Increasing the Competence of Vocational Education Teachers with 4C Skills-Based Training Management (*Critical Thinking, Creativity, Communication, Collaboration*)

Yeni Saufina Siregar[1], Eka Daryanto[2], Siman[3]

{yeniisiregar24@gmail.com[1], ekadaryanto@unimed.ac.id[2], simannurhadi@gmail.com}

Affiliation: Universitas Negeri Medan, Jl. Willem Iskandar/Pasar V Medan[1,2,3]

Abstract. This study aims to identify the effectiveness of the 4C skill-based training management in increasing the competency of vocational education teachers. The research method used is a qualitative approach with case studies of a number of vocational education teachers who attended 4C skill-based training. Data was collected through in-depth interviews, class observations, questionnaire and analysis of related documents. The number of respondents in this study were 15 teachers. The results of the research show that the training books produced are valid and practical as measured by the validators and field practitioners. In addition, from the results of the analysis it was found that 4C skills-based training management can effectively improve the competence of vocational education teachers.In conclusion, 4C skills-based training management can be an effective strategy in increasing the competency of vocational education teachers.

Keywords: Teacher Competency, Vocational Education, Training Management, Skill 4C

1 Introduction

Society in the 21st century faces complex challenges and increasing individual needs. Vocational education is an education stratum that is always dynamic, such as curriculum changes based on the growth of the job market and adapting to developments in science and technology [1]; [2]. Vocational education is designed to prepare individuals to obtain specific jobs or jobs that are directly related to the productivity and competitiveness of a country [3]. Vocational education at the higher education level is education that prepares students to have jobs with certain applied skills, in the Indonesian National Qualifications Framework (KKNI) it is explained that a competency qualifications framework that can juxtapose, equalize and integrate between fields of education, and the field of job training and work experience in accordance with the work structure in various sectors. The IQF is the main reference in determining the competency of graduates of academic education, vocational education and professional education. One of the vocational education programs is aimed at vocational education [4].

The current phenomenon is that there is often an imbalance in the ratio of the number of academic tertiary institutions to vocational tertiary education. Evidence of this inequality lies

in the difference in the capacity of vocational education institutions which can accommodate 14.25% of the total number of students. This is because the capacity of vocational education is far smaller than the capacity of academic tertiary institutions. On the other hand, it is necessary to reorient the existence and competency skills of a SMK teacher. Another problem can be seen is unemployment in Indonesia which is dominated by high school graduates followed by SMK/MAK. In addition, other issues that are often raised generally revolve around the inaccuracy of the competence of vocational education and training graduates with available employment opportunities. The solution to overcome these problems has been issued Presidential Regulation Number 68 of 2022 with the aim of making efforts to revitalize all components in the PVPV process in a systematic and comprehensive manner, so that it has a broad impact on improving the quality of human resources [5].

The problem that often occurs is the large number of unemployed in Indonesia which is dominated by high school graduates followed by SMK/MAK. This is due to the inaccuracy of the competencies of vocational education and training graduates with the available jobs and the teacher's lack of knowledge in solving a problem faced [5]. This relates to the problems at the SMK Swasta Madani Marindal, Patumbak District, namely how teachers produce students and alumni who are skilled and have the ability to acquire and build knowledge that aims to solve problems. The learning activities carried out by the teacher at the school must focus on providing direct experience to students so that students will be able to understand the material well.

Another problem is the weak soft skills of the SMK Swasta Madani Marindal teachers in Patumbak District in mastering 4C skills. A vocational school teacher must be able to change the implementation of education and teaching so that students besides mastering hard skills according to the subject matter must also master soft skills in the form of 4C skills as a follow-up effect. This is a challenge for teachers to innovate in their learning. Traditional approaches that emphasize memorization by applying simple procedures will not develop students' higher order thinking skills. Implementation of education and teaching that is well planned and supported by adequate lecturer skills will be able to teach 4C soft skills properly [6].

In research conducted by Haryani et al., (2021), the teacher's ability in planning the implementation of the 4C learning strategy "Creative Thinking, Critical Thinking and Problem Solving, Communication, Collaboration" in making syllabus formats and lesson plans formats is in accordance with the applicable provisions according to the Minister of Education and Culture Regulation No. 22 of 2016 concerning basic and secondary education standards for planning learning with the 4C strategy where the teacher as an educator deals directly with students. Then students who become the subject of students who help teachers in these learning activities. Adequate facilities and infrastructure are also urgently needed, for example preparing learning media and student learning resources to be used. Lastly is the arrangement of space with spatial planning that is in accordance with the method used in the teaching and learning process in the classroom will run effectively and efficiently [8].

