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RESEARCH ARTICLE

Knowledge Sharing Model Based on Collaborative Learning Organization in Vocational Education and Industry

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ABSTRACT

This research aims to implement a knowledge-sharing model based on a collaborative learning organization in collaboration with the industry. The research methodology employs a one-group pretest and posttest design. The study involves participants from Vocational Higher Education Institutions, Industry, Stakeholders, and other Policyholders, totaling 60 respondents in the city of Medan. The research instrument utilizes an effectiveness questionnaire, and data analysis techniques involve descriptive statistics and factor analysis using the SMART PLS application. The effectiveness results of the implemented model are tested with administrators in higher education and stakeholders from the industrial sector. The questionnaire assesses various aspects, including system quality, information quality, service quality, user intention, and user satisfaction with the developed model. Based on the evaluations across these aspects, the results indicate the effectiveness of the collaborative learning-based knowledge-sharing model, suggesting its viability for practical use.

INTRODUCTION

Vocational education plays a pivotal role in shaping students to enter the workforce equipped with the necessary competencies. The primary goal is to prepare individuals who are not only competent but also relevant to the demands of the professional world. Achieving this alignment requires a process known as vocationization, which seeks to enhance the pertinence of vocational education and guidance in response to the dynamic needs of the job market. This endeavor contributes significantly to the broader objective of fostering a prosperous society capable of both competition and commitment to sustainable development goals (Faisal, 2021; Amiruddin et al., 2018). Educational practitioners in the vocational domain find themselves compelled to swiftly adapt to these changes by forging strong collaborations with industries. Such collaborations are crucial for identifying and understanding the new competencies that industries demand, necessitating the effective utilization of a variety of data sources (Bruri, 2017; Wardina, Jalinus, & Asnur, 2019; Rusten & Hermelin, 2017). To develop resources in vocational education, the responsibility is shared among industries, policymakers (government), and other stakeholders. Industries, as the driving force in the

economy, have a significant need for high-quality and certified resources. Currently, there exists a gap between the resource needs in industries and the competencies of resources produced by vocational education. Bridging this competency gap requires collaboration between vocational education and industries, with industries playing a pivotal role as the main contributors to economic development (Uswatun, 2017). Therefore, a paradigm shift is necessary—from a supply-driven to a demand-driven approach. Quality vocational education must align itself with the advancements in science and technology, as well as the dynamic needs of the workforce.

The current vocational education process is still not fully integrated with the Business and Industrial World (Zhibin & Weiping, 2017; Spöttl & Windelband, 2021). This is evident in the suboptimal development of vocational education curricula, lacking the active participation of stakeholders from the business and industrial sectors. Additionally, the absence of standardization and alignment in the implementation of vocational education during internships with the Business and Industrial World results in a gap between education and industry link and match. To ensure the continuity of demand-driven vocational education planning, a permanent collaboration is essential among Higher Education Institutions, the Government, and Industry. Beyond revitalizing the industry's role in vocational education and enhancing the competencies of educators, there is a need for improvements in facilities and infrastructure, particularly in the field of Information Technology, to enhance the quality of vocational education towards a learning organization.

Additionally to the challenges within partnerships, the knowledge generated by educational institutions often remains unknown and exists in a gray area of literature, which could be valuable if appropriately recoded within the educational organization. As we know, the academic environment is a repository of knowledge but is not well-organized, leading to limited utility. Information and knowledge produced by educational institutions need to be centralized, collected, and disseminated among the community for the further growth of educational institutions (Namdev Dhamdhere, 2015).

This integration process aims to share resources, particularly in terms of knowledge. Every organization needs to optimize its performance by leveraging knowledge management capabilities through the accumulation of intellectual capital. The shift in competitiveness from tangible resources to intangible resources is evident in this new paradigm (Abualoush et al., 2018; Ekram et al., 2022). The organizational paradigm has transitioned from a reliance on resource-based approaches to knowledge-based approaches. Consequently, addressing the challenges faced by organizations involves sustaining the continuous improvement of human resource knowledge to remain competitive globally. Therefore, the implementation of a Knowledge Management System is crucial, enabling the discovery, storage, and sharing of every piece of knowledge within the organization (Ekadiansyah, 2013).

