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Advancing History Education in Higher Education: A Needs Analysis for Research-Based TPACK Models

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ABSTRACT

The 21st Century demands innovative educational models that incorporate technological advances to support research and teaching. This study examines the need to develop a research-based history learning model using the Technological Pedagogical Content Knowledge (TPACK) framework (RBL-TPACK) to enhance history education. The research adopts a Research and Development (R&D) approach, focusing on the analysis stage. Participants include 27 history lecturers and 107 students. Data collection involved observations, interviews, and questionnaires, with qualitative analysis used to assess the necessity of RBL-TPACK in history education. Findings indicate that research-based learning (RBL) is crucial for supporting lecturers' tridharma responsibilities and enriching local history education. However, the integration of RBL into lecture content and outputs remains suboptimal. Students demonstrated a strong preference for incorporating lecturers' research outputs into learning materials. The integration of digital tools via the TPACK framework offers a promising approach, enhancing theoretical and practical learning dynamics. The study highlights the potential of RBL-TPACK to foster historical thinking skills and enrich learning experiences. Despite its importance, gaps in integrating RBL and digital tools into teaching practices persist. Addressing these gaps through a structured RBL-TPACK model can better meet the demands of modern history education. Developing an effective and contextually relevant RBL-TPACK model is vital to advancing history education and addressing the challenges of 21st-century learning. This foundational analysis underscores the need for further development and implementation of this innovative approach.

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1. INTRODUCTION

Education is one of the main pillars of building human civilization. In the current era of globalization and technological advancement, education is required to be able to adapt to rapid changes (Sadikin et al., 2023; Tolchah & Mu'ammar, 2019). The Industrial Revolution 4.0 presents new challenges and opportunities for the world of education, including in the context of learning history in higher education (Akrim, 2022; Kayembe & Nel, 2019). Automation and digitalization have become an integral part of daily life, demanding education to adapt to new methods and approaches that are more relevant and effective (Kalimullina et al., 2021; Trends et al., 2020).

One of the key challenges in history education at the higher education level is the lack of innovation in learning models and methods. Traditional lecture-based approaches continue to dominate, resulting in passive student engagement and minimal active participation in the learning process. In an era where students have extensive access to diverse and engaging information sources, conventional classroom methods often fail to capture their interest or meet their learning needs. Moreover, many educators struggle to effectively integrate technology into history teaching, relying heavily on traditional tools such as reference books and PowerPoint presentations. This underutilization of digital resources and tools limits opportunities for enhancing student interactivity and engagement. A significant barrier to this innovation is the lack of training and skills among educators in using educational technologies effectively.

To address these issues, there is a pressing need to develop learning models that actively engage students and encourage their participation in the learning process. Research-based learning (RBL) presents a promising solution by fostering a student-centered approach where learners search, analyze, and synthesize information from multiple sources. This method not only enhances theoretical understanding but also develops critical thinking and analytical skills, equipping students for more dynamic and interactive educational experiences (Budayawati et al., 2019; Rohim et al., 2019; Rosena et al., 2024).

Research-based learning (PBR) is one of the student-centered learning (SCL) models that integrates research in the learning process (Nawawi et al., 2021; Suwito et al., 2019; Wibowo & Suryo, 2019). Therefore, PBR opens opportunities for the development of learning methods, including (Brew & Saunders, 2020; Burgess & Pande, 2005; Wessels et al., 2021): (1) learning renewal by integrating research results, (2) active participation of students in the implementation of research, (3) learning using research instruments, and (4) development of an inclusive research context (students learn procedures and research results to understand the intricacies of synthesis). The research-based learning model provides opportunities and courage for students to actively participate in the learning process (Suyatman, 2020; Bergmark, 2022). High-level learning guides students not only to master the knowledge and understanding of the course, but to be able to reach the highest level of learning, namely creation (Dewi & Primayana, 2019; Maknun, 2020).

The Technological Pedagogical and Content Knowledge (TPACK) approach can be used to strengthen the implementation of research-based learning (RBL). TPACK is a framework that combines knowledge of content, pedagogy and technology to create more effective and engaging learning (Absari et al., 2020; Malik et al., 2019; Taopan, 2020). In the context of history education, TPACK offers a great opportunity to address challenges, such as the lack of research-based learning models specifically designed for this field. With TPACK, educators can design learning experiences that are relevant to the digital era, utilize technology as an interactive learning tool, and support in-depth historical understanding (Agustini et al., 2019; Lisa et al., 2021; Sarwa et al., 2020).

Previous research shows that implementing TPACK in learning can increase student engagement and motivation (Almaiah et al., 2022; Widyasari et al., 2022). However, most studies focus on the application of TPACK in the general field of higher education, while its specific application in history learning is still limited. On the other hand, research on PBR has highlighted its benefits in encouraging students' active participation in research and collaborative projects (Macgilchrist et al., 2020; Yang & Baldwin, 2020). The relevance of TPACK in history education lies in its ability to facilitate dynamic and contextualized technology-based learning. Through technology integration, students can be encouraged

to think critically and reflectively, understand the context and implications of historical events, and apply this knowledge in real life (Kwangmuang et al., 2021; Malmia et al., 2019; Supena et al., 2021). The implementation of TPACK and PBR in higher education can also support curriculum development that is more responsive to the times. Curricula designed with students' needs and potential in mind not only increase the relevance and effectiveness of history education, but also help shape a more adaptive, creative and innovative young generation in facing global challenges (Widyasari et al., 2022).

