students as Indonesian citizens having basic skills as a requirement for 21st century skills (Abdullah et al., 2020; van Laar et al., 2020). Mastery of LLN will encourage students to have capabilities in developing communication, collaboration, critical thinking and creativity (Siswati, 2011). Meanwhile, the Religion subject is intended so that students have good morals and have faith in God.

In the Vocational subject consists of Employability Skills (ES), Transferable Skills (TS), and skilled packages (Haryanti et al., 2020; Kranov & Khalaf, 2017). In ES, students are trained by special activities so that they have skills The essence and nature needed for every job Some of the essences of ES include good communication (van Laar et al., 2020), motivation and initiative (Mukti et al., 2018), leadership (Ahmad, 2015), teamwork (Murgor, 2013), adaptability (Creese et al., 2016), patience (Xu, 2014). Transferability skills are regularly included as the core curriculum. TS and ES are abilities and

skills that are relevant and useful in various areas of life: socially, professionally, and at school.

In addition, it is strengthened by the results of the FGD that have been carried out that efforts to predict future competencies, especially for SMK graduates, one of which is the need to bring industry to SMK from an early age as an effort to adjust industrial conditions in the field. The importance of increasing vocational graduates' literacy, work mentality, attitude, grooming, communication in accordance with industry demands. The collaboration between SMK, industry and associations is expected to be able to evaluate the existing curriculum in SMK. The work character of vocational students is the main point that must be prioritized. There is a need for competency collaboration of various subjects to improve work character through Literacy, Language, Numerical (LLN).

4. Conclusions and Suggestions

This study shows the adaptive curriculum as a modified curriculum model that adapts to situations, conditions, and needs in the field. Vocational Secondary Education curriculum materials need to be reconstructed by optimizing cooperation with the industrial world and the world of work. In addition, the strengthening of Literacy, Language and Numeric (LLN), Job Skills (ES), Transferable Skills (TS) is integrated in a comprehensive range of subjects. The adaptive curriculum is one way to prepare the main assets of SMK students to be more adaptive in facing and winning the competition for various changes, shifts that occur in the industrial world and the very massive world of work.

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