The Knowledge Management System (KMS) inspires the development of a culture of knowledge sharing, creating, documenting, classifying, and disseminating knowledge within an organization. KMS manages all system elements, including documents, databases, policies, and complete procedures, along with information about individual and collective experiences, expertise, and capabilities (Putri & Pangaribuan, 2009; Nofalia, 2013; Sunarti & Yunita, 2016; Romi et al., 2024).

Organizations collaborate to become part of a knowledge network, implying that they collaborate to learn essential information about the industry and competitive environment in which they operate. To understand why such learning networks can form and operate, the focus is particularly on developing shared meaning and consensus in network partnerships, on the social aspects of collaborative learning, and on how partner choices can affect an organization's ability to acquire and leverage new knowledge (Peters et al., 2010; Jam et al., 2018). In the process of integrating vocational education, knowledge sharing is crucial and serves as the core in the revitalization of vocational education. Effective knowledge sharing within an organization has a significant impact, including

enhancing organizational performance. In the realm of education, effective knowledge sharing among academic staff can improve the performance of higher education institutions (Bulan & Sensuse, 2012; Ipe, 2003). Several factors influencing knowledge sharing among individuals have been identified, including the nature of knowledge, motivation to share, opportunities for sharing, and the workplace culture. The nature of knowledge typically refers to the truth and explicitness of knowledge (Chen et al., 2021; Ipe, 2003). Given these challenges, this research aims to implement a knowledge-sharing model based on a collaborative learning organization with industry.

METHODOLOGY

The research method utilized in this study is a one-group pretest and posttest design, where the group is implemented with a knowledge-sharing model based on a collaborative learning organization with the industry. The research sample includes Vocational Higher Education Institutions, the Industrial sector, Stakeholders, and other Policy Stakeholders, totaling 60 respondents in the city of Medan. The selection of trial subjects takes into consideration the computerized system that supports the research implementation, as there is no existing Knowledge Sharing application based on Collaborative Learning, and the availability of facilities, resources, and infrastructure at the Medan State Polytechnic that supports the research trial. The research instrument employs an effectiveness questionnaire. Data analysis techniques encompass descriptive statistics and factor analysis using the SMART PLS application.

RESULTS AND DISCUSSION

The model of knowledge sharing based on a collaborative learning organization is a process designed to address issues identified during the analysis stage, with the goal of creating scenarios or models for further development. The explanation of the stages of the Knowledge Sharing model based on a Collaborative Learning Organization is as follows:

1. Compiling Topics/Issues: Compile topics or issues related to the development of technology used by Higher Education Institutions or Stakeholders. This also includes regulations related to Vocational Education (Organization).
2. Exchanging Knowledge and Interacting: Exchange knowledge and form communities with Stakeholders by utilizing technology, such as discussion forums or uploading knowledge in explicit forms, to acquire new knowledge (Collaborative/Communication).
3. Knowledge Validation: After gathering existing knowledge, validation is performed to ensure that the acquired knowledge is accurate and valid (Validation).
4. Dissemination of Knowledge: Validated knowledge is disseminated to assess its usefulness and create new knowledge in line with the knowledge cycle (Dissemination).
5. Distribution of Knowledge: Subsequently, the knowledge is shared using file storage facilities for use anytime and anywhere (Distribution).