Research conducted by Kusumawardana (2020) showed that the application of a research-based learning model can improve student interpretation. Zahrawati & Aras (2020) said that Research-Based Learning is effective in improving student learning outcomes and learning interests. Quddus (2020) revealed that the implementation of TPACK can improve student competence. However, based on the above research, no previous researcher has analyzed the development of a research-based history-learning model with the TPACK approach. Thus, the development of a research-based history learning model with the TPACK approach requires a comprehensive needs analysis. It is important to ensure that the model developed is truly in accordance with the characteristics and needs of students and the context of education in higher education. Through needs analysis, educators can determine the most effective methods, strategies, and tools to use in learning.

2. METHODS

This research uses the development method (R&D) with the ADDIE model. The ADDIE model was chosen because it is in accordance with the need to increase the professional competence of lecturers who require continuous evaluation in developing learning models. However, this research only focuses on the first stage of the ADDIE model, namely the analysis stage. This stage is chosen because it aims to identify fundamental needs before proceeding to the next stage, thus providing a strong foundation for the development of learning models. In the analysis stage, various activities are carried out, including material concept analysis, analysis of lecturer and student needs, and analysis of learning models that have been used previously. The focus on this stage allows a deep understanding of the context and specific needs, which will later become a reference for design, development, implementation, and evaluation at later stages if this model is fully developed.

The participants of this study consisted of 27 lecturers and 107 students who were selected to represent the target population in the context of developing a research-based history learning model with the TPACK approach. The selection of lecturers and students was based on the consideration of representation in understanding the needs and challenges of history learning in higher education. The lecturers were chosen because they have experience in teaching history and implementing the *tridharma* of higher education, while the students involved came from history study programs, so they could provide diverse perspectives.

The data collection techniques used in this study include observation, interviews, questionnaires, and document analysis. Observations were conducted in a structured manner to systematically record the teaching and learning activities in history courses, focusing on the use of existing models and the integration of technology. Interviews were semi-structured, allowing researchers to explore specific topics while maintaining flexibility to delve deeper into unexpected responses. Questions in the interviews targeted lecturers' experiences with research-based learning, their perspectives on TPACK integration, and the challenges they face in teaching history. For students, the interviews addressed their learning experiences, engagement with current teaching methods, and expectations for improved learning models.

The questionnaire, completed by lecturers and students, utilized a Likert scale with a score range of 1 to 5 to measure perceptions, needs, and preferences regarding the development of a TPACK-integrated research-based learning model. The questionnaire included items assessing familiarity with TPACK, the effectiveness of current teaching methods, and the perceived relevance of integrating research into history learning. Prior to distribution, the questionnaire was tested for validity and reliability, ensuring it was

suitable for use in research. The results of these tests, confirming the instrument's robustness, are presented in Table 1.

Table 1. Questionnaire Validity Test for Lecturers

No Question	r-count	r-table	Information
1	0.668	0.381	Valid
2	0.516	0.381	Valid
3	0.760	0.381	Valid
4	0.677	0.381	Valid
5	0.717	0.381	Valid
6	0.581	0.381	Valid

Table 1 shows that the overall questionnaire for lecturers has a significance value greater than the r-table of 0.381 which concludes that the questionnaire is valid and can be used in research.

Table 2. Questionnaire Validity Test for Students

No Question	r-count	r-table	Information
1	0.802	0.176	Valid
2	0.751	0.176	Valid
3	0.787	0.176	Valid
4	0.864	0.176	Valid
5	0.803	0.176	Valid

Table 2 also shows that the overall questionnaire for students has a greater significance value than the r-table of 0.176 which concludes that the questionnaire is valid and can be used in research.

Table 3. Instrument Reliability Test

Questionnaire	Cronbach's Alpha	N of Items
Lecturer	0.726	6
Student	0.708	5

Based on Table 3, it can be seen that the entire questionnaire has a significance value greater than 0.05, which shows that all the questionnaires of lecturers and students can be used as questionnaires in research.

