

The Implementation of Industrial Work Culture as an Effort to Educate Students' Character in Qualitative Analysis Practical Learning for Grade XI of Analytical Chemistry Department at SMTI Yogyakarta Vocational School

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ABSTRACT: This research aims to implement industrial work culture as an effort to educate students' character in practical learning of Qualitative Analysis for grade XI of Analytical Chemistry Department at SMTI Yogyakarta Vocational School. The research was carried out with a qualitative approach to survey results for students after completing the learning process with a block system lesson schedule, where students must comply with rules or regulations that instill discipline, responsibility and tough character. Students are required to submit practical reports within a certain time limit. The subjects in this research were eleventh-grade students of Analytical Chemistry Department at SMTI Yogyakarta Vocational School, totaling 32 students. The data were analyzed descriptively and present in tabular form. The results of the research showed that the majority agreed with the statements in the questionnaire given, where in the results of the evaluation survey of the block system learning schedule, 68.75% agreed that practical learning with the block system could improve student discipline and 31.25% strongly agreed. 59.38% agreed that practical learning with the block system could increase student's endurance (physical and mental endurance) and 34.38% strongly agreed. 50.00% agreed that practical learning with the block system could train students to manage time and 43.75% strongly agreed. 46.88% agreed that practical learning with the block system could increase student learning motivation and 21.88% strongly agreed. 65.63% agreed that practical learning with the block system could further facilitate student's level of understanding and 15.63% strongly agreed. Meanwhile, in the survey results regarding the rules for collecting practice reports with a certain time limit, 56.25% agreed that collecting practice reports with a certain time limit could improve student discipline and 31.25% strongly agreed. 59.38% agreed that collecting practice reports with a certain time limit could increase student's endurance (physical and mental endurance) and 34.38% strongly agreed. 59.38% agreed that practical learning with the block system could train students to manage time and 28.13% strongly agreed. 46.88% agreed that practical learning with the block system could increase student learning motivation and 21.88% strongly agreed. Therefore, it can be concluded that the implementation of industrial work culture in the practical learning for grade XI of Analytical Chemistry Department at SMK-SMTI Yogyakarta Vocational School can be a character education effort, which is supported by the survey results, where the majority agreed with the statements in the questionnaire given to student representatives who were the objects of research.

Keywords: industrial work culture, character education, block system learning schedule

INTRODUCTION

Educational institutions or schools should not only have the obligation to increase the achievement of academic competence, but also be responsible for forming good character. To enter the world of work



in industry, prospective workers must not only have competence in certain areas of expertise, but are also required to have a comprehensive industrial work culture attitude.

Based on research, it shows that character education, such as discipline, religion, friendly/communicative, hard work, responsibility and honesty are the main values that educators often give to students at vocational schools [1]. Meanwhile, the character values that industry tends to want when recruiting vocational school graduates as prospective employees are religious, honest, disciplined, responsible and hard work. These five character values are the top criteria for industry in selecting prospective employees who come from vocational school graduates.

Industry demands more vocational school graduates who work to have a good work culture. Industry considers that hard skills equivalent to vocational school graduates can be formed by industry, but soft skills such as work culture require quite a lot of effort because they are related to the character of each individual. This is the main problem of vocational schools that is often forgotten.

Vocational High Schools (SMK) as educational institutions which aim to produce prospective workers who are professional and ready to enter the world of work are required to equip their students to have an industrial cultural attitude. Efforts to instill an industrial work culture in students can be done through character education according to what industry requires in the learning process at school. To instill a work culture, it takes a long time. This means that while students are studying at vocational school, students are continuously getting used to the industrial work culture at school.

Company or industry culture is a system of values and beliefs that are adhered to, create passion for work, discipline, and like to have high morals. So that company culture creates behavioral regularities that can be seen in interactions. Companies that want to progress must have an organizational culture that is well organized and followed by all organizational personnel. Weaknesses that exist in one of the cultural elements must be corrected immediately, so that organizational members do not get used to existing weaknesses.