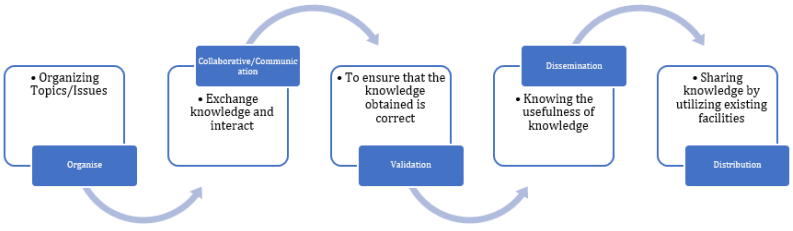

Figure 1: Product Development Scheme

After designing the model, the application development as a support for implementing the model is then carried out. The Knowledge Sharing Dashboard application is a web-based application used to

assist Higher Education Institutions in gathering knowledge from stakeholders (Industry, Associations, and Government). This knowledge is collected and then shared for use in institutional development. The application explains the process of collecting, verifying, storing, and distributing knowledge. It is not only used by Higher Education Institutions but also by stakeholders (Industry, Associations, and Government).

To use this application, you must access the URL: https://unp.nsreload.com/. On the default page, you need to log in before entering the main page of the Knowledge Sharing Dashboard. The following is the result of the design of the Higher Education Handbook (Admin) product.

1. Login Page, In figure 2 Higher Education (Admin) Login Interface for the Knowledge Sharing Dashboard. On this page, users will enter their registered email account and password to access the Higher Education (Admin) Dashboard for Knowledge Sharing.
2. Knowledge Sharing Dashboard Display. In figure 3 show the Dashboard display, there are several menus that can be accessed by the admin, namely: 1. User, 2. Article, 3. Repository, 4. Comment, 5. Article Category, and 6. Repository Category.
3. Article Menu Display. Figure 4 show The Article menu is utilized by the Admin to approve or disapprove knowledge (explicit knowledge) uploaded by users. Within this menu, the admin can also delete knowledge if the uploaded content does not comply with the established rules.
4. Repository Menu Display. Figure 5 shows the Repository menu that contains knowledge uploaded by users. In this menu, information about the uploaded knowledge includes User Name, Knowledge Category, Title, File, and a Description of the knowledge. In this menu, the admin has the authority to delete Repository data uploaded by users.