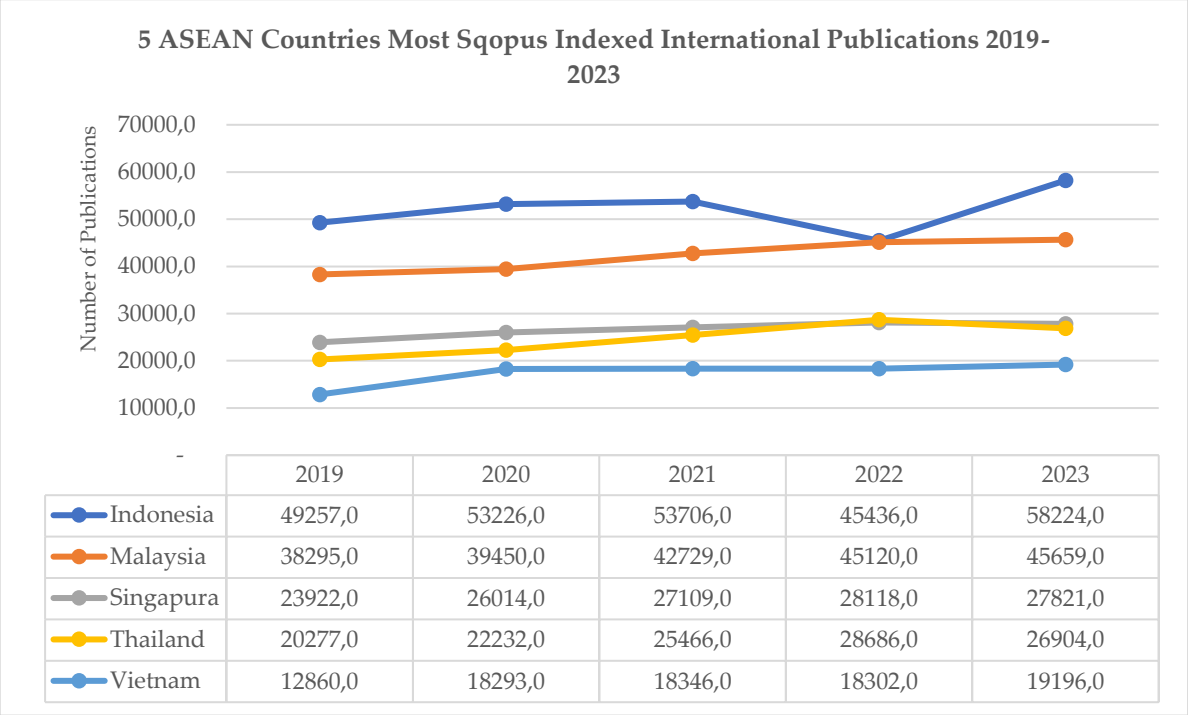
This study focuses on the collection and analysis of qualitative data, which were generated during the preliminary study and model development stages. The qualitative data were derived from observations, interviews, and questionnaire responses. The analysis of these data employed thematic analysis, where recurring themes and patterns were identified and categorized to provide insights into the needs and challenges of integrating TPACK in research-based history learning. Coding techniques were used to systematically organize the data, allowing for detailed examination of lecturers' and students' perspectives. This approach enabled the researchers to interpret the findings directly and draw meaningful conclusions regarding the gaps and requirements for developing an effective and contextually relevant learning model.

3. FINDINGS AND DISCUSSION

3.1 Lecturer Needs Analysis

In general, the research culture in Indonesian universities has undergone development, this is shown by data sourced from SJR (Scimago Journal and Country Rank) from 2019 to 2023, shown in figure 1. Compared to five ASEAN countries, namely Singapore, Malaysia, Thailand and Viet Nam,

Indonesia occupies the first position with those published in international journals indexed by Scopus. The achievements of international scientific publications indexed by Scopus come from the Ministry of Education and Culture, Research and Technology, Non-Ministerial Government Institutions, and other research and development institutions.



	2019	2020	2021	2022	2023
Indonesia	49257,0	53226,0	53706,0	45436,0	58224,0
Malaysia	38295,0	39450,0	42729,0	45120,0	45659,0
Singapura	23922,0	26014,0	27109,0	28118,0	27821,0
Thailand	20277,0	22232,0	25466,0	28686,0	26904,0
Vietnam	12860,0	18293,0	18346,0	18302,0	19196,0

Figure 1. 5 ASEAN Countries Most Scopus Indexed International Publications 2019-2023

Although the number of publications has increased, in terms of citations, Indonesia is still below other countries. This shows that the quality of Indonesia's research is still low. The quality of publications can be calculated by the H-index. The H-index is a composite index of 5 (five) indicators, namely the number of documents, the number of documents that are worthy of citation, the number of citations, the number of citations themselves, and the number of citations per document. According to the 2023 Scientific Journal Ranking (SJR), Indonesia is ranked 38th with an H-index of 318. In the Southeast Asian region, Indonesia is still below Singapore (H-index 806), Malaysia (H-index 504), and Thailand (H-index 452).

Table 1. International Journal Citation Information 1996-2023

Country	Documents	Citable documents	Citations	Self-citations	Citations per document	H index
Singapore	432121	393012	12870663	1128547	29.78	806
Malaysia	502815	477046	6857678	1393297	13.64	504
Thailand	305015	288839	4767712	706073	15.63	452
Indonesian	376908	366528	2287188	670472	6.07	318
Vietnam	139043	132344	2021594	309286	14.54	316

The low quality of publications can be caused by internal factors and external factors. Internal factors, among others, include the choice of research topics/themes, which are often not in line with the trend of international research topics/themes, so it is unlikely that Indonesia's research results can be input for international research. Limited research capacity (both researchers and infrastructure) also limits the type of research that can be conducted. Another internal problem that often arises is the

violation of scientific ethics that causes the failure of accreditation in national and international publications. In addition, the lack of development of writing culture in higher education is a problem for the research community, especially students. This leads to a lack of ability to comprehensively analyze and interpret research results in national and international publications. From an external perspective, financial support is also needed to facilitate and provide encouragement for students and lecturers to be able to conduct quality research.

Regarding research activities in higher education, the Higher Education Law has clearly explained, especially in articles 45 and 46. Article 45 reads: 1. Research in Higher Education is directed to develop Science and Technology, as well as improve the welfare of the community and the competitiveness of the nation; 2. Research as referred to in paragraph (1) is carried out by the Academic Community in accordance with scientific autonomy and academic culture; 3. Research as referred to in paragraph (2) is carried out based on competency and competition paths. Article 46 reads: the results of the research are useful for: a. enrichment of Science and Technology and learning; b. improving the quality of higher education and the progress of the nation's civilization; c. increasing the independence, progress, and competitiveness of the nation; d. fulfillment of strategic needs for national development; and the transformation of Indonesia society into a science-based society.