Work culture is a concept that regulates the beliefs, thought processes and behavior of employees based on the ideology and principles of a company [2]. This concept will also regulate how employees interact and how the company continues to operate. Apart from that, working culture is also created as a result of solving company problems in the adjustment process. Please note that this culture was not created by itself. But it is formed through many processes involving human resources and all supporting equipment. This culture is also a determining factor in the success of a company. Therefore, creating a positive work culture is a must for business owners and their employees. Because this also reflects the values of a company and can have a positive impact. Every company definitely has its own work culture. The existence of a work culture in the company is expected that employees can increase their work productivity and achieve results that are in accordance with the company's vision.

The aim of industrial culture itself is to change the attitudes and behavior of human resources in order to increase work productivity to face various challenges in the future [3]. The formation of a work culture requires a long process, starting from good individual work characteristics which become habits and finally forming a collective work character which is called industrial culture.

Based on the explanation above, it can be concluded that industrial work culture can be interpreted as habits that are carried out repeatedly which aim to increase work productivity to face various challenges.

Quoted from the book Character Education Management, character is a person's natural nature in responding to situations morally which is manifested in real actions through good, honest, responsible behavior, respect for other people and other noble character values [4]. Character education is related to morals. However, character education has a higher meaning than moral education. Character education is not only related to issues of right and wrong, but how to instill habits about good things in life. Thus, students have high awareness and understanding, as well as concern and commitment to apply virtues in everyday life. Character education can be integrated into learning in every subject.

Character education is a system of instilling character values in school members which includes components of knowledge, awareness or will, and actions to implement these values, both towards God Almighty, oneself, others and the environment as well as nationality so that we become human beings [5].

Character education is an effort to apply religious, moral and ethical values to students through science, assisted by parents, teachers and the community which is very important in the formation and development of students' character [6]. Every child has good potential from birth, but this potential must continue to be honed and socialized well so that each child's character is formed and develops optimally.

A person's character will be formed if an activity is carried out repeatedly until it becomes a habit, which in the end not only becomes a habit but also becomes a character. Therefore, character education must be carried out as early as possible so that children are able to instill good character so that they can carry it into adulthood. Character education in schools can be applied to all subjects. Every subject related to norms needs to be developed and linked to everyday life.

Education towards the formation of students' character is the responsibility of all teachers. Therefore, the coaching must also be done by the teacher. Thus, it would be inaccurate to say that educating students to have national character is only delegated to certain subject teachers, for example Civic Education teachers or Religious Education Teachers. Although it can be understood that those who are dominant in teaching national character education are teachers who are relevant to national character education. Without exception, all teachers must make themselves as authoritative role models for their students. Character education can be integrated into learning in every subject.

Character of education, it is absolutely necessary for the survival of this nation. Competition imagine what will emerge in the next years. Obviously it would be our burden and parent for today. At that time, the children will face competition with colleagues from various countries around the world. In fact we are still going to work year will feel the same feelings. Demand the quality of human resources in the coming millennium certainly requires good character. However, the character is the key individual goal [7].

Industrial revolution 4.0 or also commonly known as cyber physical system is a phenomenon where collaboration occurs between cyber technology and automation technology. The industrial revolution brought many changes in various sectors. In the labor sector, many areas of work are being replaced by technology. To enter the world of work in industry in the era of the industrial revolution 4.0, prospective workers must also have competence in certain areas of expertise. It is also required to have a comprehensive industrial work culture attitude. Vocational schools as educational institutions which aim to produce prospective workers who are professional and ready to enter the world of work are required to equip their students to have an industrial cultural attitude. To instill a work culture, it takes a long time. This means that while students are studying at vocational school, students are continuously getting used to the industrial work culture at school [8]. According to Sambodo [9], the industrial culture in vocational schools will improve students' soft skills so that they will be able to adapt and develop the industry in which they will work in the future.

Work culture aims to change the attitudes and behavior of existing human resources in order to increase work productivity to face various challenges in the future. The industrial work culture is so important for vocational school students as a preparation when they later enter the industrial world or the world of work. Apart from that, applying industrial work culture to students will get them used to having good soft skills. The aim of implementing work culture in vocational schools: so that vocational school students have a work culture that meets the demands of the industrial world and the world of work. so that students have the ability to adapt to work situations in the industrial world and the world of work [10].

