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Integrated Implementation of Teaching Factory and Islamic Education to Develop Learning Attitude and Work Ethics of Students in Vocational Schools

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Abstract

Aceh Province, which is a Special Autonomous Region based on Islamic Sharia, based on 2021 data shows that the implementation of the Teaching Factory has not yet occurred completely in all vocational schools in Aceh. This is a strong indication that the main factor has not yet seen the outcomes expected by the community. Seeing the gap in the quality of Teaching Factory implementation among vocational schools in Aceh, it is necessary to conduct a study regarding the integration of Islamic education through the Teaching Factory model as an effort to develop learning attitude and work ethic of students in vocational schools in Aceh. The research design used is a sequential explanatory design or combination model research. The total sample for quantitative data was 228 respondents using the Structural equation Modeling analysis method. Meanwhile, for qualitative data, the sample size was 509 respondents. Quantitative data analysis uses the Structural equation Modeling analysis method, while qualitative data describes the results descriptively by linking them to existing facts and supporting theories from the results of data integration from the implementation of the Teaching Factory and Islamic Education. The research results show that teaching and learning activities in vocational schools are not just coincidental or incidental, but are part of a planned effort to integrate Islamic education into the learning system and daily life through Teaching Factory learning. This integration has a positive and holistic impact on students' personalities, skills, attitudes, and values, with a focus on success in the world of business run according to Islamic principles.

Kata Kunci:
Pendidikan Islami;
Teaching Factory;
Sikap;
Etos Kerja;
Sekolah Vokasi.

Abstrak

Provinsi Aceh dengan daerah Otonomi Khusus serta berbasis Syariat Islam berdasarkan data tahun 2021 menunjukkan bahwa pelaksanaan Teaching Factory belum sepenuhnya terjadi secara lengkap di seluruh SMK di Aceh. Hal ini menjadi indikasi kuat sebagai faktor utama belum terlihatnya outcome yang diharapkan oleh masyarakat. Melihat kesenjangan kualitas penerapan Teaching Factory di antara SMK di Aceh, perlu dilakukan kajian terkait integrasi pendidikan Islami melalui model Teaching Factory sebagai upaya membangun sikap dan etos kerja siswa SMK di Aceh. Penelitian ini menggunakan pendekatan mixed method yaitu campuran pendekatan kuantitatif dan kualitatif. Desain penelitian yang digunakan adalah desain sequential explanatory atau penelitian kombinasi model. Jumlah sampel untuk data kuantitatif sebanyak 228 responden dengan menggunakan metode analisis Structural equation Modeling (SEM). Sedangkan untuk data kualitatif jumlah sampel sebanyak 509 responden. Penelitian kuantitatif menggunakan kuesioner sebagai alat penelitian, sedangkan secara kualitatif dilakukan dengan teknik wawancara dan observasi. Analisis data kuantitatif menggunakan metode analisis Structural equation Modeling (SEM), sedangkan secara kualitatif menjabarkan hasil dari data secara deskriptif dengan mengaitkan dengan fakta yang ada serta teori pendukung dari hasil integrasi data pelaksanaan Teaching Factory dan Pendidikan Islami. Hasil penelitian menunjukkan bahwa kegiatan belajar mengajar di SMK bukan hanya kebetulan atau insidental, melainkan merupakan bagian dari upaya

yang terencana untuk mengintegrasikan Pendidikan Islami dalam sistem pembelajaran dan kehidupan sehari-hari melalui pembelajaran Teaching Factory. Integrasi ini memiliki dampak yang positif dan holistik pada kepribadian, keterampilan, sikap, dan nilai-nilai siswa, dengan fokus pada keberhasilan dalam dunia bisnis yang dijalankan sesuai dengan prinsip-prinsip Islam. Hal ini dianggap sangat penting untuk menghasilkan lulusan yang memiliki kompetensi kejuruan, kewirausahaan, dan karakter Islami.

INTRODUCTION

Vocational education is a major concern in developed and developing countries because of its important role in sustainable development (Paryono, 2017). Quality graduates are expected to be able to contribute to national development following the vocational fields they study. In contrast to other secondary school levels, vocational school graduates are expected to be able to meet labor needs in industry or become entrepreneurs, rather than continuing to higher levels of education. Indonesia as a developing country also makes vocational education an important element for national development; vocational education aims to "produce skilled workers who have abilities following the demands of the business/industry world" (Peraturan Menteri Pendidikan dan Kebudayaan Nomor 34 Tahun 2018). Considering the importance of graduate absorption, education actors in Indonesia continue to pay attention to developing vocational curricula to face the challenges and dynamics of industrial needs for workers in Indonesia, including the challenge of low competency and soft skills of vocational school graduates (Suharno et al, 2020). Updating the curriculum is a necessity to be able to keep up with industry needs and trends, especially with the presence of the Industrial Revolution 4.0. Competition in the number and types of workforce competencies needed in this era forces a change in the direction of the vocational education curriculum, not only towards mastering knowledge competencies but also towards developing a work ethic and industrial skills. This is expected to ensure that every graduate is competent to become a skilled workforce and is always ready to use it according to the dynamics of product and service development in the user industry.

Apart from changes in the type and level of competency, the demand for producing graduates with the work ethic, knowledge, and skills mentioned above also has implications for changes in learning models and methods in vocational education. For this reason, the Indonesian Government, in this case the Directorate General of Primary and Secondary Education, has developed a composition of fields, programs and skill competencies that must be implemented in line with technical efforts to align competencies by the curriculum development team in schools (Peraturan Direktorat Jenderal Pendidikan Dasar dan Menengah Kementerian Pendidikan dan Kebudayaan Nomor 06/D/D5/KK/2018). Apart from these harmonization efforts, industry support to create an industry-like learning atmosphere in the school environment is also needed to balance the school atmosphere which still has to implement a variety of general subjects (Peraturan Menteri Pendidikan dan Kebudayaan Nomor 34 Tahun 2018). Like Vocational Schools throughout Indonesia in general, the curriculum implemented at Vocational Schools in Aceh refers to the national curriculum, namely the 2013 Curriculum, which predominantly uses competency-based learning (Competency Education/Training) following the Skill Competencies studied. In line with this, the Aceh Government also stipulates that the implementation of education in Aceh Province is based on Islamic Sharia, the Special Autonomy (Undang-Undang Nomor 18 Tahun 2001) mandate is given the authority to obtain privileges in the implementation of religious life, customs, and education and pays attention to the role of the ulama in determining regional Islamic

Sharia policies (Undang-Undang Nomor 22 Tahun 1999). Autonomy (Undang-Undang Nomor 44 Tahun 1999) is giving strong authority from the Central Government to Regional Governments according to their initiative to empower their regions, as well as giving trust to regions to manage their regions, as well as reducing the role of the Central Government (Daulay, 2019).