Permenristekdikti No. 44 of 2015 concerning National Standards for Higher Education also strengthens the importance of research activities in higher education. In this Permendikbud, it is explained that even the national standards for higher education consist of 24 standards, namely 8 national standards for education, 8 national standards for research and 8 national standards for service. The details of the 8 research standards are as follows: research result standards; standard of research content; standards of research processes; research assessment standards; research standards; standards of research facilities and infrastructure; research management standards; and research funding and financing standards. The emergence of this separate research standard clearly emphasizes that the formation of research universities has received a special forum in Permenristekdikti No. 44 of 2014. The comparison chart of the number of scientific publications of the five ASEAN countries above is a challenge for universities in Indonesia to increase the number of scientific publications at the international level, especially at the ASEAN level. This also has an impact on the competition of universities in the country to increase the number of scientific publications in reputable international journals and SINTA-indexed journals.

From the Scimago Journal and Country Rank (2023) data, the publication of the academic community of the University of Riau in reputable international journals is ranked 32nd below UNIMED (28), UNSRI (23), UNP (16), UNILA (15), USK (11), and USU (9).

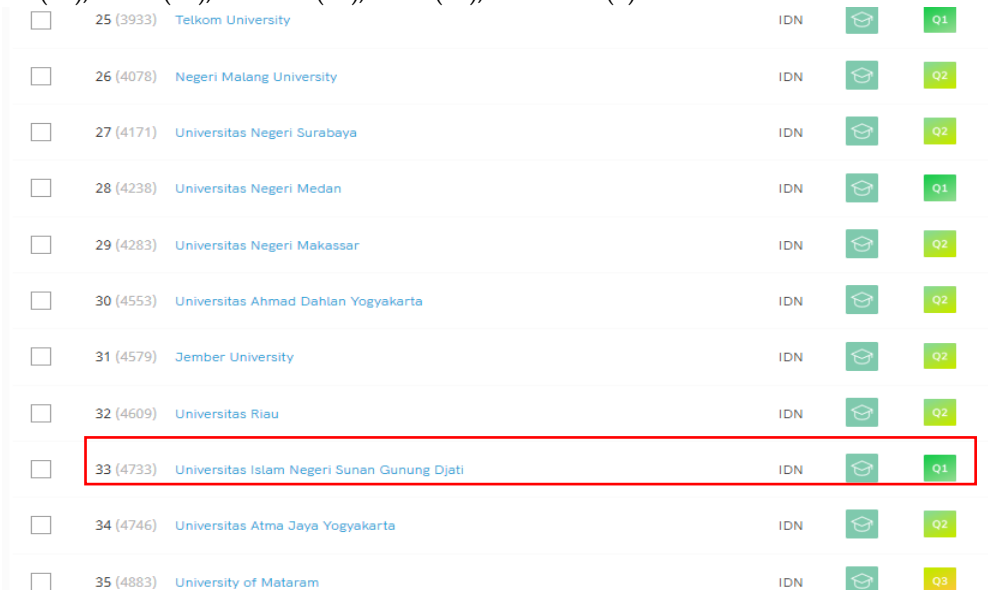


Figure 2. Ranking of the University of Riau in Scopus Publication

As an effort to realize a research university, it can be seen in the formulation of the scientific vision of the History Education Study Program of FKIP University of Riau which is in line with the vision of the faculty and the University of Riau which can be seen in the following figure.

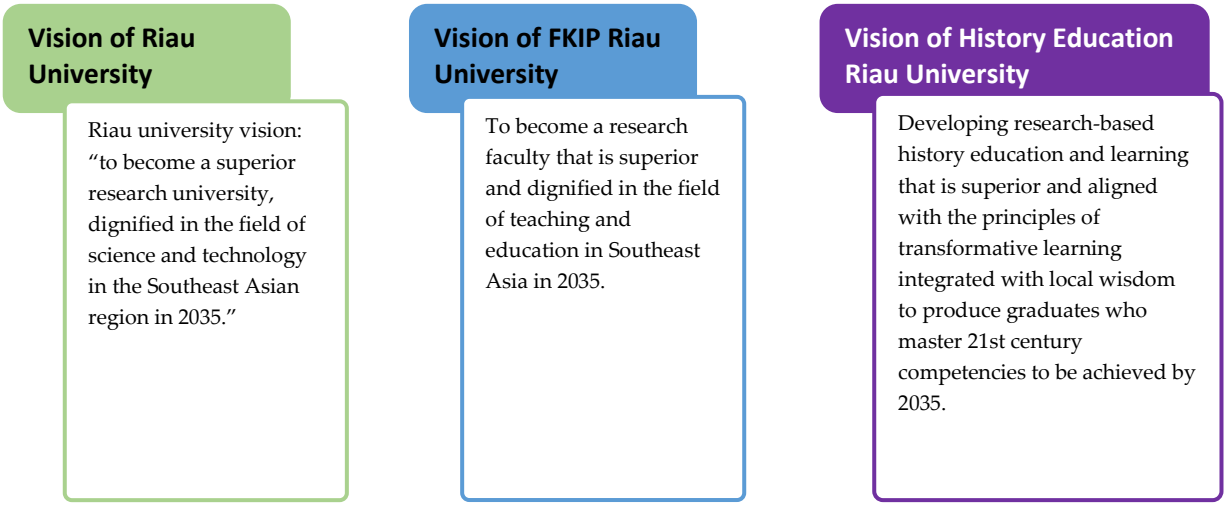


Figure 3. Alignment of Study Program Vision with Faculty Vision and University Vision

In addition, according to Salimi, et al. (2017), LPTK are required to connect teaching, research and community service. Research-Based Learning (RBL) has the opportunity to be a solution to revitalize and connect teaching, research and service. The integration of research in learning, hereinafter known as Research-Based Learning. Research-Based Learning (PBR/RBL) is based on the philosophy of constructivism which includes 4 (four) aspects, namely: problem-based learning and problems must arise from problems in research developed by lecturer research, learning by developing up-to-date prior knowledge based on the results of cutting-edge research, collecting, analyzing data and testing the correctness of the analysis results, and finally developing reports and publications. Realizing that PBR is very important to the tridharma task as a lecturer, the application of PBL in courses at the University of Riau is very important.