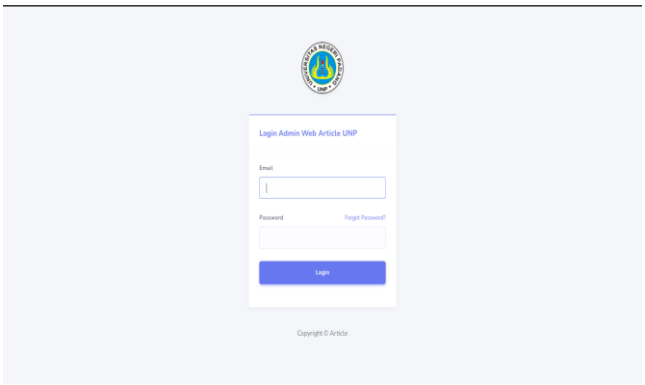

Figure 2: Login Interface Display

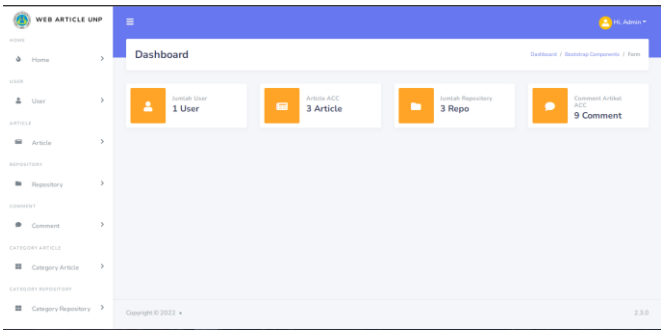

Figure 3: Dashboard Sharing Knowledge Interface Display

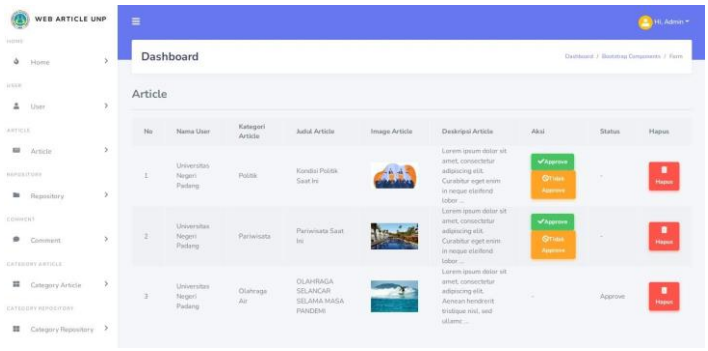

Figure 4: Articles Menu Interface Display

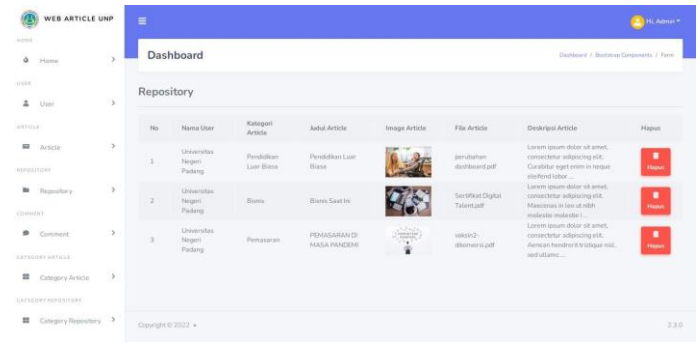

Figure 5: Repository Menu Interface Display

5. Commentary Menu Display. Figure 6 show the admin menu interface that where admin will approve and disapprove the comment article submitted by the previous user and the admin can also delete the submitted comment article. This is done to see that the comments given are valid comments.
6. Article Category Menu Interface. In figure 7 show that Article Category menu is used to create article categories from the results of knowledge collection, where later the results of knowledge extraction from Tacit (Experts) will be documented or stored in Explicit (Document) form which can be clustered based on the desired category.
7. Repository Category Menu Display. Figure 8 show the Repository Category menu is used to create a Repository category from the results of knowledge collection, where knowledge will be documented in explicit form (Documents) which can be clustered based on the desired category. The submenus in the Repository Category Menu are: Repository Category Data Display. This submenu is used to create the Repository category data that we want. In this menu we can edit the Repository category or delete the existing Repository category.