Based on the above regulations, the Aceh Government issued Regional Regulations (Qanun) which regulate related fields, including Regional Regulations concerning the Ulama Consultative Council (MPU) which is tasked with providing considerations, guidance, advice and suggestions in determining policies for the process of implementing Islamic Sharia in Aceh (Peraturan Daerah Nomor 3 Tahun 2000), Regional Regulations concerning the Implementation of Islamic Sharia (Peraturan Daerah Propinsi Daerah Istimewa Aceh Nomor 5 Tahun 2000), etc. For the management of the education sector, the Regional Government issues a Qanun on the Implementation of Education (Qanun Aceh Nomor 11 Tahun 2014), which specifically provides direction for the implementation of education based on Islamic educational values in primary and secondary public schools, as well as in other types and levels of Islamic education. In the Qanun for the Implementation of Education above, it is stated that there are two approaches in implementing Islamic sharia-based education: (1) adding Islamic Religious Education subjects on a credit basis (2 hours/semester) in public schools, and/or (2) integrating Islamic education in activities - activities at school (intra, extra and co-curricular). The scope of Islamic education here is education that is based on and imbued with the values of Islamic teachings (Article 34 Paragraph 1).

Furthermore, Article 34: (paragraph 2) states that secondary education (SMA, SMK, MA, MAK, Dayah Aliyah) aims to develop students' knowledge, attitude, and skills under Islamic values needed to enter the job market, prepare themselves to continue to Higher Education, and community service. Paragraph 4 further states that secondary education as referred to in paragraph (2) is directed so that Muslim students can read and understand the Al-Qur'an and can read and write Malay Arabic." Specifically, Article 9 has previously stated that students (students) are obliged to: (a) maintain and obey educational norms and educational unit regulations, (b) dress in Muslim/Muslimah clothing for those who are Muslim, (c) not commit pornography and pornographic acts; and (d) follow the learning process, respect teachers and other education personnel. To more technically regulate implementation at the Vocational School level, the Aceh Government issued a Governor's Regulation concerning the Implementation of an Islamic Technology and Entrepreneurship-Based Vocational Education Curriculum (Peraturan Gubernur Nomor 66 Tahun 2019). This regulation describes the implementation of vocational education that is oriented towards entrepreneurship education based on Islamic educational values. One of the models for implementing entrepreneurship education mentioned is the Teaching Factory and work-based training, which is expected to integrate the values of Islamic education in every step of its implementation.

Teaching Factory is a learning model in vocational schools to support the achievement of graduate competencies more effectively (Peraturan Pemerintah RI Nomor 41 Tahun 2015). Apart from that, the Teaching Factory provides a learning experience under an industrial atmosphere, but still in a school environment (Subdit Kurikulum, 2019). The implementation of the Teaching Factory is fully intended as a forum for students to gain learning experiences under the industrial atmosphere for the competencies they are studying (Martawijaya, 2010). For this reason, industry involvement is needed as a relevant party to assess the quality of educational outcomes in

vocational schools (Suranto, 2006) so that they will be able to provide input for the management of human resources, facilities, and curriculum arrangements that are in line with the needs of the user industry. Thus, the implementation of vocational education in Aceh is based on national SNP by integrating Islamic education as part of Islamic Sharia which is the basis of life for the people of Aceh. By implementing the regulations above, in the end it is hoped that vocational school graduates in Aceh will not only have knowledge and skills according to industry standards, but also have the character of true Muslims, who demonstrate behavior as students and in time as workers with a work ethic based on values of Islamic Education.

To achieve the ideal conditions for graduates, the application of learning attitute, knowledge and skills is not only applied to intracurricular (academic) learning activities, but requires habituation of attitute and skills that become the culture at school (non-academic) as explained above. In line with the formation of an industrial work attitude (ethos), the formation of an Islamic (religious) attitude/character also requires habituation to entrenched behavior in the school environment (Nugrogo, 2021). The school environment includes the scope of routine (scheduled activities), academic (class learning activities) and protocol (familiarity towards culture) in schools (Kementerian Pendidikan dan Kebudayaan, 2022), so that education not only pays attention to external but also spiritual aspects, not only theistic but also humanistic and scientific; education that prioritizes balance and harmony in all aspects of human life (Junaedi, 2017). To support the implementation of the Teaching Factory within the scope of Islamic school culture, the Aceh Education Service has organized training for teachers and vocational school principals both independently and in collaboration with related institutions. The integrated implementation of Islamic education in the three scopes of school activities has also been accompanied and supervised. Since 2019, a series of activities have been held to help 218 vocational schools implement Teaching Factory and implement the vocational school curriculum with the integration of Islamic education as mandated by the regulations above (Dinas Pendidikan Aceh, 2021a).

A survey to monitor the implementation of the Teaching Factory in the same year by the Aceh Provincial Education Office showed that 56% of Skills Competencies had started implementing the Teaching Factory following the SOP and had started to prepare their Product Units with financial mechanisms as a Regional Public Service Agency (BLUD). However, the survey data also shows that the implementation of the Teaching Factory has not yet occurred completely in all vocational schools in Aceh. This is a strong indication that the main factor has not yet seen the outcomes expected by the community. In several situations, obstacles that hinder the less-than-optimal implementation of Teaching Factory include limited teacher training for the technical implementation of Teaching Factory, support for facilities and infrastructure, teacher collaboration that is not yet intensive, and several other conditions (Dinas Pendidikan Aceh, 2021b). Apart from the level of employment and the industry's response to the daily learning attitute and work ethic of vocational school students/graduates, it is also apparent in the implementation techniques in schools that the implementation of aspects related to the Teaching Factory and Islamic education is not yet comprehensive; Learning activities in general and Teaching Factory learning do not show a close connection with the implementation of Islamic education (Dinas Pendidikan Aceh, 2020).

