

INDUSTRY-RESPONSIVE AND ISLAMIC CURRICULUM: A NEEDS ANALYSIS FOR PUBLIC VOCATIONAL SECONDARY SCHOOLS

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Abstract

This study aims to analyze the needs of a curriculum that is responsive to the industry as well as relevant to Islamic values at SMKN 4 Payakumbuh majoring in Informatics Engineering. The current vocational curriculum faces the challenge of aligning technical competencies with the demands of the digital industry without neglecting the moral and character aspects of students. Using a qualitative approach through interviews, questionnaires, and focus group discussions, this research explores the perspectives of vocational teachers, industry players, students, and Islamic education leaders. The results show the need for curriculum reformulation that not only emphasizes mastery of skills such as programming, computer networking, and multimedia design, but also the integration of Islamic ethical values in the learning process. The strength of the current curriculum lies in its adaptability to technology and the industrial world, but there are still weaknesses such as limited infrastructure, lack of teacher training, and lack of integration of subjects across disciplines. Therefore, the proposed curriculum model is expected to bridge the gap between the world of education and the world of work while maintaining the moral identity of students.

Keywords: Vocational Curriculum; Industry 4.0; Islamic Values.

Abstrak

Penelitian ini bertujuan untuk menganalisis kebutuhan kurikulum yang responsif terhadap industri sekaligus relevan dengan nilai-nilai Islam di SMKN 4 Payakumbuh jurusan Teknik Informatika. Kurikulum kejuruan saat ini menghadapi tantangan untuk menyelaraskan kompetensi teknis dengan tuntutan industri digital tanpa mengabaikan aspek moral dan karakter peserta didik. Dengan menggunakan pendekatan kualitatif melalui wawancara, kuesioner, dan diskusi kelompok terfokus, penelitian ini menggali perspektif dari guru kejuruan, pelaku

industri, siswa, dan tokoh pendidikan Islam. Hasilnya menunjukkan perlunya reformulasi kurikulum yang tidak hanya menekankan penguasaan keterampilan seperti pemrograman, jaringan komputer, dan desain multimedia, tetapi juga integrasi nilai-nilai etika Islam dalam proses pembelajaran. Kekuatan kurikulum saat ini terletak pada adaptabilitasnya terhadap teknologi dan dunia industri, namun masih ditemukan kelemahan seperti keterbatasan infrastruktur, minimnya pelatihan guru, dan kurangnya integrasi mata pelajaran lintas disiplin. Oleh karena itu, model kurikulum yang diusulkan diharapkan dapat menjembatani kesenjangan antara dunia pendidikan dan dunia kerja dengan tetap menjaga identitas moral peserta didik.

Kata kunci: Kurikulum Kejuruan; Industri 4.0; Nilai-Nilai Islam.

A. INTRODUCTION

Successful management of Islamic education should reflect an integration between formal and non-formal approaches. These two sectors have a vital role that complements each other, and integrated management will produce students who excel in science while having noble morals. The role of leadership, the quality of human resources, the relevant curriculum, and the active involvement of stakeholders are the keys to the success of a complete Islamic education system (Nuryahman et al., 2024).

The curriculum is a fundamental component in the education system that serves as the main guide in the learning process, student development, and achievement of national and global education goals. The curriculum not only reflects the structure of the content of the lessons, but also represents the values, knowledge, and skills that are considered important in shaping the personality of students who are complete and adaptive to the changing times. In the context of modern education, the importance of curriculum is increasingly seen as a strategic medium to answer the challenges of the industrial revolution, digital technology, and globalization of values (Priestley & Philippou, 2019).

Further, Young, (2018) In his journal, he emphasized that the curriculum is a tool that allows educational institutions to shape students' academic identities and channel competencies that are relevant to real life. A curriculum that is systematically designed also serves as a bridge between theory and educational practice, and is able to provide direction and meaning in the achievement of cross-field competencies (Levander & Mikkola, 2009). Therefore, understanding and strengthening the curriculum structure is a very important aspect in every educational reform and innovation effort.