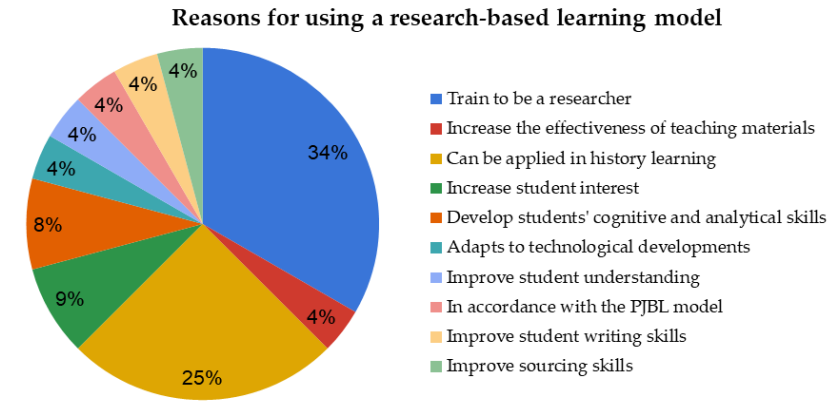


Figure 4. Reasons for the Importance of Using Research-Based Learning Models

This highlights the need to develop a research-based learning model within the Faculty of Teacher Training and Education (FKIP) at the University of Riau, particularly in the History Education Study Program. Conducting an analysis of the learning needs of both lecturers and students is essential to ensure that the desired learning objectives are achieved. Specifically, in local history courses, effective planning is crucial to attaining these objectives. The focus on local history courses aligns with the Study

Program's vision of advancing research-based history education that integrates local wisdom, specifically the rich cultural heritage of Riau Malay Culture.

A needs analysis was conducted to identify existing gaps in the teaching and learning of local history, particularly regarding the development of historical thinking skills among students in the History Education Study Program. Addressing these gaps is critical for creating a more effective, research-driven approach that aligns with the program's goals and enhances the overall learning experience.

Efforts made to identify better learning needs are carried out by document studies, observations, and interviews. The analysis of the needs of model development was carried out by analyzing lecture equipment documents and direct interviews with lecturers and students regarding their experience so far in the lecture process.

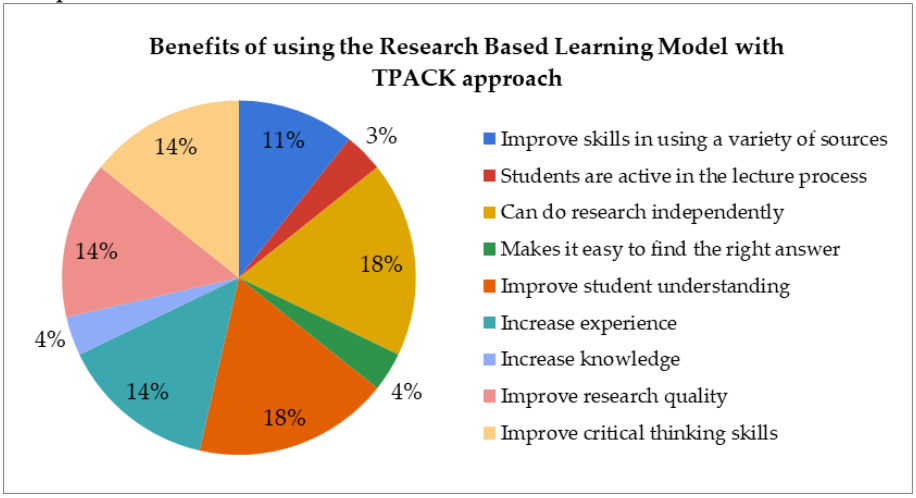


Figure 5. Benefits of Using a Research-Based Learning Model with the TPACK Approach

Based on the analysis of lecture document materials for lecturers of the History Education Study Program, FKIP University of Riau, it was found that only 25% of lecturers used their research results as lecture references. Although from the results of the interview, most of the lecturers admitted that they had implemented research-based history learning, but this could not be proven in writing either from the lecture apparatus or the output or student assignments that were the output of the course and were not associated with local wisdom or elements of local history. Furthermore, from the results of the interview, an input and suggestion for model development was obtained, which needs to be considered in the aspects of implementation time and classroom management. The historical research carried out is, of course, one that can be carried out in a short time but can still produce a research study that can be accounted for. Especially research related to local history, which according to most study program lecturers, students' understanding of local history is very low and needs to be improved. For this reason, the use of digital historical sources can be an alternative in implementing the model in lectures, and also the use of digital historical sources supports the concept of Technological, Pedagogical, Content, and Knowledge (TPACK).