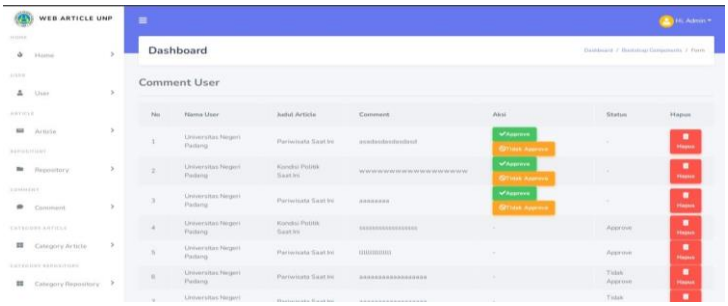

Figure 6: Commentary Menu Interface Display

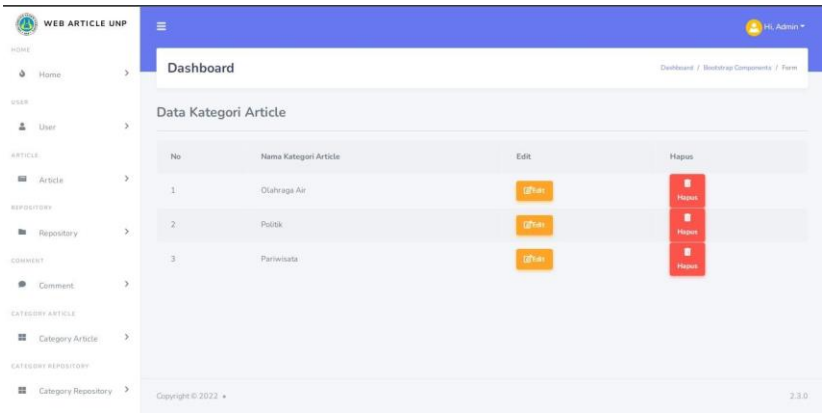

Figure 7: Article Category Menu Interface Display

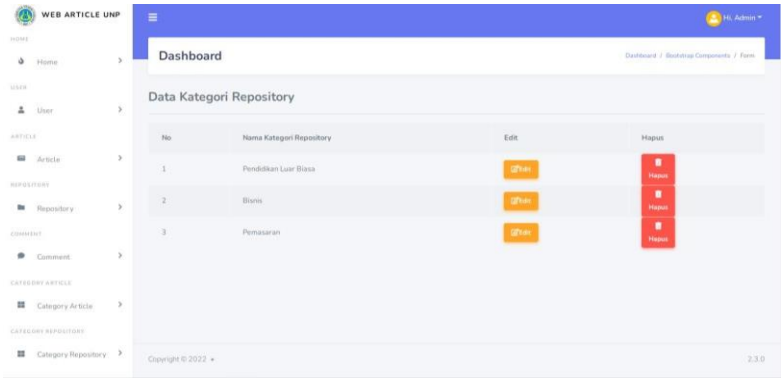

Figure 8: Repository Category Menu Interface Display

After implementing the Collaborative Learning Organization-Based Knowledge Sharing Model and distributing the effectiveness questionnaire, this was done to evaluate the effectiveness of the developed system. The product must fulfill the aspect of effectiveness, which involves an increase or addition of value. The product's assessment, based on the filled-out questionnaires by users, is analyzed to determine the level of effectiveness of the developed product. Users are asked to provide ratings and improvement suggestions regarding the use of the collaborative learning organization-based knowledge-sharing model and its tools. The field test consists of two stages: the pretest and the posttest.

The pretest involves assessing effectiveness by providing the effectiveness questionnaire to research samples, namely, administrators in higher education and industrial representatives, without using the developed model. The results of the pretest field test to assess effectiveness are outlined and show in table 1.

After conducting the pretest effectiveness assessment on the administrators of higher education institutions and stakeholders (industrial representatives) using a questionnaire that evaluates aspects such as the quality of the developed system, information, services, user intention, and user satisfaction. Based on the results of the pretest effectiveness assessment on administrators and stakeholders, it was found that the existing system is less effective. This conclusion is drawn based on Purwanto's (2009) statement that if the average score ranges between 55-64, it is categorized as less effective. Examining the test results, the average test scores were 61% for administrators and 62% for stakeholders, indicating that the current system is less effective and requires further development.

After the development, the system was retested with users, namely administrators and stakeholders, and obtained scores as in table 2.

Table 1: Effectiveness Test Results (pretest)

Aspect	Admin		Stakeholder	
	Score	Category	Score	Category
System Quality	61%	Less Effective	63%	Less Effective
Information Quality	60%	Less Effective	60%	Less Effective
Service Quality	65%	Less Effective	67%	Less Effective
Users Intention	60%	Less Effective	62%	Less Effective
Users Satisfaction	57%	Less Effective	56%	Less Effective
Average	61%	Less Effective	62%	Less Effective

Table 2: Effectiveness Test Results (posttest)

Aspect	Admin		Stakeholder	
	Score	Category	Score	Category
System Quality	85%	Effective	83%	Effective
Information Quality	85%	Effective	88%	Effective
Service Quality	87%	Effective	85%	Effective
Users Intention	87%	Effective	86%	Effective
Users Satisfaction	85%	Effective	87%	Effective
Average	86%	Effective	85%	Effective

After testing the administrators and stakeholders using the developed model with the same testing aspects as in the posttest phase to assess the effectiveness of using the developed model, effective results were obtained in all assessment aspects for administrators and stakeholders. This conclusion is based on Purwanto's (2009) statement that if the test results range between 80%-89%, it means the developed model is categorized as effective.

In summary, the average effectiveness test results for administrators were 86%, and stakeholders had a score of 85%. With these test results, the developed model is considered effective for use. After conducting pretest and posttest on administrators and stakeholders, the conclusion of these test results can be seen in the figure 9.

