CHAPTER VI
CONCLUSION, IMPLICATIONS, RECOMMENDATION

6.1 Conclusion

Based on the descriptive analysis, the digital competence of vocational education teachers in Indonesia shows a relatively positive trend across the three dimensions measured. The Digital Learning and Ethics dimension had the highest average score, indicating that vocational teachers are generally quite confident and accustomed to utilizing technology to support learning and are paying attention to ethical aspects in its use. Conversely, the Digital Management and Collaboration and Professional Development dimensions still show lower average scores, indicating the need for further improvement in digital data management, online collaboration, and teacher participation in digital competency development training.

Selecting by region, the analysis results show that teachers from Sulawesi and Java have the highest average scores across almost all dimensions, while teachers from Papua consistently score the lowest. This illustrates a geographic gap in vocational teachers' digital competence mastery, likely driven by differences in access to technological infrastructure, training, and supportive digital learning environments. However, it remains to be seen whether these differences are statistically significant. It was found that only in the Digital Learning and Ethics dimension there were significant differences between regions. This means that the level of teacher competence in using technology for learning and in implementing digital ethics does differ between islands, and this difference does not occur by chance. Meanwhile, in the Digital Management and Collaboration and Professional Development dimensions, the differences between islands were not statistically significant, although descriptively there was variation in the average. This indicates that the biggest challenge between regions lies in the practice of integrating technology in learning and the application of digital ethics, while data management skills and participation in digital self-development have not shown significant differences between regions.

6.2 Implication

Overall, this study shows that vocational education teachers in Indonesia have a fairly good level of digital competence, particularly in supporting technology-based learning and implementing digital ethics. However, there are competency disparities between regions, with teachers in eastern Indonesia, particularly Papua, demonstrating lower levels of competence. This difference is statistically significant in the aspects of digital learning and ethics, indicating the need for specific interventions in the form of training, strengthening digital infrastructure, and equitable policy support across Indonesia. These findings also indicate that developing vocational teachers' digital competence requires not only improved technical skills but also a supportive digital ecosystem and equitable learning opportunities across regions.

This research has successfully developed a new digital competency framework for educators, specifically to differentiate the needs of general and vocational teachers. Based on the results of a literature review, FGD, a national survey of vocational high school teachers, and validation by international experts, it was found that the previous digital competency framework was insufficiently adapted to the Indonesian context and the latest technological developments, particularly artificial intelligence, digital collaboration, and industry integration in vocational education. Overall, this research shows that vocational teachers in Indonesia still face challenges in digital competency, particularly in terms of professional development and digital management, despite relatively good integration of digital learning. However, there remains a gap between teachers' perceptions of their competencies and actual practices revealed in the FGDs. The newly developed framework, DICGEVE (Digital Competence for General and Vocational Educators), provides an update to the competency area and offers a clearer distinction between the needs of general and vocational teachers.

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6.3 Recommendation

This research makes significant theoretical and practical contributions. Theoretically, this study enriches the literature on educator digital competency by presenting a new, more contextual and adaptive framework that differentiates the needs of general and vocational teachers. This framework also incorporates new competency areas not previously discussed in depth, such as AI literacy, digital social collaboration, and the integration of industrial technology into vocational learning. Practically, the results of this study can serve as a strategic reference for the Ministry of Education, teacher training institutions, vocational schools, and other stakeholders in designing teacher development curricula, establishing competency standards, and improving the quality of vocational graduates who are ready to face the challenges of Industry 4.0 and Society 5.0

Another important implication is the need to strengthen the digital ecosystem in vocational schools, focusing not only on providing infrastructure but also on developing a collaborative and innovative digital culture. Teachers need to be encouraged to be active in online learning communities, collaborate across generations, and stay abreast of the latest technological developments through ongoing training. This research also highlights the importance of a needs-based approach to developing teachers' digital competency, so that training and competency development can be more relevant and impactful.

Based on the research findings, several strategic recommendations can be implemented. First, it is necessary to update the teacher training curriculum based on this new framework, both in pre-service programs and in Continuous Professional Development (CPD). Second, the government needs to expand access to training and digital infrastructure to regions that have historically been underdeveloped, particularly in eastern Indonesia, to encourage equitable distribution of teachers' digital competencies. Third, collaboration between vocational schools and industry needs to be strengthened to support the integration of industrial technology into learning, so that students are better prepared for the ever-evolving world of work.

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Furthermore, it is crucial to develop a more structured and productive digital teacher community platform, so that it serves not only as a place for sharing general information but also as a space for discussion, collaboration, and innovation in technology-based learning. Finally, further studies are recommended to test this framework in other countries or across educational levels, as well as to develop more objective instruments for measuring teachers' digital competency performance through observation of learning practices, rather than solely based on perceptions. The DICGEVE framework resulting from this research is expected to be a strategic reference in improving the quality of vocational education in Indonesia, while contributing to the achievement of Sustainable Development Goals (SDG) 4 on quality education that is relevant to the global demands of the 21st century.

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