Based on the evaluation conducted above, several vocational schools have demonstrated good implementation of the Teaching Factory. This is demonstrated by SMK Negeri 2 Banda Aceh (Technology and Engineering Skills), SMK Negeri 2 Lhokseumawe (Tourism Skills),

Takengon 1 Vocational School (Tourism Skills), and Takengon 2 State Vocational School (Agribusiness and Agrotechnology) with developing a Teaching Factory in learning, including: (1) collaborating with partner industries in developing industry-based curricula, (2) implementing learning in schools and industry (dual system), (3) implementing learning with a block schedule, (4) having a Production Units involving students and graduates. The Production Units organized by the above Vocational Schools include (1) hotels with three-star standards, restaurants, fashion galleries, and beauty salons at the two Tourism Vocational Schools, (2) agricultural and plantation production from the Tourism Vocational Schools, and (3) workshops machinery, automotive, light vehicle and motorbike services, building drawing service units, technical drawings, architects, and other technology. This Production Unit is not only a practical place (laboratory or workshop) but is also a commercial business unit that systematically provides real learning experiences for students managing a business and working in industry. These four CoE Vocational Schools have demonstrated success in implementing vocational learning which produces work-ready graduates according to the competencies they have studied; ability to open entrepreneurship and competent in continuing education to the next level of vocational education.

Seeing the gap in the quality of the implementation of the Teaching Factory in the above vocational schools and other vocational schools as stated in the evaluation results, it is necessary to conduct a study regarding the integration of Islamic education through the Teaching Factory model as an effort to build the attitude and work ethic of vocational school students in Aceh. With this information, it will be possible to find the best application and integration model to create vocational school graduates who are competent in the realm of knowledge and skills, as well as behaving Islamically as students, prospective entrepreneurs or prospective workers in the user industries.

RESEARCH METHODS

This research uses a mixed method approach, namely a mixture of quantitative and qualitative approaches. The research design used is a sequential explanatory design or combination model research. Combination research with a sequential explanatory design is research that combines quantitative and qualitative research methods sequentially, where in the first stage the research is carried out using quantitative methods and in the second stage it is carried out using qualitative methods (Creswell, 2009). Quantitative methods play a role in obtaining measurable quantitative data, which can be descriptive, comparative and associative, while qualitative methods play a role in proving, deepening and expanding quantitative data that has been obtained at an early stage.

A quantitative approach was taken in this research to obtain factors that support the implementation of Teaching Factory, Islamic Education and the influence of Teaching Factory and Islamic Education on learning attitute and student work ethic or Islamic behavior at Vocational High Schools in Aceh Province. Quantitative research methods are research methods based on the philosophy of positivism, which are used to research populations or samples which are generally carried out randomly using research instruments and analyzed using statistics with the aim of testing predetermined hypotheses (Sugiyono, 2014).

The next research used in this research is a qualitative approach. The qualitative approach is a scientific approach that reveals certain social situations by describing reality correctly formed by words based on relevant data analysis collection techniques obtained from natural situations. The qualitative approach used in this research aims to obtain a more in-depth and meaningful

explanation regarding the implementation and integration of Teaching Factory and Islamic Education in Vocational High Schools in Aceh. In this case, qualitative data will explain the supporting and inhibiting factors and how school management finds solutions to these challenges.

The population is all objects of research. Population can also be defined as a group of elements or cases, be they individuals, objects, or events that are related to specific criteria and are something that is the target of generalizations determined by researchers to study and draw conclusions. The population in this study were all heads of competency skills at Vocational High Schools (SMK) in Aceh Province, totaling 737 heads of competency.

A sample is part of the number and characteristics of a population. The sample is determined from the population on a representative basis, that is, it can truly represent the population (Hamdi & Bahruddin, 2014). The sample in quantitative research is the head of competency expertise taken randomly. Calculating the number of samples using the Raosoft sampling size application obtained 253 people with a margin of error of 5%. This sample is following the estimation technique used in this research, namely using Generalized Least Square (GLS). Sampling used stratified random sampling by stratifying the areas of expertise and expertise programs from all vocational schools in Aceh so that there was a proportion of representation from each field of expertise and expertise program. Thus, the total number of respondents for quantitative data was 228 respondents using the Structural Equation Modeling (SEM) analysis method.

To obtain qualitative data aimed at answering questions related to the implementation of the Teaching Factory and Islamic Education, this was done by taking representative samples from vocational schools with the most possible distribution of representatives; taking into consideration: (1) representation of Skill Competencies, (2) information sources representing the school community, namely teachers involved in the Teaching Factory, Deputy Principal for Curriculum, and students. For this reason, from 221 Vocational Schools in Aceh, 30 Vocational Schools were selected that had 2 to 12 Skill Competencies, representing 9 Areas of Expertise so that the total number of respondents was 509 respondents for qualitative data.

The first stage of research with quantitative methods used questionnaires as a research tool. A questionnaire is a worksheet containing several questions with a standard structure. During the investigation, the study conditions were not manipulated by the researchers (Priyono, 2008). A questionnaire is a questionnaire that is based on two types of questions, namely a questionnaire with open questions or a questionnaire with closed questions or a combination of both (Syahrum & Salim, 2012). In this study closed questions were used. Respondents in this quantitative data collection were the Deputy Principal for Curriculum, the Deputy Principal for Facilities and Infrastructure, and the Head of Skills Competency.

To obtain more in-depth qualitative data, data collection techniques were carried out using interview techniques and field observations to further explore cases of implementing Teaching Factory with the integration of Islamic Education which include successes (as a result of supporting factors) and obstacles (as a result of factors inhibitors) and how school management solves it. Respondents for collecting this qualitative data were teachers and students in selected Skill Competencies using: (1) Online Teaching Factory implementation survey using Google Form, (2) Google Form online questionnaire on Application of Islamic Education (Learning Attitute and Work Ethic), (3) Face-to-face interviews regarding the implementation of Islamic Education.

The analytical method used in the quantitative approach in this research is the Structural Equation Modeling (SEM) analysis method. According to Latan Structural Equation Modeling (SEM) is a multivariate analysis technique that combines factor analysis and path analysis so that it allows researchers to simultaneously test and estimate the relationship between exogenous latent variables and endogenous variables with many indicators (Burhanuddin, 2013).

The analysis technique used through a qualitative approach in this research, describes the results of the data descriptively by linking it with existing facts and supporting theories from the results of data integration from the implementation of the Teaching Factory and Islamic Education. In more detail, this qualitative data analysis technique is carried out by organizing data on the implementation of the Teaching Factory and programs related to Islamic Education in the routine, academic and school protocol areas; which are then described in components and sub-components that support its application in the Skills Competencies that are the target of this research (Raco, 2010).