The changing times marked by technological advances and the industrial revolution 4.0 have encouraged the education system, especially vocational education, to respond adaptively and innovatively. Vocational High Schools are required to not only produce graduates who master technical skills (hard skills), but also be able to adapt to the development of digital industries such as *cloud computing*, *big data*, *artificial intelligence*, and *cybersecurity* (Winangun, 2017).

This reality raises the need for a more flexible curriculum, based on the needs of the job market, and designed with the principle of *link and match* between schools and the business world/industry (Ningsih et al., 2024).

However, the urgency of improving technical competence should not ignore the dimension of character and spirituality of students. In the context of Indonesia's predominantly Muslim society, education must be able to form graduates who are not only professional, but also have noble character, honesty, discipline, and responsibility core values in Islamic teachings. The integration between 21st century skills and Islamic values is essential to prevent moral degradation in a competitive and ethically challenging world of work (Lusyana, 2024). Therefore, a curriculum approach is needed that is not only industry-oriented, but also responsive to Islamic values.

In the era of the Industrial Revolution 4.0, vocational education institutions are under increasing pressure to align their curricula with the needs of the rapidly growing industry while upholding local values and religious identity. For vocational schools in Indonesia such as SMKN 4 Payakumbuh, which operates in an Islamic sociocultural context and specializes in Information Technology (IT), the integration of an industry-responsive, Islamic-based curriculum is no longer an option, but is of paramount importance.

According to Misbah (2020), Curriculums that are not need-based tend to fail to equip students with the technical and non-technical skills required by the job market. Therefore, the curriculum needs analysis process not only captures internal needs (students, teachers, and facilities), but also external needs such as industry developments, national competency standards, and national education policy directions. Pambudi & Harjanto (2020) emphasized that a needs-based approach is the basis of sustainable vocational education reform and is able to increase the competitiveness of vocational school graduates at the national and global levels.

The technical and vocational education and training system in Indonesia has undergone reforms that aim to improve employability through industry-relevant competencies. However, there is still a gap between vocational training outcomes and labour market expectations (Fairman et al., 2019). Curriculum content often fails to meet the demands of practical skills, leading to unemployment among vocational school graduates (Prasetya et al., 2025). Studies have emphasized that to bridge this gap, the curriculum must not only be responsive to industry dynamics, but must also be tailored to local and religious values to encourage students' holistic development (Guntoro & Simanjuntak, 2025).

A dual-focus curriculum that integrates Islamic ethical teachings with contemporary IT competencies is particularly relevant in Payakumbuh, where Islamic values are firmly embedded in the community. Such integration ensures that students not only graduate with technical prowess, but are also imbued with

the moral compass to navigate ethical challenges in the digital age (Alinea & Reyes, 2023).

However, the formulation of a curriculum that is responsive to industry and in an Islamic context requires an evidence-based understanding of the needs of local industries, existing curriculum gaps, and stakeholder expectations. A robust needs analysis—which is based on qualitative and quantitative methodologies—is essential for curriculum developers to ensure alignment with current and future workforce demands while respecting the principles of Islamic education.

This research aims to conduct a needs analysis to support the development of a curriculum model for SMKN 4 Payakumbuh. This study answers two main questions: (1) What are the main competencies needed by IT-related industries in the Payakumbuh area? and (2) How Islamic pedagogical principles can be effectively integrated into the framework of the technical curriculum?

By combining the alignment between industry and the values of the Islamic curriculum, the initiative aims to produce vocational graduates who are not only technically competent but also based on ethics a model that can serve as a blueprint for other Islamic vocational schools throughout Indonesia.

B. RESEARCH METHOD

This study uses a qualitative method needs analysis design to explore the alignment of the current curriculum in the IT Department of SMKN 4 Payakumbuh with the needs of the industry and Islamic education values. The qualitative method approach was chosen because of its strength in offering comprehensive insights into curriculum relevance and integration by capturing measurable trends and rich contextual understanding (Schoonenboom & Johnson, 2017). This methodology is particularly suitable for vocational curriculum research where the empirical and cultural dimensions must be explored simultaneously.

This research was carried out in the context of SMKN 4 Payakumbuh, West Sumatra, Indonesia. Participants were purposively drawn from four main stakeholder groups: IT vocational students, IT industry practitioners in the Payakumbuh area, vocational teachers and curriculum developers, and Islamic education figures involved in the school system. The purposive sampling method is used to ensure that respondents have specific knowledge and experience relevant to the integration of industry needs and Islamic values (Etikan et al., 2016).

