Mapping the Results of the Competency Test at Public Vocational High Schools in South Kalimantan

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Abstract. This study evaluates the implementation of the Expertise Competency Test (UKK) in South Kalimantan State Vocational Schools using the CIPP (Context, Input, Process, Product) evaluation model. The study aims to analyze UKK mechanisms during and after the COVID-19 pandemic, identify challenges and innovations, and examine the impact of expertise distribution on assessment outcomes. The research employs a mixed-methods approach, combining qualitative and quantitative data collected through interviews, observations, document analysis, and surveys from 42 state vocational schools across various districts. Findings indicate that most schools rely on independent UKK, though it faces standardization challenges due to limited certified assessors. Industry-based UKK enhances credibility and job market alignment but remains underutilized due to restricted industrial partnerships, particularly in rural areas. LSP-P3-based UKK offers nationally recognized certification but is costly, limiting accessibility. The study also reveals that schools with modern facilities, strong industry collaboration, and updated curricula produce higher UKK scores and more job-ready graduates. However, unequal expertise distribution leads to mismatches between graduates' skills and labor market demands. To improve UKK effectiveness, the study recommends strengthening assessor certification, expanding hybrid assessment models integrating digital and hands-on evaluations, and fostering stronger vocational school-industry partnerships. Policy supports for curriculum updates and resource allocation is essential to standardizing assessments and improving graduate competitiveness in national and international job markets. Future research should explore the impact of digital assessment methods and industry engagement in enhancing vocational education outcomes.

Keywords: Competency Test, Vocational Education, CIPP, Evaluation

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1 Introduction

Vocational education has a strategic role in forming a skilled workforce that is ready to enter the industrial world. Vocational High Schools (SMK) in Indonesia aim to produce graduates with technical skills that are in line with the needs of the job market. However, in recent years, the challenges in the vocational education system have become increasingly complex, especially related to the level of absorption of graduates in the workforce.

The Central Statistics Agency (BPS) noted that the open unemployment rate in South Kalimantan in 2021 reached 7.2%, with the highest proportion coming from vocational graduates [1]. The high unemployment rate of vocational school graduates indicates that there is a gap between the competencies possessed by graduates and the needs of the industry. This gap can be caused by the disparity in the quality of skills training in various schools and the lack of synergy between vocational schools and the business and industrial world (DUDI). This shows the need for an in-depth evaluation of the competency test system which is the graduation standard at vocational schools.

The Expertise Competency Test (UKK) is the main instrument in assessing the competence of vocational school graduates. UKK aims to ensure that students have skills that match industry standards, to increase their competitiveness in the job market. However, the effectiveness of the implementation of UKK in various vocational schools is still a challenge, especially in the aspects of standardization of test mechanisms, the availability of qualified assessors, and certification recognition at the industrial level. Differences in the implementation mechanism of UKK in each school cause inconsistency in the quality of graduates, which ultimately has an impact on the level of skills recognized in the world of work.

In addition to internal challenges in the implementation of UKK, the COVID-19 pandemic that has hit since 2020 has worsened the condition of vocational education in Indonesia, including in South Kalimantan. Social restrictions and strict health protocols hinder the implementation of practical exams in person, requiring adjustments in the form of simulations, the use of digital technology, and flexible rescheduling. Therefore, it is important to evaluate how UKK in vocational schools has adapted to these changing conditions and how the quality of certification can still be maintained post-pandemic.

Previous studies have highlighted various problems in the implementation of UKK in Indonesia. Susetyo and Karwono [2] found that only 65% of vocational school graduates met the national competency standards, with the main causes being the lack of industry involvement in curriculum development and the lack of systematic evaluation of the learning process [3]. The factors that affect the success of UKK in one of the vocational schools in Banjarmasin found that the availability of infrastructure and the competence of teachers as assessors have a significant influence on UKK results. However, this study is still limited to one school and has not described the condition of UKK more broadly in South Kalimantan.