RESULTS

The results of this research consist of the results of collecting and processing quantitative and qualitative data which are then examined in the context of answering the research questions explained in the previous section. The following are the results of Inferential analysis using SEM as a method for measuring quantitative findings and continued with the results of data collection and processing using qualitative instruments, including the results of observation, digital communication and face-to-face interviews.

Structural model hypothesis testing is carried out to determine whether the exogenous latent variables that have been formed have a relationship with the endogenous latent variables or not. There are two structural model hypothesis tests, namely simultaneous hypothesis testing and partial hypothesis testing. The criteria for rejecting H_0 test the hypothesis simultaneously if a positive R^2 value is obtained, while the criteria for rejecting H_0 test the partial hypothesis if the value $|$ *Zvalue* (c.r.) $| \geq 1.96$ or *Pvalue* < 0.05.

The simultaneous structural model hypothesis is as follows:

- H_{0a}: $R^2 < 0$ (Teaching Factory and Islamic Education do not influence learning attitute).
- H_{1a}: $R^2 > 0$ (There is at least one of the Teaching Factory and Islamic Education that influences learning attitute)
- H_{0b}: $R^2 < 0$ (Teaching Factory and Islamic Education do not affect Work Ethic)
- H_{1b}: $R^2 > 0$ (There is at least one of Teaching Factory and Islamic Education that influences Work Ethic)

The table of simultaneous hypothesis testing results is as follows:

Table 1. Results of Simultaneous Hypothesis Testing

	Direction of Influence	*r*	R^2	Conclusion
H1	Teaching Factory >>> Learning Attitute	0,279	0,871 (> 0)	Reject H_0
	Islamic Education >>> Learning Attitute	0,920		
H2	Teaching Factory >>> Work Ethic	0,305	0,805 (> 0)	Reject H_0
	Islamic Education >>> Work Ethic	0,878		

Source: Primary data processed, 2023.

Based on the table above, you can see the results of simultaneous hypothesis testing. Hypothesis H1 The direction of influence of Teaching Factory and Islamic Education has a positive effect on learning attitude. Based on the results of the analysis, it shows that the Teaching Factory and Islamic Education have a significant effect on learning attitude with an R^2 value of 0.871, where this value is greater than 0, so the decision is to reject H_0. It can be concluded that there is at least one of the Teaching Factory and Islamic Education that influences learning attitute.

Hypothesis H2 the direction of influence of Teaching Factory and Islamic Education has a positive effect on Work Ethic. Based on the results of the analysis, it shows that Teaching Factory and Islamic Education have a significant effect on Work Ethic with an R^2 value of 0.805, where this value is greater than 0, so the decision to reject H_0. It can be concluded that there is at least one of the Teaching Factory and Islamic Education that influences Work Ethic.

Based on the results of simultaneous hypothesis testing, partial correlation results were also obtained from the *r* value of each latent variable. The partial correlation of the *r* value is to see how strong the influence of each variable is, while the R^2 value is to see how much influence the endogenous latent variable contributes to each exogenous latent variable. The following is the level of relationship between variables shown through the *r* value, here are the values and their meanings (Priyono, 2008):

- 0,00 – 0,199 = Relationships are very low
- 0,20 – 0,399 = Low relationship
- 0,40 – 0,599 = Fair relationship
- 0,60 – 0,799 = Strong relationship
- 0,80 – 1,000 = Very strong relationship

Based on the table above, it can be seen that the correlation between Teaching Factory and learning attitute is 0.279, so it can be concluded that the relationship between Teaching Factory and learning attitute is low positive. And the correlation between Islamic Education and learning attitute s was found to be 0.920, so it can be concluded that the relationship between Islamic Education and learning attitute is classified as very strong and positive. Together Teaching Factory and Islamic Education influence learning attitute by 0.871. It can be concluded that the contribution of the Teaching Factory and Islamic Education to learning attitute is 87.1%.

Based on this table, it can also be seen that the correlation between Teaching Factory and Work Ethic is 0.305, so it can be concluded that the relationship between Teaching Factory and Work Ethic is low and positive. And the correlation between Islamic Education and Work Ethic was found to be 0.878, so it can be concluded that the relationship between Islamic Education and Work Ethic is classified as very strong and positive. Together Teaching Factory and Islamic Education influence Work Ethic by 0.805. It can be concluded that the contribution of the Teaching Factory and Islamic Education to Work Ethic is 80.5%.

The partial structural model hypothesis is as follows:

- H_{0a}: $\gamma_1 = 0$ (Teaching Factory does not influence learning attitute)
- H_{1a}: $\gamma_1 \neq 0$ (Teaching Factory influences learning attitute)
- H_{0b}: $\gamma_2 = 0$ (Teaching Factory does not affect Work Ethic)
- H_{1b}: $\gamma_2 \neq 0$ (Teaching Factory Affects Work Ethic)
- H_{0c}: $\gamma_3 = 0$ (Islamic education does not influence learning attitude)
- H_{1c}: $\gamma_3 \neq 0$ (Islamic Education influences learning attitude)

- H_{0d}: $\gamma_4 = 0$ (Islamic education does not affect work ethic)
- H_{1d}: $\gamma_4 \neq 0$ (Islamic education influences work ethic)

The partial hypothesis testing results table is as follows:

Table 2. Results of Partial Hypothesis Testing

	Direction of Influence	*Zvalue* (c.r.)	*P-value*	Conclusion
H1	Teaching Factory >>> Learning Attitude	2,526 (>1,96)	0,012 (<0,05)	Reject H_0
H2	Teaching Factory >>> Work Ethic	3,192 (>1,96)	0,001 (<0,05)	Reject H_0
H3	Islamic Education >>> Learning Attitude	5,351 (>1,96)	0,001 (<0,05)	Reject H_0
H4	Islamic Education >>> Work Ethic	9,397 (>1,96)	0,001 (<0,05)	Reject H_0

Source: Primary data processed, 2023.

Based on this table, the results of partial hypothesis testing can be seen that all latent variables that have a significant effect are based on the value $|$ *Zvalue* (c.r.) $| \geq 1.96$ or *Pvalue* < 0.05. It can be concluded that the Teaching Factory influences learning attitudes and work ethics, and Islamic education influences learning attitudes and work ethics.

