Embracing the Digital Era: Unveiling Potential through the Independent Learning Curriculum in VHS Education

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ABSTRACT. This study aims to dig up information about the independent curriculum, especially in learning computer and telecommunications network techniques in Vocational High School (VHS). This research method uses qualitative methods. Data collection techniques used are observation and interviews. The information obtained is processed and analyzed through several stages, including data reduction, presentation, and conclusion. The study results show that the implementation of the independent curriculum in learning communication and telecommunication network techniques is carried out following the Independent Curriculum Implementation policy from the Ministry of Education, Research and Technology, Indonesia. However, its implementation still needs to be comprehensive. The school needs help learning communication and telecommunications network techniques per the independent curriculum due to a lack of teacher competency and weak infrastructure support. The school has difficulty developing learning methods that create a working atmosphere in the industry so that students can be enthusiastic about participating in the learning process in computer network engineering and telecommunications.

Keywords: *Computer network and telecommunication techniques, Implementation of independent curriculum, Learning process, Vocational High School*

INTRODUCTION

Education is a conscious and planned effort to create an active learning atmosphere and learning process so that students can develop their potential (Priyambodo & Hasanah, 2021). The development of students' potential needs to be carefully designed and prepared in the curriculum prepared by each educational institution. Education is an effort to prepare the younger generation to face various world changes by equipping themselves with adequate competencies (Ali & Hasanah, 2021; Hasanah, Desstya, et al., 2022). Therefore, in achieving these educational goals, a curriculum is needed to develop their potential. However, in some schools, the curriculum is limited to accreditation requirements (Irawan et al., 2020; Nasir, 2021; Abdullah et al., 2023) and has yet to be implemented optimally (Angga et al., 2022; Naibaho, & Silalahi, 2022; Izazi et al., 2022).

Curriculum and learning have a very close relationship. According to Widyaningrum and Hasanah (2021), a curriculum is written material or an educational program that emphasizes the operational learning process as a basis for teachers to develop learning programs. It means that the curriculum is related to the content or material that must be studied, while learning is related to how to learn it. With the curriculum as a plan, learning becomes effective. On the other hand, with

learning as the implementation of a plan, the curriculum is meaningful (Sukirman et al., 2021). However, some teachers in schools teach without referring to the established curriculum (Barrow, 2015; Ernawati, & Safitri, 2017).

The learning process is one thing that plays a vital role in educational success. According to Dakhi (2022), the implementation of healthy learning is greatly influenced by good planning. In line with that, Aseri (2022) revealed that one way to improve the quality of education can be seen from the learning process that takes place in schools, both the procedures and approaches used, to produce quality learning outcomes and outcomes, which can develop all students' potential following nature (Pangestu et al., 2021). For this reason, teachers (Mashuri & Hasanah, 2021), school principals (Indriani & Hasanah, 2021), and parents (Hasanah et al., 2019) must provide a conducive learning climate according to student's needs so that students can learn independently and optimally. However, there are still teachers who carry out traditional learning. Some of the reasons teachers still carry out traditional learning are that teachers need to fully understand the philosophy of independent education (Setiyaningsih & Wiryanto, 2022) and the lack of digital facilities in schools (Timotheou et al., 2023).

Based on observations made by Aldila and Mukhaiyar (2020) at Bukit Tinggi State Vocational High School (VHS), there is still a learning process in which most teachers provide material orally, and students are assigned to take notes and do exercises. Students look awkward and embarrassed to ask the teacher when there is a subject matter they do not understand. They prefer to invite friends who understand rather than ask the teacher directly, so students do not develop critical thinking skills. In addition, students need a proportional opportunity to express ideas and digest the discussion of the topics presented. Research conducted by Irawan et al. (2022) also shows that learning has not been carried out properly, causing many students to not pay attention to the teacher in explaining the lessons that are taking place; some students play cellphones, go in and out of class, and make noise during the learning process.