Based on the effectiveness test results by distributing questionnaires to respondents, including administrators in higher education and stakeholders from the industrial sector, the questionnaire assessed various aspects such as system quality, information quality, service quality, user intention, and user satisfaction with the developed model. From all the aspects assessed and the effectiveness results obtained, the development of the collaborative learning-based knowledge-sharing model is declared effective for use.

This is evident from the diagram in figure 9, indicating that in the pretest stage before model development, the test results were less effective. However, in the effectiveness test results after the model development, the obtained category is effective. This means that the development of the collaborative learning-based knowledge-sharing model is declared effective for use in higher education and industry.

Next, data analysis was performed to determine whether the hypotheses were accepted or rejected. This was done by examining the significance between variables, the statistical value, and the p-value. Testing in this research was conducted using the SEM-PLS (Partial Least Squares) 4.0 application. The testing results can be seen in the figure 10. To analyze the cause-and-effect relationships between variables, it can be observed that there are four variables whose hypotheses are tested: functionality, usability, reliability, and portability. After conducting the significance test between variables, it can be see in figure 10 that the relationship between variables and data for each variable is above 0.5. This indicates that the significance is influential. This is evidenced by all variable results having values >0.5 and P-value 0.000<0.05. These results indicate that, besides being significant, the influence of the variable also shows a positive direction, meaning that the alternative hypothesis (Ha) is accepted.

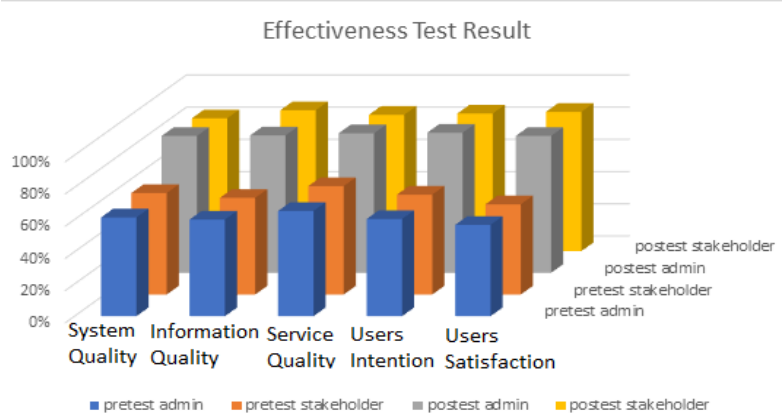

Figure 9: Pretest and Posttest Effectiveness Test Results

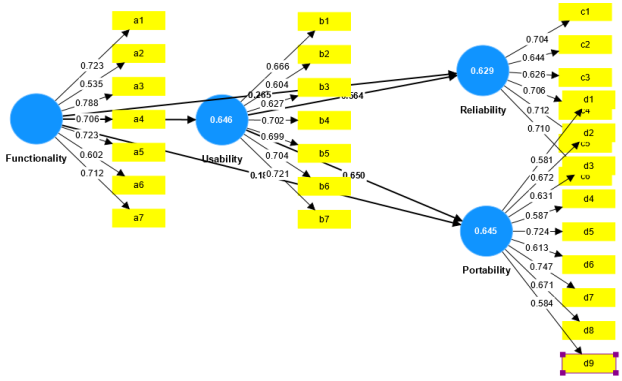

Figure 10: Data Analysis Result

CONCLUSION

Conclusion from the Implementation of a Collaborative Learning Organization-Based Knowledge Sharing Model with Industry is that the implemented model, consisting of the following stages:

1) Organize, 2) Collaborative/Communication,3) Validation, 4) Dissemination, 5) Distribution, has shown effectiveness in its implementation. The effectiveness results were tested with administrators in higher education and stakeholders from the industry using a questionnaire covering aspects such as system quality, information quality, service quality, user intention, and user satisfaction within the

developed model. Considering all aspects evaluated, the effectiveness of developing a collaborative learning organization-based knowledge sharing model is declared successful and suitable for use.