Evaluation of the structural model after knowing what latent variables or indicators influence the endogenous latent variable is followed by knowing the direction of the influence. A positive gamma parameter value indicates an influence in a positive direction, whereas a negative value indicates a negative influence, which can be seen in the attachment. The magnitude of the influence of each latent variable directly, indirectly, in total effect, and the value of the coefficient of determination are summarized in the following table.

Table 3. Direct Effect, Indirect Effect, Total Effect, and Determinant Coefficient Value

Direction of Influence	Direct Effect	Indirect Effect	Total Effect
Teaching Factory >>> Learning Attitude	0,162	0,000	0,162
Teaching Factory >>> Work Ethic	0,453	0,000	0,453
Islamic Education >>> Learning Attitude	0,477	0,000	0,477
Islamic Education >>> Work Ethic	1,044	0,000	1,044
School Management >>> Learning Attitude	0,000	0,326	0,326
School Management >>> Work Ethic	0,000	0,135	0,135

Source: Primary data processed, 2023.

Based on the above, it was found that the direct effect and indirect effect calculations created by the modified SEM model were carried out to test specific hypotheses. The results of the analysis show that all latent variables have a positive influence.

DISCUSSION

Teaching Factory Model for Vocational (Vocational) Education

The Teaching Factory is said to be a factory in a school (Peraturan Pemerintah Republik Indonesia Nomor 41 Tahun 2015), which is one of the most important parts in the implementation of vocational (vocational) education apart from the Professional Certification Institute (LSP) and Competency Test Site (TUK) which are also mandatory in a vocational school environment. The development of the Teaching Factory as a place for students to practice vocational attitude and skills began in 2000 with the development of a simple industrial-based vocational school. Subsequently, this development shifted to a more developed industrial-based vocational school,

until finally it became a factory as a place of learning that "combines learning and a realistic work environment and creates relevant learning experiences" (Sanggam Manalu RI, 2017).

Teaching Factory is a learning model, whose strategy prioritizes achieving Basic Competencies (KD) based on appropriate product design and analysis (Direktorat Pembinaan SMK, 2015). Thus, it can be said that the product can be an introductory medium for achieving KD in vocational subjects. In the implementation technique, the teacher determines the design and analysis of the product that will be practiced by students following the competencies that have been determined nationally in the KD composition in the vocational school curriculum structure (Peraturan Menteri Pendidikan dan Kebudayaan Nomor 34 Tahun 2018).

Teaching Factory, which is also known as the Learning Factory concept in several studies in European countries (Grabler et al, 2016), in Indonesia is known as a vocational learning model carried out with production facilities that refer to work procedures and standards as per real industrial conditions but are not oriented towards making a profit (Peraturan Pemerintah Nomor 41 Tahun 2015). In its implementation, the Teaching Factory contains six components as a basis for implementing learning to achieve student competency according to industrial performance and production standards. These six components include (1) Strategic partnerships; (2) Products; (3) Learning tools; (4) DUDI experienced teachers; (5) Supporting environment and facilities; and (6) Governance (Direktorat Jenderal Pendidikan Dasar dan Menengah Subdit Kurikulum Direktorat Pembinaan SMK, 2019).

Technically, the Teaching Factory learning stage through six learning steps, namely receiving orders, analyzing orders, stating readiness in executing orders, executing orders, doing quality control, and handing over products to customers has been proven to effectively increase the productive competence of vocational students (Hidayat M, 2011). The success of Teaching Factory in helping vocational students gain effective learning competencies cannot be separated from the importance of designing theoretical and practical learning; it has been proven that the three domains of knowledge and skills that are aligned in one unit can strengthen each other and form a good work ethic (Lytvyn et al, 2020).

The implementation of the Teaching Factory model with the steps above cannot be separated from efforts to achieve the goals of vocational education, namely to help students improve their entrepreneurial competencies; which is not only the ability to create new products with innovation and selling power but also to have an initiative attitude, act constructively, the ability to solve problems and find opportunities (Sunsyoto & Setiyawan, 2021). Learning experiences that integrate entrepreneurial activities in the process and assessment are important because these activities can improve the quality of learning and the role of students in the learning process (Lamancusa et al, 1995), can improve the competence and skills of students or graduates in developing their potential, and improve students' attitude and behavior in the learning process and everyday life (Tambunan et al, 2021).

With strong interaction in every product manufacturing process, students gain experience in industrial performance in all components and production stages, preparing tools and materials, processing according to standards, ensuring quality products, maintaining work health and safety, and maintaining work space activities according to industry standards. Continuous implementation of all the stages above will ultimately create a school with an industrial culture.

The implementation of the Teaching Factory has also been proven to increase the work readiness of vocational education graduates; where this readiness is not only in the realm of

knowledge and skills but also includes a work ethic that is under industry standards (Prianto et al, 2020). Several important factors to ensure the appropriate implementation of the Teaching Factory so that it can produce skilled graduates according to user industry standards are process, strategic management, and duties and responsibilities of both parties between the school and industry (Mahmudah & Santosa, 2021). The responsibility of the school here is also strengthened by the proven role of the principal in the strategic management of the school (Apriana et al, 2019). Strong collaboration between schools and industry in supporting the implementation of the Teaching Factory is seen as an important part of creating an industrial atmosphere in schools, which will have an impact on the habituation of industrial work attitude (ethos) (Isgoren et al, 2009). The challenges of collaboration and communication between schools and industry can be overcome with various approaches, including using the Blok platform as an online training report system which can help maintain the continuity of the support process from both parties (Maruanaya & Hariyanto, 2009).

In this study, the word Islamic Education is then divided into three conceptual categories (Asrori & Rusman, 2020); The first is Islamic education which is intended as the provision of education based on the perspective of ideal values and norms of life based on the Al-Qur'an and As-Sunnah. The second concept is Islamic Education whose study focuses on Islamic (in) education; including teachings, cultural systems, and civilizations that grew and developed throughout Islamic history. Furthermore, the third concept of Islamic Education is the process and efforts, methods, and transformation of Islamic teachings as a reference and outlook on life for Muslims.

The scope of Islamic education intended in this research is education which is the application of Islamic teaching values, so this discussion cannot be separated from the methods and strategies of character education implemented in public schools. Character education (is intended to instill values in students' attitudes and behavior, including the values of honesty, religion, tolerance, hard work, discipline, independence, national spirit, respect for achievement, love of the country, democracy, friendship/communication, love of reading, care about the environment, love peace, care socially, and be responsible; through class activities, school culture, and community involvement (Tim PPK Kemdikbud, 2019).