Another study conducted by Elistanto et al. (2020) shows that amidst the constant need to utilize technology in learning in Muhammadiyah 1 Moyudan Vocational High School, Yogyakarta, many productive teachers still need to carry out the learning process manually, not proficient Automotive effective teachers have not been maximal in teaching and must consistently maintain the quality of theoretical learning material with practical learning. Teachers still stuttering about technology tend to come from Generation Z. Teachers have not been able to provide adequate educational supplies and competencies for students according to current industry needs.   It happens because teachers need more training in using digital media.

This condition contradicts the results of Fortuna et al. (2022), which state that one of the goals of vocational education is to create professional graduates who are by their expertise and are adaptive to developments according to needs. It aligns with the opinion of Primawati et al. (2015) that Vocational High School is a place to hone competencies that refer to the professional world. Along with the need to develop the work professionalism of VHS teachers, the Ministry of Education and Culture of the Republic of Indonesia has issued a breakthrough by imposing an independent curriculum and a flagship program called the Vocational High School Center of Excellence Development Program (VHSCoE) (Kemendikbud, 2021). The independent learning curriculum has been implemented in Indonesia, especially in schools mandated as VHSCoE and driving schools for High Schools in 2020 during the COVID-19 pandemic.

State Vocational High School 1 Bakam is one of the VHSCoE for the creative economy sector located in Bakam District, Bangka Regency, with two majors, namely Computer Network and Telecommunications Engineering (NTE) in 2021, previously Computer and Network Engineering (CNE) and Automotive Engineering (AE) in 2022 which was once Light Vehicle Engineering (LVE). State Vocational High School 1 Bakam is one of the schools that has implemented the independent learning curriculum since 2021 until now. Hence, State Vocational

High School 1 Bakam is a school that has implemented the independent learning curriculum for a long time in Bakam District, Bangka Regency. For this reason, conducting in-depth research on implementing the Free Learning Curriculum in Computer Networking and Telecommunications Engineering Learning at State Vocational High School 1 Bakam, Bangka Regency, is essential. This study aims to investigate implementing an independent curriculum, especially in learning computer and telecommunications network techniques in Vocational High School (VHS).

METHOD

This research is qualitative (Huberman & Miles, 2002; Salim & Hasanah, 2021). This study aims to dig up information about the independent curriculum, especially in learning VHS computer and telecommunications network techniques. This research was conducted at State Vocational High School 1 Bakam, Bangka Regency. This research was conducted at State Vocational High School 1 Bakam because this VHS is a school that has implemented the independent curriculum for a long time in the Bakam sub-district, Bangka Regency. The data collection method in this study is observation carried out for data collection. In this study, researchers conducted observations at State Vocational High School 1 Bakam. And an interview with five teachers, a principal, and five students at State Vocational High School 1 Bakam. Researchers use this research technique because, in qualitative research, collecting information involves direct participation. The data analysis technique used in this research uses the interactive analysis model of Miles and Huberman, namely, data reduction, data presentation, and conclusion. To ensure the validity of the data, researchers triangulated sources and research methods (Bungin, 2007).

RESULT AND DISCUSSION

Result

The digital potential of State Vocational High School I Bakam for implementing the independent curriculum

State Vocational High School I Bakam, Bangka, is a school with adequate digital devices for implementing the learning process. It is demonstrated by the existence of a computer laboratory for implementing learning, which is supported by a high-speed internet network. One of the superior study programs at State Vocational High School 1 Bakam, Bangka, is Computer Network Engineering, also known as TKJ, a major program at SMK or STM. This significant study is related to computers. Starting from how to assemble a computer, install computer programs and LAN or Local Area Network, which is related to networks such as the Internet.

The existence of a high-speed internet network is an attraction and support for implementing an independent curriculum in vocational schools. Teachers feel helped by the digital learning facilities that have been provided, as stated by one of the teachers as follows: "*Learning in the independent curriculum needs the support of digital means. Apart from facilitating knowledge transfer and training students' skills, it is also helpful for providing more varied educational services*" (P1, lines 6-8).

Implementation of the independent curriculum in Bakam vocational schools.