Several studies have been carried out in order to implement an industrial work culture in educational institutions, both at high school and university levels. Sudiyanto, A. Fatah, and M. Wakid [11] conducted research entitled Implementation of Work Characteristics Based on Work Culture in the Automotive Industry among Students Participating in Basic Formation Technology Courses in the Department of Automotive Engineering Education, FT UNY. The research results show that by trying to implement an industrial culture, it is possible to increase practical work performance, both in terms of discipline and practical work products (time, quality of results).

Adiputra and Putri [12] also implemented a Problem Based Learning Model Based on Industrial Culture to Improve Vocational School Students' Creative Mathematical Thinking Ability. The results of the research show that students who receive learning using the industrial culture-based Problem Based Learning model obtain better results than students who receive conventional learning. This happens because the industrial culture-based Problem Based Learning model emphasizes students' activeness in exploring what they don't know through the problems they are given. These problems are closely related to the industrial world, thereby encouraging their sense of interest regarding the industrial world which will be their place of work after graduating.

Sudarsono, et al [13] conducted Industrial Culture Based Training as an Effort to Increase Understanding of Industrial Work Culture for Muhammadiyah 2 Tempel Vocational School Students. The test results showed that there was an increase in the average score of students' application of

industrial work culture between before and after the training. A good work culture plays a very important role in increasing labor productivity in industry.

Based on Mahasin and Suyitno's research [14], there was an increase in practical effectiveness which was influenced by the variable understanding and application of 5S industrial culture by 38% in the practical learning of class XII Ototronik in the laboratory of Taman Karya Madya Pertambangan Kebumen Vocational School.

Based on these studies, it can be concluded that the implementation of industrial work culture in learning can be carried out as an effort to educate students' character, especially in preparing students to enter the world of industry and the world of work.

SMTI Yogyakarta Vocational School as one of the schools under the auspices of the Ministry of Industry has the task of preparing prospective industrial workers who have character traits including discipline, responsibility and toughness. This character is in accordance with the needs of the industrial world. Therefore, schools, especially teachers, are required to be able to develop learning strategies that support the formation of student character according to the needs of the industry.

Based on the description above, we will conduct the research about the implementation of industrial work culture as an effort to educate students' character in Qualitative Analysis practicum learning for Grade XI of Analytical Chemistry Department at SMTI Yogyakarta Vocational School. This research basically has the practical objectives, briefly describe how to implement industrial work culture as a character education effort in the learning process.

RESEARCH METHODS

This research aims to carry out character education through the implementation of industrial work culture in Qualitative Analysis practicum learning for grade XI of Analytical Chemistry Department at SMTI Yogyakarta Vocational School. The research objects were students from group XI KA A-1 and XI KA B-1, totaling 32 students.

The learning process is carried out using a block system lesson schedule, where each group is allocated time for 1 week (5 days) with a total of 10-12 lesson hours each day. During the week, students are given learning material, both theory and practice, then given the task of making a practical report which must be submitted the following day. During this practical block, students are given character development through rules that accustom students to have a disciplined, responsible and tough attitude. Students are required to submit practice reports after completing learning within a certain time limit.

The research was carried out qualitatively and analysis of the results was carried out simply through survey questionnaires given to students after the learning process was completed. The data were analyzed descriptively and present in tabular form.

RESULT AND DISCUSSION

A. Implementation of Industrial Work Culture as an Effort to Educate Students' Character in Qualitative Analysis Practical Learning Class XI Analytical Chemistry at SMTI Yogyakarta Vocational School

SMK-SMTI Yogyakarta as one of the schools under the auspices of the Ministry of Industry has the task of preparing prospective industrial workers who are competent and have character traits, including discipline, responsibility and toughness. This character is in accordance with the needs of the industrial world. Therefore, schools, especially teachers, are required to be able to develop learning strategies that support the formation of student character according to the needs of the industry. In this paper, we will explain the implementation of industrial work culture as an effort to educate students' character in Qualitative Analysis practical learning of Class XI Analytical Chemistry at SMTI Yogyakarta Vocational School.