The integration of Islamic educational values is not intended as the implementation of religious activities such as commemorating Islamic religious holidays alone, but rather the application of Islamic values to general subjects at the primary and secondary school levels (Ikhwan, 2014). This implementation is a mentoring activity at school that requires the cooperation of all parties, including parents. Studies on the application of Islamic education state that Islamic education can facilitate growth in all aspects of education in students, including spiritual, intellectual, imaginative, physical, scientific, and linguistic aspects, ultimately having an impact on the growth of good character in students (Karmila, 2014).

Other findings state that the integration of Islamic education into learning activities can develop students' curiosity not only about teaching materials but can also develop personalities who actively seek knowledge with high curiosity (Ulya & Hayati, 2020). It is also stated that students' life skills can develop in line with the knowledge and skills learned during the learning process (Mawardi, 2012). The integration of values in Islamic education can increase students' regularity in worship, increase their faith, and demonstrate Istiqamah in carrying out religious activities and other activities (Jumala & Abubakar, 2019).

For this reason, the importance of integrating Islamic Education will not only help students improve their understanding of the material and provisions of worship as in Islamic religious subjects, but it should be able to help students implement worship in line with their daily lives. The attitude that students internalize within themselves from the integration of Islamic education is the growth of good traits (character) such as being helpful, forgiving, loving and respectful, and other attitude. Various approaches are used in integrating Islamic education in public schools, inseparable from the concept and order of curriculum implementation with the integration of character education. There are various methods and strategies for increasing intrinsic motivation to apply the values of Islamic education (Danuwara & Giyoto, 2024).

Implementation of a Teaching Factory with the Integration of Islamic Education in Vocational Education in Aceh

It is stated that the learning process that integrates the values of Islamic education begins with the activities of praying, praying, giving greetings, upholding politeness and manners, and instilling honesty at every opportunity to interact with work and entrepreneurship. Respondents also stated that the values of Islamic education are included in the vocational material content such as introducing halal requirements for products and production processes, ethical principles in dressing for garment production by Fashion Design students, justice based on Islamic law in managing construction projects, social values in interactions with consumers, calculating zakat and other expenses according to sharia, and others (Rachman et al., 2024).

Apart from that, Islamic education values, such as discipline, hard work, and obeying religious rules and regulations, are an important part of vocational learning. Although several respondents emphasized this integration, there was no tactical answer regarding how learning about the values of Islamic education was carried out in the learning process systematically and continuously. Nothing was found in the respondents' explanations regarding the steps taken by teachers in planning the integration of Islamic education values in learning strategies other than praying together, conveying work rules and monitoring them, and providing teaching materials that tend to only focus on industry standards (Amirudin, Supiana, Zaqiah, & Rohimah, 2024). The integration of Islamic education content only occurs in food products and production processes, but there is no explanation of how to integrate Islamic Education into Skills Competencies whose learning outcomes are services such as in the Technology and Engineering Skills Field, Hospitality and Fashion Skills Competency, Field Agricultural Skills, and others. From the respondents' explanations which are not very concrete, it can be stated that the integration of Islamic Education values has been implemented but has not been carried out systematically; in the sense that it has not been planned, implemented and monitored as part of the assessment of continuous learning outcomes (Khoiriyah, Mu'is, & Mukaffan, 2024; Sholihah & Robikhah, 2023).

This situation cannot be separated from the teacher's ability to manage learning which can unite the vocational learning process with the integration of Islamic education values. Some important things from the responses captured in this research are that some teachers only carry out their duties in carrying out learning without being involved in innovating teaching materials that will help students gain more meaningful and contextual experiences. Apart from that, managing study time also seems to still be a challenge for teachers; where some teachers have to take action to complete students' production practices due to limited time and students have to continue learning in other subjects/rooms. This is related to the lack of quality of learning management with block schedules and job sheets as previously explained (Maghfiroh et al., 2024).

Apart from that, teachers' abilities regarding Islamic education are also stated to be still lacking. This is indicated by the statement that some teachers have attempted to link vocational material content with the rules in Islamic law, but others stated that they have not done so because of their limited understanding. Another response stated that they did not implement it because there was no time available. This response strengthens the statement of the teacher's lack of understanding, resulting in the misconception that the integration of Islamic education occurs at a separate time from the learning process. However, within the limited understanding of teachers regarding sharia content which must strengthen the content of relevant teaching materials, some respondents stated that they had integrated activities that support the habit of good attitute in accordance with Islamic guidance such as study etiquette, etiquette towards teachers and friends, starting activities with read prayers and include these adab in learning assessments (Salim, Zaini, Wahib, Fauzi, & Asnawan, 2024; Syamsuar, Al-Fairusy, Junaidi, & Mulia, 2023).

With this explanation, it can be stated that the integration of Islamic education in the Teaching Factory learning process has been running, although it has not been optimal according to the applicable regulations. Apart from that, the management of the curriculum structure which requires schools to carry out Dinul Islam learning by providing special time of 2 JP/week was not mentioned by respondents. This also shows that Islamic education activities supported by study hours on academic content have not gone well at vocational schools in Aceh.

Islamic education is implemented in the school environment within the scope of scheduled and planned routine activities, also supported by school culture (rules and role models) which are based on the values of Islamic education. In the category of routine activities supporting Islamic education in schools, respondents generally mentioned extra-curricular and co-curricular activities such as Islamic spiritual studies, kultum at certain times, Islamic history studies (tend to be carried out in classroom learning activities), Ramadhan dayah (activities during Ramadhan), social service for the community around the school, mandatory congregational prayers, commemoration of Islamic religious holidays, and visits from sick/died teachers and students. Several respondents also mentioned student nasyid activities and charity activities on Fridays as routine activities at school, apart from unscheduled initiative activities such as collecting aid when disasters occur.

Based on local content options regulated by the Aceh Government, there are several extracurricular activities that can be carried out in high schools and vocational schools, especially those focused on implementing Islamic education such as Al-Qur'an literacy, Jawi letter literacy, Islamic arts, and others. From the respondents' explanations, it can be seen that some of these activities have begun to be implemented by a few schools. Most vocational schools have not implemented these activities and all schools tend to implement them partially and have not implemented them systematically and have not been part of the overall and sustainable development of Islamic education, including involving parents and teachers of all subjects in their implementation in everyday life. This is a priority for further study to obtain the impact of positive attitude changes in students as has been proven in previous applications and research.