In addition, the evaluation of UKK still rarely uses a holistic approach such as the CIPP (Context, Input, Process, Product) model developed by Stufflebeam [4]. This model allows for a more comprehensive analysis of the implementation of UKK from the planning stage to the final result. Studies related to the application of the CIPP model in vocational education evaluation are still limited, especially in the context of South Kalimantan. Therefore, this study will fill the gap by

using an evaluation approach based on the CIPP model to analyze the effectiveness of UKK in South Kalimantan state vocational schools.

This research aims to:

1. Analyze the mechanism of implementing UKK in South Kalimantan state vocational schools during and after the COVID-19 pandemic.
2. Identify challenges and innovations in the implementation of UKK at each stage of the CIPP (Context, Input, Process, Product) model.
3. Analyze how the quality and distribution of expertise in South Kalimantan State Vocational Schools affect UKK results and the competitiveness of graduates in the world of work.

2 Literature Review

Vocational education aims to prepare a skilled workforce according to the demands of the industry, where the Skills Competency Test (UKK) is the main instrument in assessing students' competencies before entering the workforce. UKK at vocational schools ensures that graduates have skills that meet industry standards, including technical aspects, problem-solving, as well as mental readiness, and professionalism as stated by the Ministry of Education and Culture in 2022. The main factors for the success of UKK include assessment standards, infrastructure readiness, industry involvement, and assessor competence. Hadiana [5] emphasized the importance of consistency of competency-based assessment standards that are relevant to the needs of the job market. However, the assessment mechanism is still varied.UKK tends to rely on self-tests by schools without external supervision, which causes differences in standards between schools and has implications for the quality of vocational school graduates.

The UKK graduation rate is still low. Susetyo and Karwono [2] noted that only 65% of vocational school graduates met the national competency standards, due to the lack of industry involvement in curriculum development and student skill evaluation. In addition, the company still doubts the quality of UKK certification due to differences in standards between institutions. Therefore, strengthening the synergy between vocational schools and industry is very important to ensure that UKK is a widely recognized indicator of competence.

The evaluation of UKK can use the CIPP (Context, Input, Process, Product) model developed by Stufflebeam [4]. This model assesses the success of the program through the analysis of needs (context), resources (input), implementation (process), and final impact (product). The CIPP model has been applied in various studies related to vocational education. Alzet Rama et al. [6] examined the application of the CIPP model to competency-based learning systems and found that a thorough evaluation helps identify weaknesses and strengths in each learning stage. However, Lindriyati [7] noted that the evaluation of UKK is still partial and focuses more on the final result without analyzing contextual factors or the learning process. Therefore, this study fills this gap by applying the CIPP model to evaluate UKK comprehensively in South Kalimantan state vocational schools.

Although UKK has been widely implemented, its implementation faces various challenges. One of them is the imbalance in the distribution of fields of expertise in vocational schools. Some schools only offer one specific area of expertise, while others have more diverse programs. This imbalance

causes some graduates to have to seek additional training, reducing the efficiency of the vocational education system. In addition, the gap between educational standards in vocational schools and industry demands is still a problem. Susetyo and Karwono [2] show that many vocational school graduates have not met national competency standards due to a curriculum that is not always relevant to industry needs. Hadiana [5] added that the lack of certified assessors causes the UKK assessment to be not uniform.

The use of technology in UKK is also still limited. Septian Aristya et al. [8] highlight that digital technology can improve the effectiveness and objectivity of assessments. However, many vocational schools still use conventional methods that have not accommodated industrial developments. The impact of the COVID-19 pandemic has further complicated the implementation of UKK. Social restrictions led to a change in testing methods, from hands-on practice to computer-based simulations or portfolio projects. Lindriyati [7] shows that this adaptation is not always effective, especially in fields that require high practical skills, such as mechanical and automotive engineering.

The quality of the field of expertise is not only determined by the curriculum, but also by the facilities, industry involvement, and competence of the assessor. Suratno et al. [9] emphasized that the integration between practical training and industry standard-based assessments is essential to produce graduates who are ready for work.