Implementing an industrial work culture in Yogyakarta SMK-SMTI students is very important because it will be a provision when they later enter the world of industry and the world of work. Apart from that, implementing an industrial work culture will help students get used to having good soft skills. The aim of implementing an industrial work culture at SMK-SMTI Yogyakarta is so that students have a work culture that meets the demands of the industrial world and have the ability to adapt to work situations in the industrial world and the world of work.

The character values that we want to instill in Yogyakarta SMK-SMTI students include discipline, responsibility and toughness. To realize this goal, schools can provide various programs. One program

that can be implemented is the 5S work culture program. This 5S program includes (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) whose principles are as follows [10]:

1. The principle of Seiri is to separate everything that is necessary and remove what is not necessary from the workplace. Knowing which items not to use, which to keep, and how to store them so they can be easily accessed can prove to be very useful for schools.
2. The principle of Seiton is to store things according to their place. Neatness is about how quickly we put things away and get them back when needed.
3. The principle of Seiso is to clean the school premises/environment, machines/equipment and items so that there is no dust, dirt and odor. Cleanliness must be implemented and accustomed to by everyone, from the leadership to the executors.
4. The principle of Seiketsu is the creation of personal habits for teachers, employees and students to maintain and improve what has been achieved. Being diligent in the school environment means developing positive habits in the school environment.
5. The principle of Shitsuke is to maintain the results that have been achieved in the previous (Concise, Neat, Clean) by standardizing them (Standardization). This principle can work if it is implemented together in the school environment.

The benefits of the 5S program, if successfully implemented, will reduce waste, improve quality and productivity, avoid work accidents, increase performance and continuous performance improvement, school equipment and work locations in practical laboratories are orderly, neat and clean, as well as the advantage of having students who are mentally move forward and have a positive attitude and behavior.

In addition to the 5S program, Yogyakarta SMK-SMTI also implements a block system learning schedule. In this scheduling system, one type of subject, especially practicum, is implemented with a time allocation of 1 - 2 weeks to study the material for one semester. So, within a week, from Monday to Friday, from the first lesson to the last lesson, students only study one subject in the same laboratory or workshop. This aims to train students mentally and physically so they are accustomed to working like in industry. Apart from that, it is hoped that through this learning system with a block schedule, the material in one subject can be studied continuously and thoroughly so that students will more easily master the competencies they will achieve.

Apart from the 5S program and the learning system with a block schedule implemented by the school, in the Qualitative Analysis practical learning process in class XI Analytical Chemistry. These rules or regulations reflect the work culture in the industry, including those related to discipline, responsibility, toughness and a high work ethic. Students are given an understanding of the importance of industrial work culture to be implemented in the practice room and school environment.

Work culture in industry which is applied to practical learning Type Analysis includes character education according to industry needs including: first, discipline. Students are accustomed to orderly wearing practical uniforms, being on time to enter and leave the practice room, and being on time in completing practical reports and assignments given by the teacher. Second, toughness. Students are instilled in the habit of exerting their thoughts and energy in completing practicums in worksheets, making practicum reports, and completing assignments given by the teacher according to the predetermined time targets. Third, high work ethic. A high work ethic is instilled in students to always be enthusiastic about participating in practical learning in the laboratory. Fourth, responsibility. Students are accustomed to maintaining the cleanliness of the practical room, clean equipment and practical equipment and are responsible for maintaining the laboratory equipment used so that it remains well maintained. Students must also be responsible if any equipment is damaged due to carelessness during laboratory practice.

Teachers must have a firm attitude in enforcing the rules or regulations that have been established. If a student violates the rules, they will be given sanctions appropriate to the violation. For example, if a student has not completed the previous day's practicum report, the student is not permitted to take part in learning the next practicum material. Thus, students are required to always be disciplined in completing their reports on time and make every effort to mobilize their thoughts and energy.