The role of students in implementing extra-curricular activities appears to be very small. Activities are generally determined by teachers without involving students, this is also the case in their implementation, although some schools state that annual activities and social activities are managed by students in the OSIS. Other activities that have been active are Scouts and the like, which raise funds and carry out initiative activities to help the community. These student group activities generally only occur in certain groups, based on teacher instructions and student choices.

In general, extracurricular activities are activities that are not required by school management. In all aspects, there is no explanation regarding the involvement of all students in planning, implementing and following up on the results of each Islamic activity.

Religious celebration activities are dominated by religious lectures from speakers outside the school. Several students expressed the hope that every religious lecture activity during Islamic holidays would provide time for questions and answers. This shows the limited role of students in providing ideas, management and joint implementation of activities that should be able to support students' learning experiences in managing activities and drawing lessons from a meaningful activity. Religious lecture activities also tend to be limited to religious knowledge and insight during the commemoration day without being followed up with other activities/initiatives to ensure the application of these values in everyday life. Students also stated that they did not see any changes in their friends' behavior as a result of annual routine activities such as commemorating Islamic holidays and other activities (Noven & Inayati, 2024).

From the elaboration above, it can be concluded that routine activities intended to encourage the implementation of Islamic education on a routine basis have been implemented in vocational schools in Aceh, although they tend to only focus on aspects of religious knowledge and insight. The assessment of the values of these activities has not yet fully occurred and these activities have not been carried out systematically and systemically to foster social and emotional competence, so that there is no real impact on changes in students' good attitute which can be monitored and become the basis for improving character learning as expected. and as has been proven in similar applications.

Challenges of Implementing Teaching Factory Through the Integration of Islamic Education

The challenge in implementing the Teaching Factory with the integration of Islamic Education in all areas in general is the limited facilities and infrastructure, which is also related to the challenge of lack of practical funds to ensure sustainable production practices. This is in line with previous findings that learning facilities and infrastructure make a major contribution to the implementation, quality and motivation of student learning. The context of these previous findings is practical learning in schools that apply classical and conventional learning, which should be overcome by implementing a Teaching Factory which aims to manage learning with limited practical equipment through appropriate block schedules and job sheets so as to ensure sustainable production that will be able to cover practice funding needs (Taj, Abidin, Syahroni, Srinio, & Suyitno, 2024).

Apart from that, managing facilities and infrastructure for learning requires governance that is supported by teacher competence. The challenges of managing Facilities and Infrastructure in implementing the Teaching Factory with the integration of Islamic Education at a certain level are not in line with the objectives of implementing the Teaching Factory itself. This proves that Facilities and Infrastructure must be supported by the knowledge and skills of competent teachers to use them appropriately as has been proven in similar applications. For this reason, it can be stated that the challenge of limited practical tools to support the Teaching Factory is a priority to be studied and addressed by the relevant parties by paying attention to the number of practical tools to meet the ratio of tool needs according to vocational learning standards as well as reviewing teachers' skills in managing tools and applying principles learning with Teaching Factory.

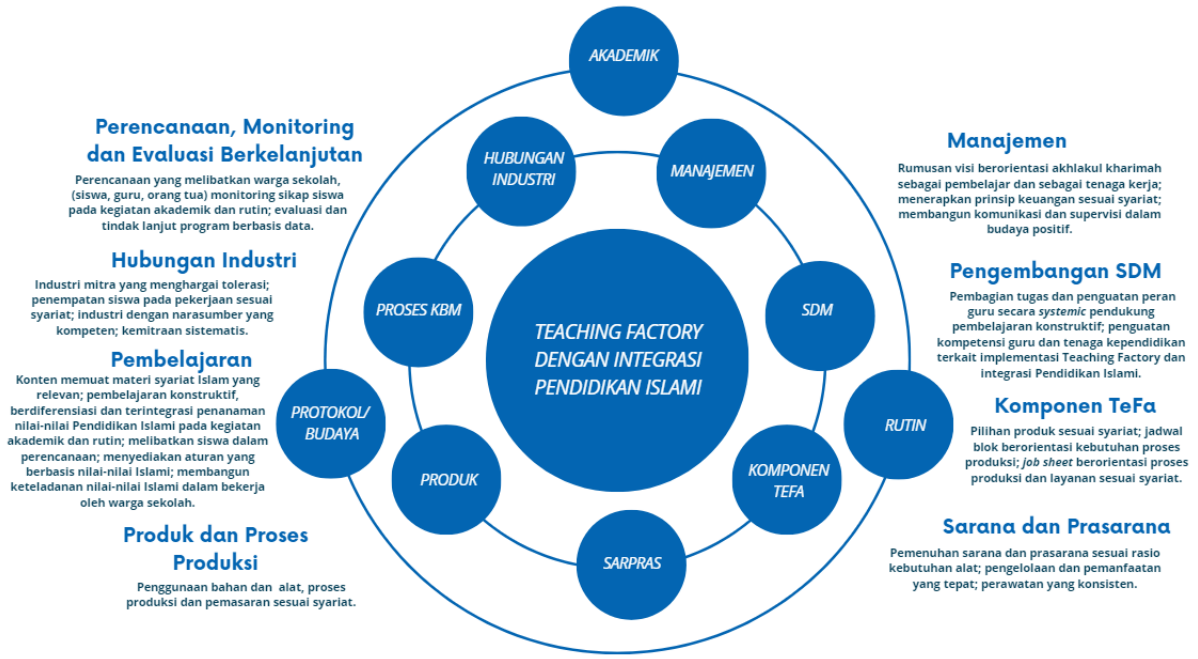
Another challenge is the implementation of Islamic education in schools that have a majority of non-Muslim students. This situation occurs and is said to be a challenge to the implementation of explicit activities such as the implementation of Islamic religious worship, celebration of Islamic holidays, and similar activities. Another challenge is also integrating Islamic education values during the learning process; such as praying, studying the basic rules of Islamic law in the production process, and other learning content that is connected to the principles and values of Islamic law. This challenge comes from the root problem of the teacher's ability to understand and apply learning methods for diverse students with Islamic education and the implementation of the Teaching Factory as discussed in the previous section.