3.2 Student Needs Analysis

Furthermore, the analysis of student needs based on the results of interviews with 107 students of the History Education study program at FKIP Riau University related to student experience in the lecture process of the study program.

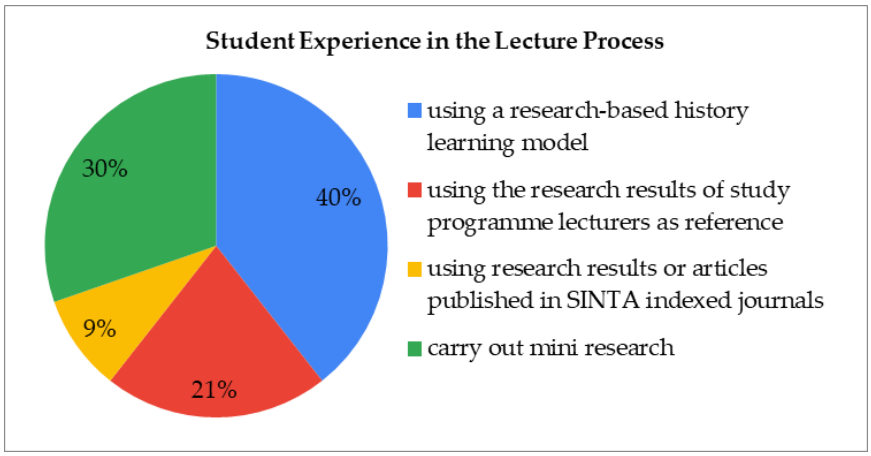


Figure 6. Student Experience in the Learning Process

Figure 6 shows that the lecture experience that students want to get if they use a research-based learning model is 35% of students want to use the research results of study program lecturers as material references or examples in the lecture process, 15% of students want to use research results or articles published in SINTA indexed journals, and 50% of students want to do mini research. The benefits of implementing research-based history learning in lectures, according to students, are being able to distinguish historical events from non-historical events, being able to organize historical events chronologically, and as an exercise for doing final assignments/thesis in the field of history (Cohen, 2019; List & Univers, 2021). The students' answers are in line with the concept of historical thinking. However, related to the historical thinking skills of history education students, there needs to be a clear measurement of the level of skills obtained by students.

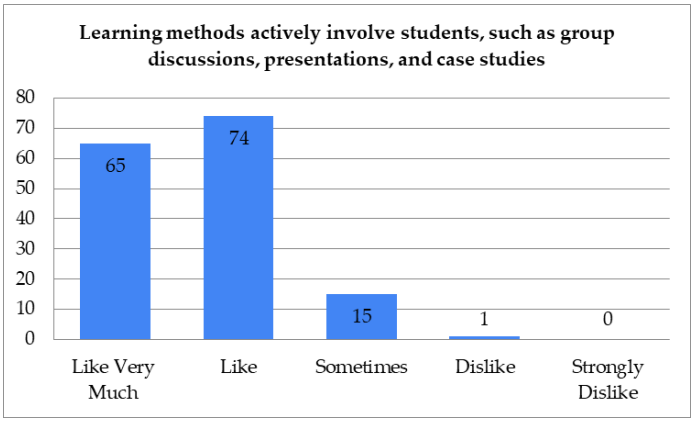


Figure 7. Student Approval of Active Learning Methods

The data presented in Figure 7 highlights the positive reception of active learning methods, such as group discussions, presentations, and case studies, among the students. This trend underscores the need to combine a research-based history learning model using the TPACK (Technological Pedagogical Content Knowledge) approach. By integrating technology and pedagogy with content knowledge, educators can create dynamic and engaging learning experiences that resonate with students (Mirra, 2019; Pramesworo et al., 2023). Very positive responses to the interactive method showed that students were more engaged and motivated when they were actively involved in the student learning process.

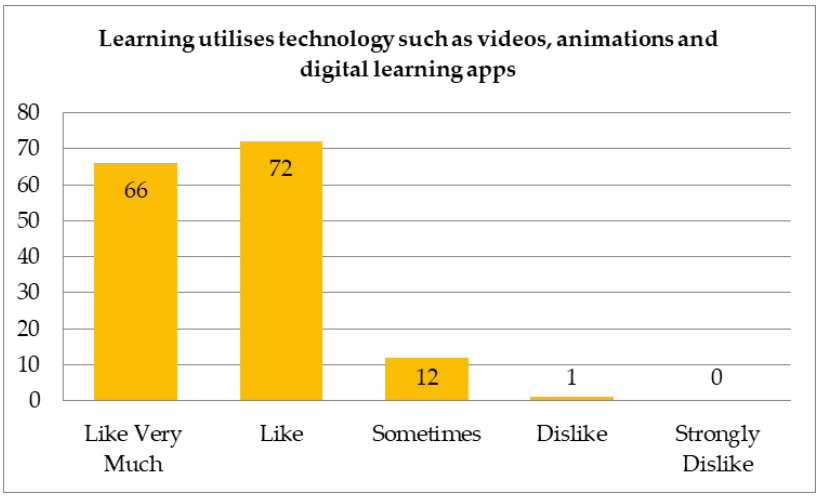


Figure 8. Student Preference for Technology-Based Learning Methods

Figure 8 shows that a large number of students prefer learning methods that incorporate technology, such as video, animation, and digital learning applications. With 72 students liking and 66 students really liking, it's clear that digital aids are very effective in engaging students. This highlights the need for a research-based history learning model using the TPACK (Technological Pedagogical Content Knowledge) approach. By seamlessly integrating technology with pedagogical strategies and historical content, educators can create a more immersive and interactive learning environment (Bekele, 2019). The positive response to technology-based learning underscores its potential to improve historical understanding and knowledge retention (Gyll & Hayes, 2023). Thus, adopting the TPACK approach in history education not only caters to students' preferences, but also equips students with digital literacy skills that are essential for the 21st century.