The qualitative phase involves semi-structured interviews and focused group discussions with curriculum experts, Islamic scholars, and representatives of the information technology industry. This phase aims to explore deeper insights into how Islamic principles can be meaningfully integrated into technical education, as well as perceptions of current skills gaps and moral developments in vocational education. Interview data was analyzed thematically using the Braun & Clarke, (2006), which allows for the emergence of core themes such as technical relevance, pedagogical challenges, and character education.

C. RESULTS AND DISCUSSION

SMK Negeri 4 Payakumbuh is one of the vocational high schools that focuses on the field of Informatics and Computer Engineering. This school has quite diverse student characteristics, both in terms of social, cultural, and academic. The following is a description of the characteristics of students that can be the basis for learning planning and education policies. Students of SMK Negeri 4 Payakumbuh come from various regions around Payakumbuh City, especially from Fifty Cities Regency and city districts in West Sumatra. They generally grew up in a social environment that still upheld Minangkabau traditional values and culture. This is reflected in the attitude of manners, the spirit of mutual cooperation, and respect for teachers. However, differences in the area of residence also cause variations in the habits and norms brought to the school environment, so an inclusive and adaptive learning approach is needed. This is expected to provide fair and equitable educational services to all students at SMK Negeri 4 Payakumbuh.

As a vocational-based school in the field of Information and Computer Technology, students of SMK Negeri 4 Payakumbuh generally have an interest in the world of technology. However, their academic abilities are quite diverse. Some students have a basic education background with literacy and numeracy skills that still need to be improved. Therefore, contextual and project-based learning strategies are very relevant to facilitate meaningful learning and in accordance with students' interests and potentials.

With a high interest in the field of informatics and a passion for economic independence, students at SMK Negeri 4 Payakumbuh have great potential to develop as a skilled workforce in the digital era. However, economic limitations and variations in basic abilities are challenges that need to be answered with a responsive, collaborative, and needs-based approach to education for students.

This research was conducted to identify the actual needs of the curriculum at SMKN 4 Payakumbuh, especially in the Informatics Engineering Expertise Program, in order to design a curriculum that is responsive to industry and based on Islamic values. Based on data from observations and interviews with productive teachers, department heads, and industry partners, it was found that the world of work today demands mastery of advanced skills such as *cloud computing*, *mobile app development*, *cybersecurity*, and *UI/UX design* (Tridiana & Rizal, 2020). Unfortunately, most students are still trained with conventional learning approaches that are not yet adaptive to technological developments and have not fully adopted collaborative and project-based learning models (Winata, 2020). This shows that there is a gap between the competencies of graduates and the demands of the modern digital industry.

The importance of integrating Islamic values into the vocational curriculum cannot be ignored. Values such as *amanah* (responsibility), *şidq* (honesty), *ihsān* (discipline and maximum work), and cooperation based on Islamic ethics are important parts in forming the character of graduates who excel spiritually and

professionally (Irmawati, 2024). Therefore, the proposed approach not only adopts industry-based learning, but also internalizes Islamic values in teaching and learning activities in an active and contextual manner. This is in line with the Islamic educational paradigm that emphasizes the formation of kamil people — individuals who are intellectually, morally, and spiritually intact (Choli, 2020).

Thus, the industrial and Islamic responsive curriculum designed for SMKN 4 Payakumbuh needs to combine three main elements: (1) technical competencies based on industrial needs (hard skills), (2) 21st century social and cognitive skills (soft skills), and (3) spiritual and moral competencies (spiritual skills). The recommended implementation strategy is the use of *integrated project-based learning* that not only trains students on real technology-based projects, but also inserts aspects of Islamic values in the process. Through this approach, graduates are expected not only to become professional and skilled workers, but also to have noble character and to be able to maintain integrity in the midst of the dynamics of the competitive and complex world of work.