The values of Islamic Education are virtues that are universally accepted by various communities and should be applied in all situations, with appropriate learning methods and by ensuring the application of high tolerance in the implementation of each student's worship. Learning about sharia content in the production process is knowledge that will benefit every student to ensure that the learning stages regarding production preparation, marketing strategies, product acceptance by customers, and other aspects can be more real and meaningful. Thus, it can be stated that this challenge is a challenge that can be overcome by increasing teachers' understanding of learning methods, the values of Islamic education, and the appropriate and comprehensive implementation of the Teaching Factory.

Teaching Factory Implementation Model with Islamic Education Integration

Based on the findings and studies above, this research found that the Teaching Factory implementation model with the integration of Islamic Education can be more effective in building learning attitudes and work ethics based on the curriculum objectives and principles of Islamic Education, as depicted in the following diagram:

Figure. 1



Source: Primary data processed, 2023.

School management that will have an impact on improving good attitudes as learners and building students' work ethic as prospective workers, is management that can support the implementation of the Teaching Factory and Islamic Education comprehensively and systemically; namely being integrated into the school development system and implemented simultaneously, integrated within the academic (learning) sphere, routine school activities, and becoming the culture of the school community. To ensure this integration, school management needs to ensure that the school vision is oriented towards developing the learning attitude and work ethic of students/graduates who are based on the values of Islamic education; implementing management flows such as communication and governance of tasks and roles that build a positive Islamic culture, as well as finances that are also based on the principles of Islamic sharia values.

Human resource development must be carried out systematically by ensuring the roles and duties of all teachers in supporting the implementation of the Teaching Factory and Islamic Education. Every teacher in all subjects needs to receive training and assistance to understand the content of their respective teaching materials and the appropriate strategies for utilizing these teaching materials in the Teaching Factory (B, Kardini, Elshifa, Adiawaty, & Wijayanti, 2023; Haq & Roesminingsih, 2024). Every teacher is also obliged to improve their ability to manage constructive learning by promoting exemplary behavior in their daily learning attitude and work ethic in carrying out their duties and roles faithfully.

The Teaching Factory components need to be understood by every teacher; so that the learning flow based on tangible products can support students' mindset in the production process at the Teaching Factory. Each subject should have an Activity Sheet (LA) that is in accordance with the workflow/procedure for achieving learning objectives with the learning principle of "finding it yourself" before receiving teacher confirmation at the end of the lesson. By implementing work procedure-based learning using LA in normative and adaptive subjects, students will be helped to get used to a constructive mindset to achieve product quality at the Teaching Factory by using job sheets (Yakin, Maskud, & Madi, 2024).

Facilities and infrastructure are supporting factors for practical learning to be carried out. In the Teaching Factory, practical facilities need to be managed concerning mapping the targeted competencies and the time requirements for achieving these competencies. With good mapping, the use of practical facilities will be optimal to ensure the right ratio of tool use. Apart from that, maintenance of practical equipment is a routine requirement that needs to be a priority in school budget planning.

The products and production processes in the Teaching Factory are closely related to knowledge of the values of Islamic education and sharia. With good knowledge of Islamic law regarding tools and materials in the production process, products will be obtained that are also in accordance with the law. Apart from that, a process that systematically integrates the values of Islamic education will also provide support for good habits in all aspects of students' lives as learners, as well as building an intrinsic work ethic. By including an assessment of work ethic according to the principles of Islamic education, it is also hoped that it will further strengthen students' internal motivation in building a work ethic.

Learning using the Teaching Factory model has been designed to build student competency following industry work standards. By integrating Islamic Education, it is hoped that these work competencies will become students' internally developed self-values; such as being diligent and enthusiastic about learning because it is part of worship, respect for teachers because

of the guidance of wisdom values in learning, and others. At the same time, a work ethic is built through regularity in carrying out appropriate and correct production processes according to Islamic law, as well as raising enthusiasm for work because it becomes one's value. For this reason, Teaching Factory learning with the integration of Islamic Education must ensure constructive, differentiated learning (with content, processes, and products that suit students' learning needs), involving students in planning as an initial assessment and mentoring during learning, agreeing on class/study rules. together with students with the principles of Islamic education values, and ensuring the example of teachers and school residents in all academic and routine learning activities at school.

Industry partners are important supporters in implementing the Teaching Factory which will have an impact on the competence of students/graduates in the future. To ensure that this support is meaningful in building Islamic self-values, the school needs to ensure that this collaboration is with industrial partners that are following Islamic law. Several important things in this partnership include ensuring that the school partner is an industry that supports religious tolerance and produces halal products with a halal production process. Apart from that, partner resource persons also need to understand the principles of Islamic law in the production process and service management according to Sharia, even in general, so that they can build role models for students. With appropriate partners, schools need to build a systematic industrial network that will support students in the academic, routine, and development of an industrial work culture at school.

Finally, to ensure that all the elements above are implemented meaningfully and sustainably, proper planning, monitoring, and evaluation are needed for each program implementation. Planning that involves students will build a sense of belonging, personal goals, and self-confidence with positive environmental support. Monitoring of learning attitude needs to be carried out systematically; recorded and monitored so that it can become the basis for assistance actions. Continuous evaluation of the implementation of the Teaching Factory with the integration of Islamic Education needs to be carried out for all the elements above; which will become a baseline for further planning.

CONCLUSION

Teaching Factory has a good impact on developing students' work ethic. With work procedures under industry standards and supported by important aspects it, the Teaching Factory is proven to be a place for students to achieve work competency while at the same time getting used to a work attitude according to the demands of the user industry. To maximize the benefits of the Teaching Factory model, the support of all human resources who understand the principles of its implementation and management related to the curriculum is another supporting factor. Of the seven aspects of implementing the Teaching Factory, human resources are the main capital in improving the sustainable quality of the Teaching Factory. Islamic education is proven to be the main factor in building the learning attitude and work ethic of vocational school students/graduates. By implementing it in an integrated manner within the academic sphere (Teaching Factory), students are seen to have a good learning attitude. Through its integrated application within the routine scope and school culture, students get a platform to practice carrying out their duties and roles in a positive work environment.

Teaching Factory and Islamic Education together have been proven to have a strong influence on the successful realization of students' learning attitudes and work ethic. This indicates

that realizing an Islamic attitude and work ethic for students in vocational schools cannot be achieved only by implementing the Teaching Factory and the Islamic Education program separately. Both programs must be implemented systemically with integration in all aspects of vocational school services; both in the academic, routine, and school culture spheres.

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