By continuously implementing industrial culture, students will get used to doing things with full awareness and without feeling pressured. In this way, these character values will be embedded in students. This will be useful as a preparation for students entering the world of industry and the world of work. Students have a work culture that meets the demands of the industrial world and have the ability to adapt to work situations in the industrial world and the world of work.

B. Evaluation Survey Results of Qualitative Analysis Learning Class XI KA SMTI Yogyakarta Vocational School

After the learning proces, the survey was carried out on a sample class consisting of 32 students using Google Form and the data were analyzed descriptively and present in tabular form.

The results of the research showed that the majority agreed with the statements in the questionnaire given, where in the results of the evaluation survey of the block system learning schedule shown in table 1, 68.75% agreed that practical learning with the block system could improve student discipline and 31.25% strongly agreed. 59.38% agreed that practical learning with the block system could increase student's endurance (physical and mental endurance) and 34.38% strongly agreed. 50.00% agreed that practical learning with the block system could train students to manage time and 43.75% strongly agreed. 46.88% agreed that practical learning with the block system could increase student learning motivation and 21.88% strongly agreed. 65.63% agreed that practical learning with the block system could further facilitate student's level of understanding and 15.63% strongly agreed.

Meanwhile, in the survey results regarding the rules for collecting practice reports with a certain time limit shown in table 2, 56.25% agreed that collecting practice reports with a certain time limit could improve student discipline and 31.25% strongly agreed. 59.38% agreed that collecting practice reports with a certain time limit could increase student's endurance (physical and mental endurance) and 34.38% strongly agreed. 59.38% agreed that practical learning with the block system could train students to manage time and 28.13% strongly agreed. 46.88% agreed that practical learning with the block system could increase student learning motivation and 21.88% strongly agreed.

TABLE 1. Evaluation Survey Results of the Block System Lesson Schedule

No	Statement	Strongly Agree	Agree	Uncertain	Disagree
1.	Practical learning with a block system can improve student discipline.	31.25%	68.75%	0.00%	0.00%
2.	Practical learning with a block system can increase students' endurance (physical and mental endurance).	34.38%	59.38%	6.25%	0.00%
3.	Practical learning with a block system can train students to manage time.	43.75%	50.00%	6.25%	0.00%
4.	Practical learning with a block system can increase student learning motivation.	21.88%	46.88%	31.25%	0.00%
5.	Practical learning with a block system can further facilitate students' level of understanding.	15.63%	65.63%	18.75%	0.00%

TABLE 2. Evaluation Survey Results on Rules for Collecting Practice Reports with Specific Time Limits

No	Statement	Strongly Agree	Agree	Uncertain	Disagree
1.	Collecting practice reports within a certain time limit can improve student discipline.	31.25%	59.25%	12.50%	0.00%
2.	Collecting practice reports within a certain time limit can increase students' endurance (physical and mental endurance).	34.38%	59.38%	6.25%	0.00%

No	Statement	Strongly Agree	Agree	Uncertain	Disagree
3.	Collecting practice reports within a certain time limit can train students to manage time.	28.13%	59.38%	12.50%	0.00%
4.	Collecting practice reports within a certain time limit can increase student learning motivation.	21.88%	46.88%	31.25%	0.00%

Therefore, based on the results of the survey, it can be concluded that the implementation of industrial work culture in the Qualitative Analysis practical learning for grade XI of Analytical Chemistry Department at SMTI Yogyakarta Vocational School can be a character education effort, which is supported by the survey results, where the majority agreed with the statements in the questionnaire given to representatives of students who are the object of research.

CONCLUSION

The implementation of industrial work culture in the practical learning for grade XI of Analytical Chemistry Department at SMTI Yogyakarta Vocational School can be a character education effort, which is supported by the survey results, where the majority agreed with the statements in the questionnaire given to student representatives who were the objects of research.