REFERENCES

Amiruddin, A., Irfan, A. M., & Baharuddin, F. R. (2018). Pengembangan model pendidikan sistem ganda SMK 3 tahun dan SMK 4 tahun.

Bulan, S. J., & Sensuse, D. I. (2012). Knowledge sharing model among academic staffs in universities. *Jurnal Sistem Informasi*, *8*(2), 133-139.

Chen, J., Wang, L., & Qu, G. (2021). Explicating the business model from a knowledge-based view: nature, structure, imitability and competitive advantage erosion. *Journal of Knowledge Management*, *25*(1), 23-47.

Ekram, I., Tuanaya, W., & Wance, M. (2022). Pemanfaatan Teknologi Informasi dalam Pelayanan Publik Kantor Manunggal Satu Atap Provinsi Maluku. *Journal of Governance and Social Policy*, *3*(1), 1-13.

FAISAL, A. F. (2021). *Collaborative Governance Dalam Penyelenggaraan Sekolah Vokasi Di Kota Makassar* (Doctoral dissertation, Universitas Hasanuddin).

Ipe, Minu. 2003. "Knowledge Sharing in Organizations: A Conceptual Framework." *Human Resource Development Review* 2(4): 337–59.

Jam, F. A., Singh, S. K. G., Ng, B., & Aziz, N. (2018). The interactive effect of uncertainty avoidance cultural values and leadership styles on open service innovation: A look at malaysian healthcare sector. *International Journal of Business and Administrative Studies*, *4*(5), 208-223.

Nofalia, T. (2013). *Perancangan Knowledge Management System Berbasis Web: Studi Kasus Sekolah Menengah Kejuruan Negeri 2 Ketapang Kalimantan Barat* (Doctoral dissertation, Program Studi Sistem Informasi FTI-UKSW).

Oviawe, J. I., Uwameiye, R., & Uddin, P. S. (2017). Bridging skill gap to meet technical, vocational education and training school-workplace collaboration in the 21st century. *International Journal of vocational education and training research*, *3*(1), 7-14.

Peters, Linda D., Wesley J. Johnston, Andrew D. Pressey, and Terry Kendrick. 2010. "Collaboration and Collective Learning: Networks as Learning Organisations." *Journal of Business and Industrial Marketing* 25(6): 478–84.

Putri, S. S., & Pangaribuan, T. H. (2009). Knowledge Management System: Knowledge Sharing Culture di Dinas Sosial Provinsi DKI Jakarta. In *Seminar Nasional Aplikasi Teknologi Informasi (SNATI)*.

Romi, I. M. (2024). Digital Skills Measures for Digitalization-An Aggregative Analysis. *Pakistan Journal of Life and Social Sciences (PJLSS)*, *22*(1), 960-971.

Rusten, G., & Hermelin, B. (2017). Cross-sector collaboration in upper secondary school vocational education: experiences from two industrial towns in Sweden and Norway. *Journal of Education and Work*, *30*(8), 813-826.

Spöttl, G., & Windelband, L. (2021). The 4th industrial revolution–its impact on vocational skills. *Journal of Education and Work*, *34*(1), 29-52.

Sunarti, S., & Yunita, Y. (2016). PROTOTYPE KNOWLEDGE MANAGEMENT SYSTEM RESPONSIVE MOBILE ANDROID UNTUK INOVASI UKM KOTA DEPOK DENGAN METODE MOST ADMIRED KNOWLEDGE ENTERPRISE (MAKE). *IJCIT (Indonesian Journal on Computer and Information Technology)*, *1*(2).

Wardina, U. V., Jalinus, N., & Asnur, L. (2019). Kurikulum pendidikan vokasi pada era revolusi industri 4.0. *Jurnal Pendidikan*, *20*(1), 82-90.

Zhibin, T., & Weiping, S. (2017). On the logic and process of collaborative innovation in higher vocational education and industrial development. *Chinese Education & Society*, *50*(5-6), 458-468.