The analysis of the needs of industrial and Islamic responsive curriculum aims to design learning that is relevant to the demands of the world of work, while instilling Islamic values. This step is important to produce graduates who are professional, adaptive, and have noble character. The following are the results of research related to the industrial and Islamic responsive curriculum at SMK 4 Payakumbuh. The following are the results of interviews related to Analysis of the needs of industrial and Islamic responsive curriculum. That is:

1. Identify Educational Objectives

Education has a fundamental role in shaping the character, competence, and identity of individuals and society. One of the crucial aspects in the implementation of education is the identification of educational objectives, which functions as a compass in compiling curriculum, teaching methods, and learning evaluation. The purpose of Indonesia's national education as stated in Law No. 20 of 2003 Article 3, focuses on developing the potential of students to become human beings who have faith, piety, noble character, health, knowledge, capability, creativity, and become democratic and responsible citizens (Utami, 2016). Therefore, proper identification of educational objectives is not only necessary in formal education planning, but also in the implementation strategy of non-formal and informal educational activities (Agustin, 2019).

In general, the educational objectives adopted are still oriented towards achieving minimum competencies based on national standards (SKL and KI-KD), but do not fully reflect the current industry needs, such as expertise in *cloud computing, UI/UX design, cybersecurity, and Agile/Scrum-based project management* (Gumay et al., 2023). On the other hand, there is a strong push from teachers and local stakeholders to maintain Islamic values in learning, including honesty, responsibility, cooperation, and work ethic, as part of the students' professional character (Abidin, 2021).

The needs analysis also indicates that a curriculum that is responsive to industry and Islam must have a goal that brings together *hard skills*, *soft skills*, and *spiritual skills* (Kurniawan et al., 2024). This aims to produce graduates who are not only technically ready to work, but also have integrity, have noble morals, and are able to adapt to rapid technological developments and global work culture. This goal is in line with the concept of "holistic education" that integrates the intellectual, social, emotional, and spiritual dimensions in a single unit (Widyastono, 2012).

For this reason, the reformulation of the educational objectives of the IT Department at SMKN 4 Payakumbuh can be designed as follows: "*Forming graduates who are technically competent in the field of information technology, able to compete in the global industrial world, and have a strong, honest, trustworthy, and responsible Islamic character.*" This goal will be the basis for developing an adaptive curriculum that accommodates *links and matches* with the world of work as well as fostering Islamic values as an ethical foundation in a career.

The main objectives of education through the curriculum of SMKN 4 Payakumbuh are

- a. Producing graduates who are qualified, with national and entrepreneurial character, have an environmental culture, and fill the world of work.
- b. Realizing the image and reputation of leadership and good school performance.
- c. Creating social well-being school.
- d. Realizing schools as a bastion of the nation's morality.

2. Skills and Competencies

In the era of globalization and the industrial revolution 4.0, Vocational High School (SMK) students are required to not only master technical skills, but also social, cognitive, and digital competencies that are relevant to the needs of the world of work and real life. Skills such as critical thinking, communication, collaboration, problem-solving, digital literacy, and adaptability are important components in forming graduates who are ready to work and adaptive to social dynamics. Study by Misbah (2020) emphasizing the importance of a competence-based education approach to ensure that the vocational curriculum reflects the actual needs of the job market.

Meanwhile, research by Pianda (2025) shows that an effective internship experience, when combined with mastery of 21st century competencies, significantly increases the competitiveness of vocational school graduates in the labor market. Moreover, Alamsyah (2022) highlighting the importance of updating vocational teacher training to be able to align the skills taught with the demands of the industry. Therefore, learning in vocational schools is not only oriented towards hard skills, but also needs to holistically integrate soft skills and life skills to bridge the gap between the world of education and the world of work.

Some of the skills taught at SMKN 4 Payakumbuh are:

- a. Digital Literacy Skills. Students must be able to operate computer software, understand the concept of networking, and be able to use information technology productively, creatively, and ethically.
- b. Effective Communication Skills. Students must be able to convey ideas, work in teams, and establish professional relationships with colleagues or superiors effectively.
- c. Critical Thinking and Problem-Solving Skills. Students need to be trained to think logically, analytically, and systematically in dealing with problems and finding the right solutions.
- d. Work Ethic and Discipline. Professional work attitudes, such as punctuality, responsibility, and integrity, are needed by the industrial world.
- e. Ability to Work Together (Collaboration Skills). Students need to be accustomed to group work, discussions, and team projects as a collaborative skill exercise.
- f. Creativity and Innovation. Students are required to be able to produce innovative new solutions and products, both in the fields of graphic design, programming, and multimedia technology.
- b. Vocational Competencies. As students majoring in Informatics and Computer Engineering, students are expected to master several main vocational competencies, including: 1) Basic and Advanced Programming; 2) Computer Networking and Server Administration; 3) Graphic Design and Multimedia; 4) Utilization of Productivity Software; 5) Basic Understanding of Cybersecurity