The uneven distribution of areas of expertise also has a significant impact on UKK results. In big cities like Banjarmasin, vocational schools have more options for expertise programs and strong industry support. In contrast, in remote areas, the choice of areas of expertise is more limited, so graduates face difficulties in getting suitable jobs. Susetyo and Karwono [2] noted that the inequality in the distribution of expertise programs causes a mismatch between the number of graduates and industry needs, which hinders the absorption of labor. The availability of practice facilities also plays a crucial role. Vocational schools with modern laboratories and equipment produce graduates who are more competent than schools with limited facilities. Lindriyati [7] found that the limitations of practical facilities reduce graduates' job readiness because they do not get direct experience with the technology used in the industry. The role of assessors in UKK is also a major concern. Hadiana [5] emphasized that the quality of assessment is highly dependent on the competence of the examiner, so the training and certification of assessors must be improved. In addition, industry involvement in the assessment can increase the validity of UKK results. Industry involvement in UKK evaluation helps bridge the gap between theory and practice so that graduates are better prepared to enter the workforce.

3 Research Methods

This study uses an evaluative approach by applying the CIPP (Context, Input, Process, Product) evaluation model developed by Stufflebeam [4]. This model was chosen because it can provide a comprehensive overview of the effectiveness of the implementation of the Expertise Competency Test (UKK) at South Kalimantan State Vocational Schools, by systematically assessing aspects of context, input, process, and results. Evaluation based on the CIPP model is considered appropriate in this study because it can identify various factors that affect the success of UKK, both in terms of

planning, implementation and the final impact on the competence of graduates. Using this model, the study can assess whether the UKK system implemented in South Kalimantan state vocational schools has met the expected standards and whether its implementation is effective in improving student competence.

This study uses a mixed-methods approach that combines qualitative and quantitative methods to obtain a more comprehensive understanding of the implementation of UKK. A qualitative approach is used to explore the experiences, challenges, and strategies implemented by various stakeholders in UKK, such as principals, teachers, assessors, and students. The data collection techniques used in the qualitative approach include in-depth interviews, direct observation, and document analysis. Meanwhile, a quantitative approach is used to analyze numerical data related to UKK results, student readiness levels, and the distribution of areas of expertise at South Kalimantan State Vocational Schools. Quantitative data was obtained through a survey with the Likert scale, which allowed researchers to measure respondents' perceptions and experiences related to the implementation of UKK more objectively. The combination of qualitative and quantitative methods allows this research to not only explore in-depth insights into the implementation of UKK but also identify patterns and trends that can be used as a basis for the preparation of future policy recommendations.

The population in this study includes all 63 state vocational schools in South Kalimantan spread across 13 districts and cities, including Banjarmasin, Banjarbaru, Kotabaru, Marabahan, Tapin, Pelaihari, Amuntai, Simpang Empat, Baturaja, Paringin, and Martapura. This population consists of vocational schools with various fields of expertise that reflect the needs of the industry in each region. The selection of schools as the object of research is carried out by considering various factors, such as school accreditation, the number of UKK participants, and the diversity of expertise offered. From the total population, this study took a sample of 42 state vocational schools selected using the purposive sampling technique. The selection of the sample was carried out by considering the representation of various fields of expertise, ranging from engineering, and business, to services. The areas of expertise researched include computer and network engineering, multimedia, accounting and institutional finance, automotive light vehicle engineering, electrical engineering, welding engineering, online business and marketing, and culinary and fashion design. By selecting samples representing various areas of expertise, this study aims to get a more accurate picture of the implementation of UKK in South Kalimantan and identify the challenges faced by various fields of expertise more specifically.

The data in this study was collected through various techniques that included field observation, in-depth interviews, document analysis, and quantitative surveys. Field observation was carried out to directly observe how UKK was held at the vocational school that was the research sample. These observations focus on aspects such as the availability of facilities and equipment used in the exam, the evaluation methods applied by the school, and the involvement of industry in the assessment process. In addition, observations were also made to see how schools adjusted the implementation of UKK during and after the COVID-19 pandemic, including changes in assessment methods and adaptation to resource limitations.