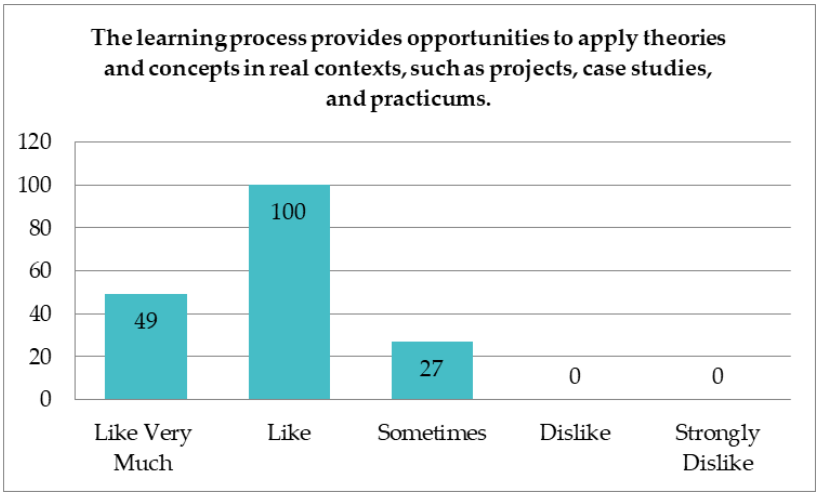


Figure 9. Student Preference for Applying Theories in Real-World Contexts

Figure 9 shows a clear preference among students for a learning process that allows students to apply theories and concepts in real-world contexts, with 100 students indicating that students "Like" and 49 students stating that students "Strongly Like" opportunities such as projects, case studies, and practicums. This data underscores the need to apply a research-based history learning model using the TPACK (Technological Pedagogical Content Knowledge) approach. By integrating technology with pedagogical strategies and historical content, educators can create authentic learning experiences that connect academic theory with practical applications (Smith et al., 2020). The TPACK approach

facilitates the use of digital tools and resources to design projects and case studies that mirror real-world scenarios, thereby enhancing students' critical thinking and problem-solving skills.

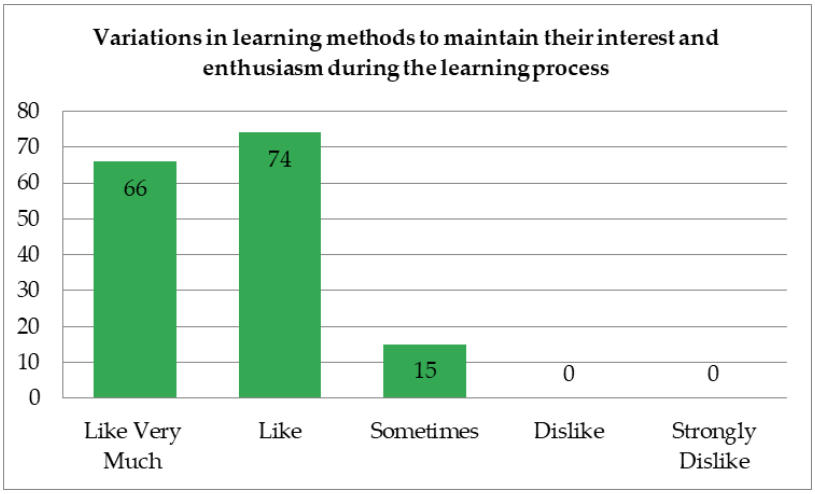


Figure 10. Student Preference for Variety in Learning Methods

Figure 10 highlights that most students value variety in learning methods, with 74 students indicating that students "Like" and 66 students stating that students "Like" students "Very Much" with diversity in learning approaches. The enthusiasm for these varied learning methods shows the importance of adopting a research-based history learning model using the TPACK (Technological Pedagogical Content Knowledge) approach. By integrating technology with pedagogical strategies and historical content, educators can offer diverse and engaging learning experiences that suit different learning styles and preferences. The TPACK framework allows teachers to combine multimedia resources, interactive activities, and innovative teaching techniques, thus keeping students' interest and enthusiasm throughout the learning process.

In addition, the basic thing behind the research on the development of this RBL model in the local history course based on the study of literature and the learning situation in this course is the limited or absence of history laboratory infrastructure, which causes students to tend to always get material theoretically without real application or real practice. Through the implementation of the RBL model, it is hoped that it will contribute to learning with a new model that prioritizes student-oriented learning methods by carrying out research in learning, so that it is hoped that the limitations of practical experience and the model used so far can be minimized. Therefore, the development of a research-based history learning model to improve historical thinking skills as a prospective history teacher is an effort to achieve the vision of the History Education Study Program of FKIP University of Riau.

Discussion

The development of a research-based history learning model in higher education with the TPACK approach is an important step in improving the quality of learning and student understanding. Kusumawardana's research (2021) shows that the application of research-based learning models can improve students' interpretation skills. This finding is in line with Zahrawati & Aras' (2020) research, which revealed that this approach is effective in improving student learning outcomes and interest. On the other hand, Quddus (2019) added that the implementation of TPACK can improve students' overall competence, which supports the integration of technology in the learning process. These findings strengthen the existing literature on RBL and TPACK, showing that both can play an important role in improving the quality of history learning and facilitating students' mastery of technology. This research also expands the understanding of how the integration of research and TPACK can be more effective

in the context of higher education, particularly in enhancing students' critical and creative thinking skills.