3. Evaluation of the Existing Curriculum: Strengths and weaknesses of the current curriculum

Curriculum evaluation is a strategic process in assessing the suitability, effectiveness, and sustainability of an educational program with the needs of students and the dynamics of the world of work. In Vocational High Schools (SMK), including SMK 4 Payakumbuh, this evaluation is very important considering that vocational education is aimed at producing job-ready graduates. The current curriculum carries a link and match approach between the world of education and the industrial world, which is its strength in bringing students closer to the real needs of the job market (Misbah et al., 2020). However, a number of weaknesses were also identified, such as the mismatch between the skills taught and the needs of the latest technology as well as the low digital literacy skills and soft skills of graduates (Subkhan, 2023). Moreover, Pambudi & Harjanto (2020) noted that the lack of continuous training for productive teachers hinders the flexibility of the implementation of competency-based curriculum. Therefore, a sustainable and evidence-based evaluative approach is urgently needed to adapt the curriculum content to industry developments and regional needs as faced by SMK 4 Payakumbuh.

The results of the evaluation related to the curriculum at SMKN 4 Payakumbuh are:

- a. The strength of the curriculum of SMKN 4 Payakumbuh
 - 1) Adaptive to information technology advances
 - 2) Able to produce competitive graduates
 - 3) Relevance to the information technology industry
 - 4) Focus on practical skills
 - 5) Creating students who have good soft skills
 - 6) Competent educators
- b. Weaknesses of the SMKN 4 Payakumbuh curriculum
 - 1) Gap with industry development
 - 2) Limited equipment and infrastructure
 - 3) Lack of focus on the entrepreneurial aspect
 - 4) The integration of information technology subjects with other subjects has not been maximized
 - 5) Less comprehensive evaluation mechanisms, and Lack of feedback from industry

The most important thing is the use of School Self-Evaluation (EDS) and the active involvement of stakeholders such as teachers, students, parents, and the community in the process of developing the quality of education reflects the application of a participatory and adaptive management model. This model emphasizes the importance of collaboration of all elements in the education ecosystem to explore potential, evaluate weaknesses, and design improvement strategies based on real needs on the ground (Alhajj et al., 2024). In the context of curriculum development that is responsive to industry dynamics, this approach is particularly relevant because it allows the curriculum to be structured flexibly and contextually according to the demands of the times. The participation of various parties not only enriches perspectives in the formulation of education policies, but also ensures the connection between the world of education and the needs of the world of work, so that the graduates produced are able to compete, adapt, and have superior values and competencies in accordance with industry expectations (Zakiya & Kurniawan, 2023)

D. CONCLUSION

This study concludes that the development of the curriculum at SMKN 4 Payakumbuh, majoring in Informatics Engineering, needs to be designed responsive to the needs of the digital industry while upholding Islamic values. The results of the analysis show that vocational school graduates are required to have technical skills such as programming, computer networks, and multimedia design, accompanied by mastery of soft skills such as communication, collaboration, critical thinking, and a strong work ethic. In addition, there is an urgent need for the integration of Islamic values into the curriculum structure so that students are

not only technically ready to work, but also have high morality and social responsibility in facing the ethical challenges of the digital era.

The advantage of the current curriculum at SMKN 4 is its ability to keep up with technological advances and relevance to the industrial world, but there are still weaknesses such as lack of infrastructure, limitations in strengthening entrepreneurship, and lack of integration across subjects. Therefore, it is important to reformulate a curriculum based on needs analysis by involving industry stakeholders and Islamic education figures. The proposed curriculum model is expected to serve as a blueprint for adaptive and contextual Islamic vocational education, in order to produce graduates who are professional, characterful, and ready to face the challenges of the global world of work.

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