Based on a preliminary study conducted in December 2022 with direct field observations, it was found that 72.8% of teachers at the SMK Swasta Madani Marindal, Patumbak District, did not yet have 4C skills in carrying out learning activities and only 27.2% of teachers were able to apply 4C skills in learning. In addition, data was found that 68.4% of teachers at the Private Madani Marindal Vocational School, Patumbak District, did not master 4C skills

management so that learning that took place at the Vocational School was not optimal and only 31.6% had 4C skills skills. So, from the studies conducted and the data found, it can be concluded that the 4C skills of teachers are still weak.

Weaknesses of 4C in teacher competency at SMK Swasta Madani Marindal, Patumbak District, are still considered weak due to the lack of teacher mastery of 4C skills training management. Training is an important factor in efforts to increase teacher competence. Training is usually carried out to prepare someone to carry out a role or task [9]. Training must be carried out by a school if the school wants to have teachers who are highly competent and in accordance with predetermined standards. Based on research conducted by Rakib et al. (2017), states that training has a significant effect on increasing teacher competence and there is no research which states that training has no effect on increasing teacher competence. The data found by Rakib et al. (2017) stated that the effect of training on increasing teacher competence was 65.8%. This means that training affects the competence and professionalism of teachers. Therefore, researchers feel interested in conducting further research on teacher competence because if a teacher does not have professional competence or abilities, it will have an impact on the learning process, namely a decrease in the quality of learning so that it has an impact on the quality of education. By doing this research it is hoped that it can improve the learning process to be more effective and can improve the quality of learning which will improve the quality of education.

Learning that can train the thinking skills of SMK Swasta Madani Marindal teachers in Patumbak District is learning that is skilled in solving problems, skilled in critical, creative and innovative thinking. The teachers of the SMK Swasta Madani Marindal, Patumbak District, are directed to think critically so that later they are able to identify problems, process problems, and conclude existing problems so that students can gain a deeper understanding of the natural surroundings. A teacher's critical thinking skills can be achieved by innovating appropriate learning according to problem-based or project-based teaching and learning activities in class, collaborating with each other, communicating, applying metacognition, designing learning that is closely related to real situations and student-centered.

Critical thinking is considered important in 21st Century learning because skills are indispensable [11]. This is based on that in 21st century learning, teachers must be able to find existing sources of information, be objective in assessing so that they can compare evidence in formulating a problem and are responsible for making a decision. Critical thinking skills also refer to skills such as communicating, analyzing, interpreting and evaluating evidence [12]. Important competencies needed by teachers in these schools are creativity and innovation. In this competency, the teacher must be able to produce innovative solutions or ideas from a problem and produce products as a result of new thinking. Learning skills and learning innovation can provide facilities in mastering skills in communicating ideas, being active in acting and relevant in solving problems [13].

Furthermore, the skills that must be possessed by teachers are communication skills. Strong communication skills will produce complex thoughts both orally and in writing and be able to communicate coherent instructions and be able to motivate others well. Effective communication skills can help avoid misunderstandings and miscommunication, so communication skills are very important for a teacher to have [14]. This is in accordance with the 2013 curriculum in a scientific approach which is one of these activities, namely

communication. The next skill is collaboration skill. In this skill, teachers are required to be able to have a good cooperative attitude, helping each other in solving existing problems. Effective work skills can train teachers in achieving the desired goals.

The achievement of these skills can be done by carrying out learning innovations that are adapted to problem or project-based learning, encouraging good collaboration, good communication with each other, empowering metacognition [15]. It is hoped that instilling 4C skills in SMK Swasta Madani Marindal, Patumbak District, will equip teachers in living their daily lives so that they can adapt competitively to the surrounding environment and be able to face various challenges in the future. Because with these 4C skills, teachers are able to learn independently in solving a problem both individually and in groups.