REFERENCES

- [1] L. Akhimelita, Sumarto, and A. G. Abdullah, "Model Pendidikan Karakter di Sekolah Menengah Kejuruan," *Jurnal Moral Kemasyarakatan*, vol. 5, no. 1, pp. 27–33, 2020.
- [2] S. Candrawardhani, "Budaya Kerja: Pengertian, Jenis, Contoh, Cara Membangunnya." [Online]. Available: <https://www.kitalulus.com/bisnis/budaya-kerja>. Accessed: Dec. 6, 2023.
- [3] Suparman, "Penerapan Budaya Kerja Industri pada Mata Pelajaran Dasar-dasar Otomotif K3LH." [Online]. Available: <https://cabdindikwil1.com/blog/penerapan-budaya-kerja-industri-pada-mata-pelajaran-dasar-dasar-otomotif-k3lh/>. (Accessed: Dec. 6, 2023).
- [4] B. S. Arifin and H. A. Rusdiana, *Manajemen Pendidikan Karakter*. Bandung: CV. Pustaka Setia, 2019.
- [5] Indarmawan, "Pentingnya Pendidikan Karakter di Sekolah Menengah Kejuruan (SMK)," in *Proc. National Seminar on Educational Evaluation*, Indonesia, 2013, pp. 528–532.
- [6] I. Lestari and N. Handayani, "Pentingnya Pendidikan Karakter pada Anak Sekolah Khususnya SMA/SMK di Zaman Serba Digital," *Jurnal Guru Pencerah Semesta (JGPS)*, vol. 1, no. 2, pp. 101–109, 2023.
- [7] N. Omeri, "Pentingnya Pendidikan Karakter dalam Dunia Pendidikan," *Jurnal Manajer Pendidikan*, vol. 9, no. 3, pp. 464–468, 2015.
- [8] Tuhadi, "Menerapkan Budaya Kerja Industri pada Mapel Kejuruan di Era Revolusi Industri 4.0." [Online]. Available: <https://radarsemarang.jawapos.com/artikel/untukmu-guruku/2022/06/14/menerapkan-budaya-kerja-industri-pada-mapel-kejuruan-di-era-revolusi-industri-4-0/>. (Accessed: Dec. 7, 2022).
- [9] W. Sambodo, "SMK Harus Bisa Mengembangkan Budaya Kerja Industri." [Online]. Available: <https://www.krjogja.com/semarang/1242508391/smk-harus-bisa-mengembangkan-budayanbsp-industri>. (Accessed: Dec. 6, 2023).
- [10] R. Meiartha, "Pentingnya Menerapkan Budaya Kerja Industri pada Siswa SMK." [Online]. Available: <https://smk10semarang.sch.id/blog/pentingnya-menerapkan-budaya-kerja-industri-pada-siswa-smk/>. (Accessed: Dec. 7, 2022).
- [11] Sudyanto, A. Fatah, and M. Wakid, "Implementasi Karakter Kerja Berbasis Budaya Kerja di Industri Otomotif pada Mahasiswa Peserta Kuliah Teknologi Pembentukan Dasar di Jurusan Pendidikan Teknik Otomotif FT UNY," *Jurnal Pendidikan Vokasi Otomotif*, vol. 1, no. 1, pp. 26–37, 2018.
- [12] Y. Adiputra and H. E. Putri, "Penerapan Model Problem Based Learning Berbasis Budaya Industri untuk Meningkatkan Kemampuan Berpikir Kreatif Matematis Siswa SMK," *GAUSS: Jurnal Pendidikan Matematika*, vol. 03, no. 02, pp. 66–76, 2020.

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- [13] B. Sudarsono et al., "Pelatihan Berbasis Industri sebagai Upaya Peningkatan Pemahaman Budaya Kerja Industri Siswa SMK Muhammadiyah 2 Tempel," in *Proc. National Seminar on Research and Community Service*, Metro, Indonesia, 2023, pp. 232–239.
- [14] A. Mahasin and Suyitno, "Pengaruh Budaya Industri 5R/S terhadap Efektivitas Praktik Siswa Kelas XII Ototronik 4 di Laboratorium SMK Taman Karya Madya Pertambangan Kebumen," *Autotech: Jurnal Pendidikan Teknik Otomotif Universitas Muhammadiyah Purworejo*, vol. 17, no. 01, pp. 29–37, 2022.