In-depth interviews were conducted by involving various stakeholders in UKK, including school principals, vocational teachers, assessors, UKK participating students, and industry representatives who play a role in the certification of vocational school graduates. This interview aims to dig deeper into the challenges faced in the implementation of UKK, the strategies

implemented by schools to overcome obstacles, and the industry's views on vocational school graduates in South Kalimantan. In addition, the interview also explored aspects of the evaluation of the CIPP model, such as the extent to which the context of the implementation of UKK is following industry needs, how inputs in the form of resources and policies affect the implementation of UKK, and how the assessment process is carried out to ensure optimal quality of results.

The document analysis was carried out to examine various written sources relevant to the implementation of UKK at South Kalimantan State Vocational Schools. The documents analyzed include UKK implementation guidelines, UKK result reports, vocational school curricula, and policies related to vocational education issued by the Ministry of Education and Culture. Analysis of this document allows the study to understand how UKK regulations are implemented at the school level and the extent to which they are implemented by national standards. In addition, document analysis also helps in identifying factors that contribute to the gap between policy and implementation in the field.

A quantitative survey was conducted to collect data from teachers, students, and UKK assessors regarding the effectiveness of UKK implementation. The questionnaire in the survey uses a 5-point Likert scale, with indicators that include facility readiness, industry involvement, exam difficulty, and the impact of certification on job opportunities for vocational school graduates. The survey results were analyzed using descriptive statistical techniques to identify patterns and trends that can be the basis for the formulation of policy recommendations.

The data obtained in this study was analyzed using qualitative and quantitative descriptive approaches. Data from interviews and observations were analyzed using thematic analysis techniques, where the main patterns and themes in the implementation of UKK were identified to understand the factors that affect the effectiveness of the assessment. The analysis process is carried out through the stages of data coding, thematic categorization, and interpretation of results based on the CIPP evaluation model. Meanwhile, the quantitative data from the survey was processed using descriptive statistical analysis, with the calculation of percentages, averages, and standard deviations to describe the tendency in respondents' perceptions related to the implementation of UKK.

By applying the CIPP model, this study will assess the effectiveness of UKK based on four main aspects, namely context, input, process, and product. Analysis of the context aspect will assess whether the goals of UKK are following the needs of industry and the world of work. In the input aspect, the research will evaluate the readiness of school resources, including teaching staff, assessors, and the availability of facilities. Furthermore, the process analysis will evaluate how UKK is implemented, including the challenges faced by schools in administering exams. Finally, the product analysis will assess the extent to which UKK contributes to improving the competence of graduates and their job opportunities in the industry.

4 Result

The implementation of the Expertise Competency Test (UKK) at South Kalimantan State Vocational Schools shows variations in the assessment mechanism that affect the quality of graduates. The three main mechanisms implemented are independent UKK, based on cooperation

with industry, and based on LSP-P3. Most vocational schools still rely on independent UKK, although this mechanism has challenges in standardizing assessments and limitations of certified assessors. On the other hand, UKK based on cooperation with industry is more relevant to the needs of the world of work, but access to industry partners is still limited, especially in remote areas. Meanwhile, LSP-P3-based UKK offers a more recognized certification, but the high cost is an obstacle for many schools to apply it widely.

Quality factors and the distribution of areas of expertise also significantly affect the results of UKK. Vocational schools with modern practice facilities and strong industry involvement produce graduates with a higher UKK graduation rate compared to schools that still have limited resources. The inequality in the distribution of fields of expertise causes some graduates to find jobs according to their competencies because the skills programs available at their schools are not always aligned with the needs of the industry in the region. In addition, the limitations of certified assessors cause variations in assessment standards between schools, which has an impact on the validity of UKK results.