2 Research Methods

The type of research used is a qualitative approach with case studies of a number of vocational education teachers who attended 4C skill-based training. Data was collected through in-depth interviews, class observations, questionnaire, and analysis of related documents. The number of respondents in this study were 15 teachers. The training was conducted with teachers from the SMK Swasta Madani Marindal, Patumbak District, Medan, North Sumatra Province. This research was conducted in June 2023. Before conducting the research, the researcher had first developed a 4C skill-based vocational training book (*Critical Thinking, Creativity, Communication, Collaboration*). This book was developed with the aim of serving as a guide for the teachers of SMK Swasta Madani Marindal in implementing vocational education to their students later. The developed training book has been validated by vocational experts. The results of the research show that the training books produced are valid and practical as measured by the validators and field practitioners. In addition, the researchers invited resource persons in the education curriculum from the Education Office of North Sumatra Province. The resource person will later provide material to the teachers of SMK Swasta Madani Marindal regarding 4C skill-based training management

The stages carried out in this study were (1) the initial stage. Teachers were introduced to vocational education with 4C skill-based training management through FGD (*Focus Group Discussion*) forums; (2) core stage. The researcher provided a 4C skill-based training management manual that the researcher had developed for teachers with the aim of making it theoretically understandable. Resource persons who have been invited by researchers will later provide material related to 4C skill-based training management supported by a training manual that has been developed by researchers. After that, teachers are trained to apply skills-based vocational education 4c in front of the class without being given further instructions from the presenters; (3) the final stage. Teachers are ready to apply this training to students.

3 Results and Discussion

3.1 Results of interviews with respondents

Prior to data collection, the researcher first conducted in-depth interviews regarding whether the 4C (*Critical Thinking, Creativity, Communication, Collaboration*) skill-based training

management had been carried out at the SMK Swasta Madani Marindal, Patumbak District, Medan City as an effort to improve the competence of education teachers vocation. Interviews were conducted with school foundations, school principals, deputy principals as part of the curriculum, and Student PKS and guidance and counseling teachers. The results obtained in the field are as follows.

3.1.1 SMK Swasta Madani Marindal Foundation, namely Dra. Sarianum Tanjung, M.Si

The results of interviews conducted with the SMK Swasta Madani Marindal Foundation are that I am personally very happy and appreciative for our teachers who have the desire to develop this school through increasing teacher competency, I also thank you as a researcher for being willing to choose our school. become a mother research location. I will fully support this because this is very positive for our school, especially in improving the competence of our teachers in the future.

3.1.2 Principal of SMK Swasta Madani Marindal, namely Mr. Iman Siregar, S.Pd

The results of interviews conducted with the SMK Swasta Madani Marindal were that at our school there was no activity called 4C skill-based training management for teachers. We are only limited to teaching without any special training. Apart from that, we also experienced a shortage of facilities such as training support tools such as training manuals in 4C-based training management. I, as the leader, am also still confused about the concept of the 4C skills, so we really need this training so that the teachers and I at this school can be assisted in improving the competence of vocational education for our students. I am also very happy and proud of the process of this activity, meaning that you as a researcher have provided something new for this school, you invite us all to develop the abilities of our teachers together and I am sure this will be very influential in improving the abilities of our students.

3.1.3 Vice Principal of SMK Swasta Madani Marindal, namely Mr. Wahyu Andriani, S.Kom

The results of the interviews conducted with the SMK Swasta Madani Marindal were that the activities to be planned were very good and positive. I hope that this activity will be carried out immediately considering that we still have very little understanding of the 4C skills, so that we can implement them later through learning designs. I hope that you, as a researcher, will coordinate with the school principal and foundation regarding this activity as soon as possible

3.1.4 SMK Swasta Madani Marindal PKS, namely Mr. Dedi Saputra Sihombing, S.Kom

The results of the interviews conducted with the SMK Swasta Madani Marindal Student PKS show that this activity is very important considering that our knowledge regarding 4C skills is still very minimal. I hope that this training plan can help our teachers improve their competence in teaching.

3.1.5 SMK Swasta Madani Marindal Counseling Teacher, namely Mr. Rafly Andrea Tarigan, S.Pd

The results of the interviews conducted with the Counseling Guidance Teachers at the Madani Marindal Private Vocational School are that I see from the research method used in this training that it is technology-based. I see that our teachers are still lacking in technology, so I hope that you as a researcher can help our teachers directly in carrying out this training activity.