Based on the results of the analysis of interview transcripts and data from field observations at SMK Negeri I Bakam, Bangka, it is known that, in general, the independent curriculum implementation model can be seen in Figure 1 below:
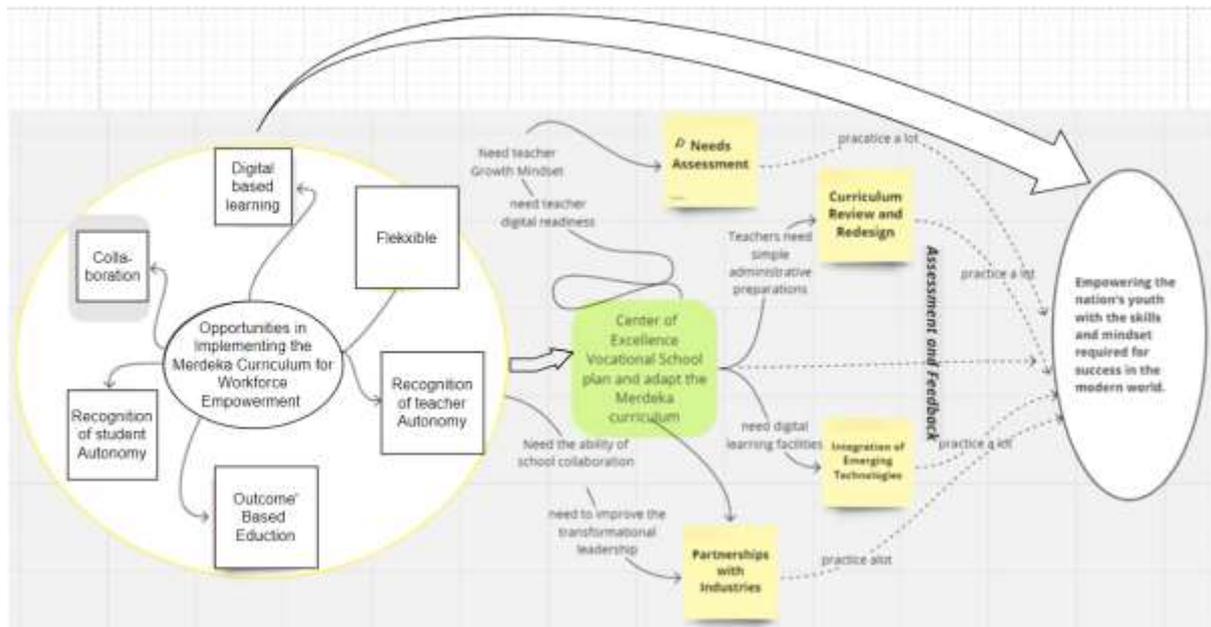
Figure 1. Implementation of the Independent Curriculum in Learning at SMK PK

Figure 1 shows that SMK Negeri I Bakam, as a PK SMK, has tried to implement an independent curriculum following the pocketbook and various other regulations issued by the Ministry of Research and Technology Education but has not been implemented holistically and comprehensively as ideal conditions in the independent curriculum. The independent curriculum at the Center of Excellence Vocational School is implemented according to the learning flow set by the Ministry of Education and Culture. The school has made good preparations for the school organization as a place for student learning, the preparation of teachers as educators, and also the preparation of technology-based learning facilities following the characteristics of the departments and the characteristics of learning in the independent curriculum based on the philosophy of independent learning (Hasanah, 2022). However, in practice, several challenges need to be addressed immediately, namely, the teacher's understanding and paradigm regarding the independent curriculum, both philosophically and technically, are still being improved. As stated by one of the participants in this study as follows:

"We are developing it ourselves by seeking information from NS Good practice or through the Sharing and independent learning application, developing it with fellow teachers and MGMP according to competency skills. However, several obstacles need adjustments from various aspects. Implementation of the Independent Curriculum requires the readiness and ability of teachers to develop and deliver competency-based learning. There may be barriers in terms of teacher knowledge, skills, and understanding of the new learning approaches and methodologies required" (P1, lines 19-24)

Teachers carrying out teaching and learning activities in class, fieldwork practices and competency tests, and vocational-related activities have applied the principles of independent learning, such as child-centred learning (Pramuniati, 2009), digital technology learning (Rodrigues et al., 2021), and the application of differentiated learning (Hasanah, Suyatno, et al., 2022). Teachers have also implemented assessments in the learning process using formative and summative assessments in daily assessments of achievement of learning objectives and end-of-semester assessments to test comprehensive knowledge of all learning outcomes and elements.