To increase the effectiveness of UKK, it is necessary to update the industry-based curriculum, increase the number of certified assessors, and strengthen cooperation between vocational schools and the business world. The integration of technology in assessments also needs to be expanded to improve the efficiency and objectivity of evaluations. With these steps, UKK can become a more credible assessment instrument and be able to increase the job readiness of vocational school graduates in the national and international job market.

5 Discussion

a. Mechanism for the Implementation of UKK at South Kalimantan State Vocational Schools During and After the COVID-19 Pandemic

The implementation of the Expertise Competency Test (UKK) at South Kalimantan State Vocational Schools has undergone various changes during and after the COVID-19 pandemic. Social restrictions require schools to adjust the assessment mechanism so that they can still measure student competencies validly. The three main mechanisms in UKK in South Kalimantan are independent UKK, UKK based on cooperation with industry, and UKK based on LSP-P3. Most vocational schools choose independent UKK because it is more flexible in terms of cost and implementation. However, this mechanism poses a challenge in standardizing assessments due to the limited number of certified assessors. Susetyo and Karwono [2] noted that only 65% of vocational school graduates meet national competency standards, one of which is due to differences in the quality of assessments between schools.

The UKK mechanism based on cooperation with industry is more valid because the assessment is carried out directly by industry practitioners, ensuring that students' skills follow the standards of the world of work [10]. Industry involvement in UKK increases the acceptance rate of graduates in the world of work. However, the implementation of this model is still limited, especially in areas with minimal industry. Meanwhile, UKK based on

LSP-P3 has higher credibility, but the expensive cost of certification is the main obstacle to its implementation. Alzet Rama et al. [6] stated that the cost factor is the main obstacle for vocational schools to adopt external certification.

Adaptation during the pandemic also includes the use of project-based assessment methods and digital simulations, especially for areas that enable computer-based testing. Septian Aristya et al. [8] highlighted that the use of digital technology in assessment can increase the objectivity of evaluation, although it cannot completely replace hands-on practical experience. In conclusion, the UKK mechanism in South Kalimantan still faces challenges in terms of standardization, industry involvement, and access to external certification. Therefore, increasing the number of certified assessors and integrating hybrid assessment methods is a strategic solution to improve the quality of UKK and the competitiveness of vocational school graduates in the world of work [11], [12].

b. Challenges and Innovations in the Implementation of UKK Based on the CIPP Evaluation Model

The implementation of UKK at South Kalimantan State Vocational Schools faces various challenges that affect the effectiveness of assessments and the quality of graduates. The CIPP (Context, Input, Process, Product) evaluation model developed by Stufflebeam [4] is used to analyze the aspects that determine the success of UKK. An evaluation of the context aspect shows that one of the main problems is the lack of compatibility between the skills programs offered and the needs of the industry [13]. Susetyo and Karwono [2] revealed that only 65% of vocational school graduates meet national competency standards, which is largely due to the lack of industry involvement in curriculum development. In South Kalimantan, there are still many vocational schools that do not have expertise programs that are in line with the economic potential of their region, so graduates have difficulty obtaining jobs relevant to their field of expertise.

From the input aspect, the limitations of human resources and facilities are the main challenges in the implementation of UKK. Hadiana [5] emphasized that the quality of assessment is highly dependent on the competence of the assessor, but there are still many vocational schools that lack certified assessors from the National Professional Certification Agency (BNSP). As a result, assessments are often conducted by in-house teachers who do not have specific training as certified examiners, which has an impact on the variation of assessment standards between schools. In addition, many vocational schools in remote areas still face obstacles in providing practice facilities that are under industry standards. Lindriyati [7] found that the limitations of laboratories and practical equipment cause students to lack direct experience, which ultimately has an impact on the low graduation rate of UKK in several fields of expertise.