Figure 1. Results of in-depth interviews regarding the 4C skill-based training management activities (*Critical Thinking, Creativity, Communication, Collaboration)* at SMK Swasta Madani Marindal

3.2 Implementation of *Focus Group Discussion* (FGD)

The analysis process in development produces a factual model of 4C training and development management (*Critical Thinking, Creativity, Communication, Collaboration*) which is then developed involving education experts in the field of education management, education practitioners, as well as involving users. At this development stage, the factual model of training management and 4C development is through *Focus Group Discussion* (FGD) activities. The model framework and instruments used were developed through FGDs which are brainstorming where each participant can convey his ideas openly about something until an agreement is reached among the participants. FGD participants are individuals who are seen as having the ability and expertise in the field to be studied so that they can contribute adequate ideas. The purpose of the FGD is to discuss the model framework and its structures, components, indicators, processes as well as guidelines which will become a reference in implementing the 4C skill-based training management (*Critical Thinking, Creativity, Communication, Collaboration*). Researchers prepared draft concepts, theories, models and training manuals that had been developed. Incomplete drafts were requested for suggestions, input, criticism from the FGD participants.

The implementation of the FGD involved 11 personal people of which 6 of them were the Principal, the foundation and teachers of SMK Swasta Madani Marindal while the other 5 people were academics. The involvement of these training practitioners in FGDs is seen as

having competence in education management, so that they can make an adequate contribution. Apart from that, they also consulted with two mentors who are experts in the field of education management, namely Dr. Eka Daryanto, MT and Prof. Dr. Siman, M.Pd.

A summary of the results of the FGD implementation regarding the 4C training and development management implementation activities is as follows.

3.1. Training management implementation model

a. The model for implementing this training is carried out by the Principal of the SMK Swasta Madani Marindal.

b. The structure of the model for implementing this training includes: all elements involved in the SMK Swasta Madani Marindal.

c. There are debriefing, coaching/guidance, evaluation and reporting activities. The debriefing involves qualified instructors in their fields. Coaching is carried out by supervisors and instructors who are equipped with observation and assessment instruments. The evaluation was carried out in observing the development of the SMK Swasta Madani Marindal Reporting related to the results of 4C skill-based training (*Critical Thinking, Creativity, Communication, Collaboration*).

d. Another component of the model includes an assessment of the factors that can influence the 4C skill-based training.

e. Provision was given to the principal of the SMK Swasta Madani Marindal l as the implementation of this training activity as a need for teachers at SMK Swasta Madani Marindal.

f. Coaching/guidance, namely the notification of information regarding technical and non-technical aspects in identifying problems experienced by the principal in carrying out his leadership and interspersed with observing the performance of the SMK Swasta Madani Marindal residents.

g. Process evaluation, namely evaluation carried out simultaneously with the process with the aim that schools can implement optimal 4C skill-based training through planning, organizing, implementing, and supervising which will later intersect with the implementation of 4C skill-based training.

h. Reporting later is an authentic evaluation where the implementation of the 4C skill-based training applied can significantly improve teacher skills.

i. The target of the 4C skill-based training is the teachers of SMK Swasta Madani Marindal.

j. The dominant factors influencing this activity were planning, organizing, implementing, and evaluating the application of the 4C skill-based training to SMK Swasta Madani Marindal teachers.

A number of ideas or opinions obtained from experts or experts and practitioners are concluded that

a. The application of 4C skill-based training is considered very appropriate to be implemented at the SMK Swasta Madani Marindal in an effort to organize interaction, communication, courage and decision-making abilities for teachers.

b. The application of this training is expected that later teachers will have critical thinking skills and problem solving (*Critical Thinking* and *Problem Solving*). This skill is an ability to compile, express, analyze, and solve problems faced

c. Communication skills (*Communication*). In this skill, teachers are required to understand, manage, and create effective and efficient communication in various forms and contents orally, in writing

d. Creativity and innovation skills (*Creativity and Innovation*). This skill is expected for a teacher to have the ability to develop, implement, and convey new ideas to others, be open and responsive to new and different perspectives.