Teaching materials used in learning include textbooks, modules or dictates, and video tutorials. The teaching tools used in the thirteenth and independent curricula are the same. The teaching tools used are educational calendars, annual programs, semester programs, and teaching modules. The teachers use digital media in the learning process of communication, and telecommunication techniques are audiovisual-based and written media, such as power points, video

tutorials, guides, and worksheets. Obstacles in learning communication and telecommunications network techniques in implementing the independent curriculum need support from facilities and infrastructure and the competence of teachers who teach specific achievements and elements that must be included in upskilling and reskilling activities. It is in line with one of the participant's statements as follows:

"The Merdeka Curriculum requires a deep understanding of the underlying concepts and principles. At times, teachers and school staff may need help understanding and implementing the new approaches contained in the curriculum. The Merdeka Curriculum emphasizes the development of learning materials that are relevant, interesting, and per the needs of students. However, preparing suitable learning materials and following the principles of the Independent Curriculum can be challenging, mainly if the resources and support needed are limited" (P5, lines 26-32).

In learning computer and telecommunications network techniques, the teacher overcomes students who need help understanding the learning material; the teacher explains and practices repeatedly on the part of the learning material that has not been understood and makes tutors peers for students. The response of students, when asked to explain or give opinions about the material that has been studied, is that there are still some students who are still awkward and lack confidence when the teacher asks to explain or give opinions about the material that has just been studied. However, it is different from typical high-achievement students (HOTs). When viewed from the learning outcomes report cards, students' results are competent, but some students need to be included in remedial and enrichment. In addition, in the context of vocational lessons, students can apply lessons in the world of work. It is just that they need to adapt to apprenticeship activities for a minimum of 3 months.

Discussion

Based on the research results, it is known that in implementing the independent curriculum, several things need to be developed and become the concentration of all parties: the school, teachers, parents, and the government. All elements of education must work together because the educational environment is interconnected and influences one another (Anastasiou & Papagianni, 2020; Xie & Li, 2018).

An *independent curriculum* is an educational concept that provides more flexibility and freedom to educational institutions or agencies in designing curricula according to local needs and conditions (Assiddiqi, 2021). In an independent curriculum, schools must accommodate various types of learning that can support the learning process in class and develop teacher creativity (Mia Hocenski, Ljerka Sedlan König, 2018). The independent curriculum has excellent potential to improve the education system but has not been implemented holistically and comprehensively due to various unresolved challenges. The independent curriculum also accommodates a variety of learning methods, ranging from project-based, collaborative learning to online learning (Syahrir & Sfenrianto, 2019).

The great potential of the independent learning curriculum can improve the education system, which has so far been more standardized and sometimes less relevant to the real world. However, it is essential to recognize that implementing the independent learning curriculum has yet to run holistically and comprehensively. It is caused by several obstacles that need to be overcome. One of the main obstacles is the preparation of the teacher. Teachers need to have an in-depth understanding of the independent learning curriculum concept and the ability to design innovative learning according to student's needs. Continuous training is also needed to improve teacher competence in implementing various learning methods. In addition, digital infrastructure is also an essential element in the implementation of the independent learning curriculum. Digital skills are a prerequisite for students to participate in more flexible learning, such as online learning or technology in education. Therefore, digital infrastructure in SMKs must be improved, including stable internet access, adequate hardware, and an easy-to-use online learning platform. It is in line

with Qolbiyah (2022) that curriculum implementation is the application or performance of curriculum programs that have been developed in the previous stage, then tested with implementation and management while always making adjustments to the field situation and the characteristics of students, both intellectual, emotional development, as well as the physical. Therefore, if there is an educational institution where the independent curriculum is not maximized, it does not mean that schools cannot implement the independent curriculum optimally. It is just that adjustments are still being made from various aspects and aspects (Milkova, 2012).