At the University of Riau, the importance of implementing Research-Based Learning (RBL) is emphasized to support the *tridharma* of lecturers, which includes teaching, research, and community service (Ikhsan et al., 2019). This is in line with the vision of the History Education Study Program which seeks to integrate local wisdom in the curriculum. Although some lecturers at FKIP Universitas Riau have claimed to implement RBL, the needs analysis shows that evidence of such implementation is still not seen in teaching materials and lecture outputs. This signals the need to develop a more effective and relevant RBL model to the local context.

Students in the History Education Study Program, at the University of Riau, expressed a desire to use the results of lecturers' research as a reference in learning, and realized the benefits of research-based learning in understanding history and preparing for final projects. The TPACK approach, which integrates technology, pedagogy, and knowledge content, is necessary to facilitate more dynamic and engaging learning, enable the integration of theory with real practice, and improve students' historical thinking skills.

Research-based learning models in higher education can be developed in several ways. First, students can be asked to search for and review scientific articles published in journals as part of their course assignments. This not only encourages student involvement in research, but also improves their ability to assess academic literature and understand how research supports the theory being studied. Second, involving students in mini-research, both individually and in groups, can help them develop research and problem-solving skills. This allows students to experience first-hand the research process, from problem formulation to data analysis, and apply their knowledge in real-world contexts.

Third, lecturers can involve students in the research they conduct, giving students first-hand experience of how research is conducted in the academic world. This participation gives students the opportunity to learn directly from lecturers, while also honing practical skills that they can use in the future. Fourth, the use of lecturers' own research results as a reference in the courses taught can provide concrete examples to students about how research is carried out and applied in their field of study. It also shows students how research conducted at their own university can contribute to their learning. Fifth, integrating the research results of others as a reference in lectures can enrich students' perspectives and show them the relevance and practical application of the theories they are learning. It also helps students to better appreciate the importance of research in the development of knowledge and practice in their field.

This approach not only enriches students' learning experience, but also prepares them to face challenges in the workforce that increasingly require research and critical thinking skills. However, the application of the RBL-TPACK model in history education faces specific challenges, such as limited digital infrastructure, lecturer readiness, and active student engagement. To overcome this, solutions that can be considered include improving educational technology infrastructure, intensive training for faculty to master the use of technology in teaching, and developing strategies that encourage student participation in research-based learning processes.

By utilizing the TPACK framework, teaching can become more relevant and responsive to technological developments and student needs. Therefore, higher education institutions should consider implementing the RBL-TPACK model in stages. Practical recommendations for the implementation of this model include procuring digital tools that are appropriate to the history content, as well as offering specialized training for lecturers so that they can design and implement interactive and technology-based learning. Thus, students can thrive in a learning environment that supports 21st century skills and is ready to face global challenges.

Overall, the needs analysis to develop a research-based history learning model with TPACK approach in higher education emphasizes the importance of creating a learning environment that supports students' competency development. The implementation of this model is expected to overcome the limitations of existing practical experiences, improve historical thinking skills, and

contribute to the achievement of the study program's vision. Although this research focuses on Riau University, the findings are relevant to be applied in other higher education institutions in Indonesia, especially in regions that face similar challenges in integrating technology and research into history learning.

4. CONCLUSION

The application of the Research-Based Learning (RBL) model is very important in connecting teaching, research, and community service, in accordance with the demands of LPTK. At Riau University, the importance of RBL is emphasized in supporting the tri dharma of lecturers and learning local history, which is in line with the vision of the History Education Study Program, which integrates local wisdom. The needs analysis at FETT Riau University shows that although some lecturers claim to have implemented RBL, concrete evidence has not been seen in the lecture materials and results. This indicates the need to develop an effective RBL model that is relevant to the local context. Students of the study program want to use lecturers' research results as references and benefit from research-based learning in understanding history and preparing final assignments. Digital support through the TPACK (Technological Pedagogical Content Knowledge) approach is also needed to facilitate dynamic and engaging learning, enabling the integration of theory with real practice. This effort aims to improve students' historical thinking skills, maximize the use of digital resources, and enrich students' learning experience.

This research contributes to identifying the specific need for the development of the RBL-TPACK model in the context of history learning, as well as demonstrating the importance of integrating lecturer research in the learning process. Despite claims that RBL has been implemented, there is limited concrete evidence of the model's applicability to course materials and learning outcomes. In addition, technological support through TPACK has not been maximally utilized, so the integration of theory with practice is not optimal. Based on these findings, further research should focus on developing RBL models that are more appropriate to the local context and utilizing lecturers' research results as learning references. Future research also needs to evaluate the maximum use of digital resources to create a more dynamic and interesting learning experience.

The impact of this research on the world of education, especially in higher education, can be in the form of improving the quality of teaching through the integration of teaching, research, and community service. By adopting the TPACK approach, educational institutions can enrich the curriculum, improve students' historical thinking skills, prepare them for challenges in the world of work, and support the achievement of the tri dharma of higher education. For future research, it is recommended to test the application of the RBL-TPACK model in history classes, evaluate its impact on students' historical thinking skills, or even examine the effectiveness of this model in other social science fields.

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