e. Collaboration skills. This skill is expected for a teacher to demonstrate ability in group collaboration and leadership, adapting in various roles and responsibilities, working productively with others, placing empathy in its place and respecting different perspectives.
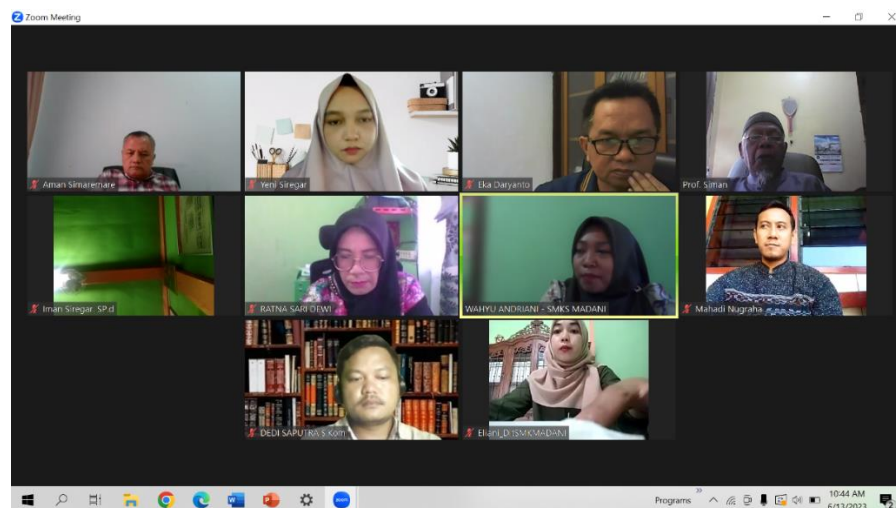

Figure 2. FGD implementation process with participants through Zoom meeting media

3.3 Results of the Validity of the 4C Skill-based Training Management Book

Aspects of the 4C (*Critical Thinking, Creativity, Communication, Collaboration*) skill-based training management book validation assessment by material expert validators. The results of the 4C skill-based training management book validation assessment are presented in Table 1 below.

Table 1. Results of the 4C Skill-based Training Management Book Validity Test by Material Experts.

No.	Assessment Aspects	Percentage (%)	Category
1.	Content Eligibility	88.25%	Valid
2.	Eligibility of Presentation	87.52%	Valid
3.	Language eligibility	90.25%	Valid
4.	Contextual feasibility	86.45%	Valid
Average		88.11%	Valid

Based on Table 1 above, it shows that the validity test is carried out by experts in their fields. In the validity test of the 4C skill-based training management book, it was validated by material experts with aspects of content feasibility assessment (88.25%), presentation (87.52%), language (90.25%), contextual (86.45%) with a total average of 88.11% and included in valid category. Materially, the 4C skills-based training management book is in accordance with the contents or materials and the competencies that can later be achieved by the teachers of the SMK Swasta Madani Marindal. Based on these results, the 4C skill-based training management books are feasible and can be used. This can be seen from the concept that the material presented is in accordance with the actual concept, the material has depth according to the level of competence of a teacher, the material presented is in accordance with scientific developments, and the material presented can encourage teacher curiosity because the problems written are real. occur in the surrounding environment, and material can develop or encourage teachers to improve their competence in teaching, especially in vocational education.

3.4 The pre-implementation or debriefing stage for the Teachers of SMK Swasta Madani Marindal

Preparation is carried out by first preparing everything related to the implementation of the activity, starting from the setting of the activity site, the training modules that have been prepared by the researcher, and other technical matters that must be prepared. The researcher also invited resource persons from the curriculum supervisor of the Education Office of North Sumatra Province. The resource person will later provide material to the teachers of the SMK Swasta Madani Marindal regarding 4C skill-based training management and the researcher has prepared a training manual that has been developed based on the feasibility that has been validated by an expert validator. At this stage, before the training begins, an assessment process for the trainees is carried out. The assessment is carried out to assess the training participants who will take part in the activity so that researchers can measure the competency abilities of the teachers as training participants so that the model or pattern of training provided is in accordance with the expected outcome objectives.

Before the implementation phase is carried out, it is important to carry out the pre-implementation stage meeting activities, because at this stage the head of SMK Swasta Madani Marindal listens to problems that often occur to teachers due to a lack of training in good learning. Vocational school teachers really need education management that can later help teachers improve their competence, especially in terms of 4C skills (*Critical Thinking, Creativity, Communication, Collaboration*). In addition, there are many complaints from vocational teachers regarding the tools and materials to be used during practicums, making it difficult for teachers to provide material properly. The teacher only provides material concepts

but practice in the field is minimal due to incomplete tools and materials. So that with the 4C skills-based training management, the teachers of the Marindal Madani Private Vocational School can be assisted in teaching, especially in increasing their competence in the field of vocational education. Teachers also still lack knowledge regarding 4C skills, so they need to be realized through learning designs. So researchers must provide all related materials about 4C skills to teachers. In addition, the researcher also provides a guide in the form of a 4C skill-based training management book product that has been developed, later after reading and understanding the contents of this book product, the teacher will be able to improve on how a teacher thinks critically, creatively in completing practicum experiments, is able to communicate well with fellow teachers, school leaders and students and how a teacher must be able to collaborate among fellow teachers in solving a problem so that a teacher must have 4C skills.