In several efforts to overcome obstacles to implementing an independent curriculum, teachers are given training to increase teacher competency through upskilling and reskilling activities (Jaiswal et al., 2022; Li, 2022; Pedota et al., 2023). Ideally, vocational teachers can develop learning methods that create a working atmosphere in the industry so that students can be enthusiastic about participating in the learning process (Rodrigues et al., 2021). It can be overcome by organizing upskilling and reskilling for teachers at VHS (ElSayary, 2023). Upskilling and reskilling are continuous learning approaches for teachers to develop new competencies that align with industrial and technological developments. In implementing the independent curriculum, upskilling can help teachers hone their skills to deliver material relevant to today's industrial world. Reskilling, on the other hand, can help teachers teaching traditional subjects better understand new concepts to be implemented in the curriculum. In addition to increasing teacher competence, learning methods also need to be updated to suit the characteristics of the independent curriculum. In this case, the industry can be a partner in developing learning methods that create more authentic and relevant learning experiences. Collaboration with companies in related industries can provide insight into the latest practices, technologies used, and challenges faced in the world of work (Kocabaş & Bavlı, 2022). Learning methods that combine theory with industrial practice can inspire students to be more enthusiastic about learning (Wijayanto & Hasanah, 2022).

Providing adequate facilities and infrastructure is crucial to support the implementation of the independent curriculum (Azan, 2018). In addition, it is essential to keep learning computer and telecommunication network techniques. Computer and telecommunications network engineering materials involve an in-depth understanding of the hardware and software used in telecommunications networks, servers, network cables, routers, and essential network software to effectively demonstrate, practice effectively, and test concepts (Farisi, 2016). Education in an era that continues to develop as it is today requires a more dynamic approach to designing the curriculum to suit the changing demands of the world of work. One of the crucial steps taken by the government is to formulate the concept of the Independent Curriculum, which aims to provide greater flexibility to VHS in determining relevant curriculum content in line with industrial developments. However, implementing the independent curriculum is inseparable from various obstacles, including limited teacher competence and technological infrastructure readiness. Upskilling and reskilling have been identified as practical strategies to overcome these constraints.

The success of implementing the independent curriculum depends on the readiness of school facilities and infrastructure. Adequate facilities and infrastructure, such as laboratories, the latest technological equipment, and stable internet access, will facilitate better curriculum implementation. With proper infrastructure, efforts to bring learning closer to industrial realities will be easier to realize. One aspect crucial in implementing the independent curriculum in vocational schools is ensuring that learning computer and telecommunications network techniques runs effectively. These materials require an in-depth understanding of the hardware and software used in telecommunications networks, including servers, network cables, routers, and network software. Hands-on practice in mounting, practising, and testing concepts will help students gain a better understanding.

In overcoming obstacles to implementing the independent curriculum in Vocational Schools, upskilling and reskilling strategies, developing relevant learning methods, providing adequate facilities and infrastructure, and providing full support for learning computer and

telecommunications network techniques have an important role. Collaboration between schools, industry, and government will ensure that VHS students can better understand the ever-evolving world of work to be ready to face future challenges.

CONCLUSION

Research shows the successful implementation of an independent curriculum at SMK Negeri 1 Bakam, Bangka Regency. However, the curriculum needs holistic and comprehensive implementation due to constraints, facilities, infrastructure, teacher competence, and developing learning methods. Support from facilities, infrastructure, and upskilling activities is needed to create a working atmosphere and encourage student participation. This research may not consider external contextual factors that can influence the outcomes, such as changes in education policies or the development of new technologies. Subsequent research could consider a more in-depth analysis of these external factors.

ACKNOWLEDGMENT

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