

CHAPTER V

CONCLUSION AND SUGGESTIONS

5.1. Conclusion

Based on the results of this study, several conclusions can be drawn as follows:

1. At the define stage, the initial analysis through observation and interviews at SMA Negeri 2 Percut Sei Tuan revealed that the implementation of Project-Based Learning (PjBL) in redox reaction material has not been optimal and that local wisdom has not yet been integrated into chemistry learning. Although the textbooks used in schools have met the BSNP feasibility standards, they have not provided contextual learning experiences connected to students' cultural backgrounds. In addition, students showed strong interest in learning materials that relate chemistry concepts to real-life phenomena and digital learning formats. These findings confirm the urgent need for developing an innovative redox reaction e-module based on PjBL integrated with ethnopedagogy to create more meaningful and contextual learning.
2. At the design stage, the redox reaction e-module was systematically designed by integrating the syntax of Project-Based Learning with ethnopedagogical elements based on the local wisdom of tuak fermentation. The module was structured according to essential e-module components and aligned with BSNP feasibility aspects, including content, language, presentation, and graphics. This design strengthens the contextualization of abstract redox concepts through culturally relevant scientific phenomena, thereby supporting student-centered learning in accordance with the Merdeka Curriculum.
3. At the development stage, the validation results indicate that the developed e-module meets the eligibility criteria according to BSNP standards. Material validation by expert lecturers obtained an average score of 87.10%, while media validation reached 87.22%, both categorized as "very feasible." Furthermore, validation by chemistry teachers resulted in an average score of 95.18%, indicating that the module is highly appropriate for classroom implementation. These results demonstrate that the developed product has strong academic quality and practical relevance as an innovative chemistry teaching material.

4. At the disseminate stage, user responses show highly positive acceptance of the developed e-module. Student responses reached an average percentage of 89.20%, categorized as very good, while teacher responses obtained 93.30%, categorized as very valid. These findings indicate that the e-module is practical, attractive, and effective in supporting contextual redox learning, enhancing student engagement, and facilitating independent learning through digital media.

Overall, this research successfully produced an innovative redox reaction e-module based on Project-Based Learning (PjBL) integrated with ethnopedagogy that meets BSNP feasibility standards and receives very positive responses from teachers and students

5.2. Suggestions

Based on the results of this study, several suggestions are proposed as follows:

1. Teachers and prospective teachers are encouraged to utilize innovative e-module teaching materials based on Project-Based Learning (PjBL) integrated with ethnopedagogy, particularly those incorporating local wisdom, as an alternative learning resource to support meaningful and contextual chemistry learning.
2. Future researchers are recommended to continue this study by implementing the developed e-module directly in classroom learning to examine its effectiveness on students' learning outcomes and skills.
3. For further researchers, it is recommended to develop similar e-modules on other chemistry topics or at different levels of education by integrating relevant local wisdom from their respective regions. Such integration is expected to enrich chemistry learning by making it more contextual, meaningful, and culturally relevant.
4. Further studies may expand the integration of local wisdom not only in chemistry topics but also in other subject areas to enrich contextual learning and strengthen students' understanding across disciplines.