Figure 3. The pre-implementation or debriefing stage for the teachers of SMK Swasta Madani Marindal

3.5 Implementation and Evaluation of 4C skills training as an effort to increase the competency of vocational education teachers

In an effort to meet the demands of the desired activity results, in this activity assistance was carried out by involving external speakers, namely school supervisors in the field of curriculum from the Education Office of North Sumatra Province. Before the presenters gave the training, the researchers gave a questionnaire first to the teachers and the results of the questionnaire given it can be concluded that around 20% of teachers only know 4C skills, but 80% of them do not know the concept of 4C skills. Based on the implementation of the training activities that have been carried out, several research results have been produced, including the provision of training materials provided to the teachers of the SMK Swasta Madani Marindal received a positive response by the activity participants, besides that the participants were very happy that this kind of training was held because they only understanding is just teaching but does not know about any 4C skills. There is an interest and desire for the teachers and teachers of SMK Swasta Madani Marindal to be able to implement the results of the training program that has been implemented.

In accordance with the predetermined plan, in order to be able to evaluate the success of the training that has been carried out on the material provided, an evaluation of the training participants is carried out, namely in the form of assignments to make lesson plans (RPP) based on 4C skills (*Critical Thinking, Creativity, Communication, Collaboration*) which will later be to determine the competence of a teacher to what extent the level of success of the training carried out. In addition, the evaluation is also carried out using the feedback method for the implementation of these activities, so that a result is obtained regarding the effectiveness of the activities carried out and an overview of the implementation of future activities. Based on the results of the evaluation, it was seen that 70% of the training participants were able to complete the task according to the directions, so that it was found that the training objectives had been achieved and as expected.

The training material provided by resource persons to teachers can be described as follows that 21st Century learning is a renewable learning approach by positioning digital technology as one of the main indicators. Thus, the designed learning design emphasizes competency development, technology integration, and skill training to make it easier for teachers and students on how to operate technology in learning. Apart from focusing on digital technology, 21st Century learning also emphasizes attention to developing skills and knowledge relevant to the real world and places students as active and communicative learners. In an effort to achieve maximum development and education targets in the 21st Century, an individual must have at least four main skills, namely, the ability to think critically, creatively, communicate, and collaborate. To keep up with the demands of 21st Century learning, ladies and gentlemen must also be prepared to devise the best learning scheme in learning. One way that can be taken is to apply the 4C competencies in learning.

The 4C competencies were introduced in Indonesia in 2013, when the Ministry of Education and Culture (Kemendikbud) began implementing the 2013 curriculum which was designed to improve students' abilities to think critically, creatively, communicate and work together. The Ministry of Education and Culture states that 4C competencies are competencies needed to prepare students to face challenges in the current global era. In the 2013 curriculum, 4C competencies are integrated in each subject and are expected to be developed through various learning activities such as group discussions, presentations, or projects that require students to apply their understanding and think critically, creatively, communicate, and collaborate with others. 4C competencies are expected to improve the quality of education in Indonesia and help students to become individuals who are independent, creative and responsive to the changes that are taking place in today's global world.

Figure 4. Implementation and Evaluation of 4C skills training as an effort to increase the competency of vocational education teachers

4 Conclusion

The training activities provided to SMK Swasta Madani Marindal teachers gave a positive response, namely the teachers were very enthusiastic in participating in this activity because they gained direct understanding and knowledge from resource persons who had provided a lot of material and guidance related to the importance of 21st century learning and the demands of the 21st century, requires teachers to be able to apply 4C skills to their students. 21st Century Learning also emphasizes attention to the development of skills and knowledge that are relevant to the real world and places students as active and communicative learners. In an effort to achieve maximum development and education targets in the 21st Century, an individual must have at least four main skills namely, the ability to think critically, creatively, communicate, and collaborate. This training helps teachers to develop communication, collaboration, critical thinking, and creativity skills that are important in the context of vocational education. The implication of this research is the need to develop a comprehensive and sustainable training program to support the competency development of vocational education teachers.