In the process aspect, variations in the UKK implementation mechanism in various vocational schools show inconsistencies in the assessment method. Most vocational schools still rely on independent UKK, where schools conduct assessments internally without the involvement of external institutions. This has led to differences in standards in skills testing between schools. Differences in assessment standards cause industry distrust of UKK results, which has an impact on the low employment absorption rate of vocational school graduates. Meanwhile, several vocational schools have innovated by applying project-based assessment methods and digital simulations to adapt to limitations during the COVID-19

pandemic. Septian Aristya et al. [8] highlighted that the integration of technology in assessment can improve the efficiency and objectivity of evaluation, although this method has not completely replaced hands-on experience.

In terms of products, the results of the UKK show that areas of expertise with stronger industry involvement, such as computer and network engineering and multimedia, tend to produce graduates with better grades. On the other hand, fields such as fisheries agribusiness, and veterinary care still face obstacles in obtaining optimal UKK results due to limited facilities and lack of industry support. Industry involvement in assessments can improve the quality and relevance of graduates' competencies, which contributes to increasing their competitiveness in the job market. Therefore, vocational schools that have built close cooperation with the business world and the industrial world (DUDI) have advantages in producing graduates who are more ready to work. In this case graduates' intellegence will impact their performance at work [14].

Despite facing various challenges, vocational schools in South Kalimantan have made various innovations to increase the effectiveness of UKK. In addition to the use of project-based assessment methods and digital simulations, some vocational schools have begun to implement project-based internship programs, which allow students to gain hands-on experience before participating in UKK. Suratno et al. [9] emphasized that collaboration between vocational schools and industry in training and assessment programs is the main factor that increases the job readiness of graduates. Another innovation is the implementation of hybrid assessments, which combine hands-on, practice-based assessments with the support of digital technology so that they can accommodate the limitations of existing resources.

The application of the CIPP evaluation model in this study succeeded in identifying the main challenges in the implementation of UKK and finding innovations that can be solutions to increasing the effectiveness of assessments. To improve the quality of UKK, more supportive policies are needed, such as increasing the number of certified assessors, providing more equitable practice facilities, and strengthening cooperation with industry so that assessment standards are more in line with the needs of the world of work. Alzet Rama et al. [6] emphasized that the application of a CIPP-based evaluation model with the support of information technology can help improve the accuracy of assessments and accelerate the improvement of the UKK assessment system in vocational schools. With these steps, UKK can become a more effective and widely recognized evaluation instrument, so that vocational school graduates have competencies that are following the demands of the industrial world and have higher competitiveness in the job market.

c. The Effect of Quality and Distribution of Expertise Fields on UKK Results at South Kalimantan State Vocational Schools

The quality and distribution of areas of expertise at vocational schools have a direct impact on the results of the Expertise Competency Test (UKK) and the job readiness of graduates. Variations in graduation rates and UKK scores among areas of expertise indicate inequality in the provision of facilities, teacher competence, and industry involvement. Suratno et al. [9] emphasized that the integration between practical training and industry-standard-based assessments is essential to produce graduates who are truly ready for work.

However, in South Kalimantan, not all fields of expertise receive the same support, which has an impact on the gap in student competency achievement.

The uneven distribution of expertise is also a crucial factor that affects UKK results. In big cities such as Banjarmasin and Banjarbaru, vocational schools offer more choices of areas of expertise with the support of better facilities. In contrast, in remote areas, the choice of areas of expertise is more limited, so students do not always have access to programs that fit the job opportunities in their area. Susetyo and Karwono [2] noted that the inequality in the distribution of expertise fields causes a mismatch between the number of graduates and the needs of local industries, which hinders the process of labor absorption.

In addition to the distribution of areas of expertise, the quality of infrastructure and practical equipment plays an important role in determining the outcome of the UKK. Vocational schools that have modern laboratories and complete practice facilities tend to produce graduates with a higher level of competence. Lindriyati [7] found that the limitations of practical facilities reduce the job readiness of graduates because they do not get direct experience with technology used in the industrial world. On the other hand, vocational schools with adequate facilities allow students to practice with equipment that complies with industry standards so that when participating in UKK, they can demonstrate optimal skills.

The role of assessors in UKK is also an important factor in determining the quality of assessment. Hadiana [5] emphasized that the quality of assessments is highly dependent on the competence of examiners, so assessor training and certification must be improved to ensure more consistent standards across vocational schools. However, in South Kalimantan, there is still a gap in the number of certified assessors, which causes assessment standards to vary between schools. As a result, students from vocational schools who have better-qualified assessors tend to get higher UKK results compared to those tested by less experienced assessors.

The involvement of the industry in supporting the implementation of UKK also affects the results of the assessment. Vocational schools that have close partnerships with industry tend to produce graduates with skills that are more in line with the needs of the job market. Internship programs, hands-on training, and industry-based assessments help bridge the gap between theory and practice, thereby increasing the competitiveness of graduates. However, vocational schools that lack cooperation with industry often face difficulties in ensuring that their graduates have skills that are recognized by the workforce.

To overcome this gap, policies are needed that support the equitable distribution of areas of expertise and improve assessment standards throughout vocational schools. BPS [1] noted that the unemployment rate in South Kalimantan is still high, especially among vocational school graduates, which is partly due to differences in the quality and relevance of skills programs to industry needs. Therefore, regulations that encourage curriculum updates, an increase in the number of certified assessors, and closer cooperation between vocational schools and the industrial world are essential to ensure that UKK can become a more effective and widely recognized assessment instrument.

Overall, the influence of quality and distribution of expertise fields on UKK results at South Kalimantan State Vocational Schools is very significant. Vocational schools with the support of modern facilities, updated curriculum, and strong partnerships with industry

produce graduates with a higher level of competence compared to schools that still rely on limited resources. To increase the effectiveness of UKK, reforms are needed in the assessment system, both in terms of providing facilities, increasing the number of certified assessors, and strengthening industry involvement. With these strategic steps, UKK can be more optimal in ensuring that vocational school graduates have skills that follow the demands of the world of work, thereby increasing their competitiveness in the national and international job market.

6 Conclusion

The implementation of the Expertise Competency Test (UKK) at South Kalimantan State Vocational Schools still faces various challenges in terms of assessment mechanisms, industry involvement, and distribution of expertise. During and after the COVID-19 pandemic, various assessment methods have been implemented, such as independent UKK, based on cooperation with industry, and based on LSP-P3, each of which has its advantages and disadvantages. However, the inconsistency of assessment standards between schools and the limitations of certified assessors are still the main obstacles that have an impact on the credibility of UKK results and the job readiness of graduates. In addition, the use of digital technology in assessment has been an innovation that helps overcome the limitations of hands-on practice, although it has not completely replaced the actual field experience.

The results of the study show that the quality and distribution of expertise have a significant effect on the results of UKK and the competitiveness of graduates in the world of work. Vocational schools that have adequate facilities, updated curricula, and close partnerships with industry produce graduates who are more job-ready than schools with limited resources. The imbalance in the distribution of skills programs also has an impact on the suitability of graduates to the needs of the local labor market. Therefore, strategic policies are needed to improve the quality of assessments, balance the distribution of areas of expertise, and strengthen collaboration between vocational schools and the industrial world to ensure that graduates have competencies following national and international work standards.

As a recommendation, the government needs to establish stricter policies in standardizing UKK, increase the number of certified assessors, and support the development of hybrid assessment methods that combine direct practice and digital technology. In addition, vocational schools must be more proactive in collaborating with industry so that assessments can be more relevant to the demands of the job market. Further studies can focus on evaluating the effectiveness of technology-based assessments and the influence of industry partnerships in improving the competence of vocational school graduates in various regions. Further research can be focused on developing a more comprehensive hybrid assessment model, which integrates digital aspects and hands-on practice, as well as evaluating its effectiveness in improving the quality of vocational school graduates. In addition, a comparative study between regions that have different areas of expertise is also needed to determine the impact of equitable distribution of facilities and curriculum on UKK

results. Further research can also further explore the role of industry partnerships in supporting vocational programs and providing solutions to the challenges of limited resources in remote areas.

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