References

[1] M. S. Barliana, L. Alhapip, Ana, Y. Rahmawati, Muktiarni, and V. Dwiyanti, "Vocational Education: The New Development and Change in the Adaptive Curriculum of Learning Model," Invotec Innov. Vocat. Technol. Educ., vol. 16, no. 2, pp. 160–173, 2020.

[2] H. Sofyan, Pardjono, I. W. Djatmiko, and P. Sudira, Paradigma Baru Pendidikan Vokasi. Universitas Negeri Medan, 2012.

[3]M. Syairaji, N. Rokhman, and N. Nuryati, "Implementasi Paradigma Pendidikan Vokasional pada Program Studi Rekam Medis dan Informasi Kesehatan Universitas Gadjah Mada," J. Kesehat. Vokasional, vol. 2, no. 1, p. 129, 2017, doi: 10.22146/jkesvo.30325.

[4]J. Jumadin, D. R. Anandari S, and S. S. Dewi, "Kualitas Pembelajaran Mahasiswa Vokasi Fakultas Teknik Universitas Negeri Makassar," J. Media Elektr., vol. 17, no. 3, p. 106, 2020, doi: 10.26858/metrik.v17i3.14964.

[5]Permenko, "Strategi Nasional Pendidikan Vokasi dan Pelatihan Vokasi," Menteri Hukum dan Hak Asasi Manusia Republik Indonesia, 2022.

[6]K. Komariah, S. Hamidah, S. Sugiyono, and K. Marifa, "Soft skills profile of critical thinking ability for culinary arts students in online learning," J. Pendidik. Vokasi, vol. 13, no. 1, pp. 27–35, 2023, doi: 10.21831/jpv.v13i1.50955.

[7]E. Haryani, W. W. Cobern, B. A. S. Pleasants, and M. K. Fetters, "Analysis of teachers' resources for integrating the skills of creativity and innovation, critical thinking and problem solving, collaboration, and communication in science classroom," J. Pendidik. IPA Indones., vol. 10, no. 1, pp. 92–102, 2021, doi: 10.15294/jpii.v10i1.27084.

[8]S. Hartina, K. Salija, and F. . Amin, "Teachers' Techniques in Teaching English to Young Learners," Indones. TESOL J., vol. 1, no. 1, pp. 78–88, 2019, doi: 10.24256/itj.v1i1.538.

[9]U. Rochmawati, A. Timan, and D. E. Kusumaningrum, "Manajemen Pendidikan Dan Pelatihan Keahlian Ganda Guru Sekolah Menengah Kejuruan," J. Adm. dan Manaj. Pendidik., vol. 2, no. 3, pp. 147–155, 2019, doi: 10.17977/um027v2i32019p147.

[10]M. Rakib, A. Rombe, and M. Yunus, "Pengaruh Pelatihan Dan Pengalaman Mengajar Terhadap Profesionalitas Guru," J. Ad'ministrare, vol. 3, no. 2, pp. 137–148, 2017.

[11]S. E. Saleh, "Critical thinking as a 21st century skill: Conceptions, implementation and challenges in the EFL classroom," Eur. J. Foreign Lang. Teach., vol. 4, no. 1, pp. 1–16, 2019, doi: 10.5281/zenodo.2542838.

[12]S. Zubaidah, "Keterampilan Abad Ke-21: Keterampilan Yang Diajarkan Melalui Pembelajaran," in Seminar Nasional Pendidikan dengan tema "Isu-isu Strategis Pembelajaran MIPA Abad 21, Kalimantan Barat: STKIP Persada Khatulistiwa Sintang-Kalimantan Barat, 2016. [Online].

[13]C. Zhu, D. Wang, Y. Cai, and N. Engels, "What core competencies are related to teachers' innovative teaching?," Asia-Pacific J. Teach. Educ., vol. 41, no. 1, pp. 9–27, 2013, doi: 10.1080/1359866X.2012.753984.

[14]O. F. Tutkun, "Prospective teacher's communication skills level: Intellectual, emotional and behavioral competencies," Anthropologist, vol. 19, no. 3, pp. 665–672, 2015, doi: 10.1080/09720073.2015.11891701.

[15]R. . Dewi and D. . Mailasari, "Pengembangan Keterampilan Kolaborasi pada Anak Usia Dini melalui Permainan Tradisional," ThufuLA J. Inov. Pendidik. Guru Raudhatul Athfal, vol. 9, no. 2, p. 220, 2020, doi: 10.21043/thufula.v8i2.8796.