

Technology integration in English learning materials development: do students meet challenges?

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Abstract. Technology integration in learning material development is required to improve students' language education department abilities. It not only stimulates students to participate in classroom activities, but also improves their learning results. The research's immediate goal is to identify the challenges that pre-service EFL teachers confront when developing technology-integrated English materials. A survey method was employed using a questionnaire as an instrument for data collection. A total of 43 EFL students of English Language Study participated in the quantitative part of the study. Online survey using Google Form was conducted. Three sections make up the questionnaire namely insufficiency infrastructure, insufficiency new technology, and insufficiency students' knowledge. It consists of 17 items and used Linkert scale points from 1-4 as the main data retrieval. The findings indicate that the insufficiency infrastructure (M=2,79; SD=0,341) is the highest score which suggests that students experience difficulties in integrating technology in developing learning material.

Keywords: pre-service teachers; learning materials development, technology integration

1. Introduction

The ability to apply logical, critical, systematic, and innovative thinking in the context of developing or implementing science and technology that takes into account and applies humanities values appropriate to their field of expertise is the learning outcome of the learning resources subject taken by pre-service teachers of the English language education department. Pre-service EFL teachers gain experience in creating instructional materials, which helps them to develop logical, systematic, and creative thinking skills. The goal of the faculty of teaching and educational sciences, which is to develop professional teacher candidates, is aligned with this learning outcome.

The development of learning materials must incorporate technology in accordance with the goals and learning outcomes of English language learning. It is impossible to avoid technological advancements in any aspect of life. Creating instructional materials that incorporate technology can enhance student learning outcomes and support psychological aspects of the learner [1]. Using technology into instructional materials is one way to improve student learning outcomes. Additionally, incorporating technology into the creation of instructional materials encourages participation and interaction among students in the language classroom[2]. EFL pre-service teachers gain experience developing English teaching materials for school students based on these advantages.

Preliminary studies conducted to reveal how pre-service teachers integrate technology in their

teaching practice [3]; [4]; [5]. The integration of technology in the EFL context is concentrated on the creation of instructional models and the classroom learning process [6]; [7]. EFL pre-service teachers perception on technology integration in teaching practices supports this issue [8]; [9]; [10]. According to [11], since technology is utilized in the context of technological pedagogical content knowledge, teaching material development process participants perceive themselves more favorably [11]. Benefits gained from technology integration in teaching and learning English in Indonesia were such as improving scores in English tests as well as listening, speaking, reading or writing activities, encouraging autonomous learning, and engaging collaborative activities [12].

Nevertheless, there have been challenges with incorporating technology into English language instruction. The expense, time, and proficiency with the technology present some challenges when attempting to incorporate it into English language instruction [13]; [12]. Obtaining sufficient infrastructure is another issue with using learning technology [14]. Due to financial constraints, not all educational institutions are able to provide technology-based infrastructure. It is underlined that main factors of barriers in integrating technology in teaching process are students, teachers, educational system and policy makers, and environment [15]; [16].

Teachers can select technology that is suitable for the environment to get around these challenges [17]. Other efforts are offered to solve the problems raised into the technological integration of teaching such as enhancing the quality of pre-service and in-service training; (b) freeing up more time for teachers by streamlining and cutting down on the number of courses in the curricula; and (c) providing technology incentives, excellent instructional materials, support services, and IT solutions to educators [18]. Learning materials play a crucial part in the process of learning. Integration of technology is essential in the process of creating educational resources. Prior studies concentrated on identifying obstacles to the use of technology in the classroom, but they did not address obstacles to the development of English learning resources. This study **therefore** focuses on identifying challenges to the technological integration in the development of English learning materials.

2. Literature review

2.1 *The notion of English learning materials development*

The availability of instructional materials is one of the processes that makes teaching efficient. Anything that teachers and students use to help with language learning is considered a material [19]. According to Tomlinson, study and practical initiatives fall under the category of materials development. In practical terms, materials development refers to any activity carried out by authors, educators, or students to offer language input sources, to utilize those sources in ways that optimize the possibility of intake, and to inspire intentional output; in other words, the provision of language knowledge and/or experiences in ways that support language acquisition. As a field, it examines the guidelines and practices involved in creating, implementing, and assessing language instruction materials [20]. Learning tools aid students in comprehending the subject matter being taught. The ability of students to produce the target language both orally and in writing can also be enhanced by instructional materials.

There are various methods used in the development of instructional materials. The ADDIE model, which includes analysis, design, development, implementation, and evaluation, is one method for creating instructional materials. [21]. The ADDIE model's systematic and ordered the natural world has led to its widespread adoption by developers of educational materials. ASSURE is a different model that has been adopted by a number of companies that create instructional materials. The ASSURE model includes several stages, namely Analyzing learners, Stating the objectives, Selecting the media and materials, Utilizing the media and technology, Requiring learner participation, and Evaluating & revising [22]. This model includes elements of using technology to produce teaching

materials. Each learning material developer can determine what model is referred to as guidance in carrying out this process.

Basically, when creating educational materials, one must keep in mind the guidelines for doing so; (1) materials should achieve impact; (2) materials should help learners to feel at ease, (3) materials should help learners to develop confidence, (4) what is being taught should be perceived by learners as relevant and useful, (5) materials should require and facilitate learners self-investment, (6) learners must be ready to acquire the points being taught, (7) materials should expose the learners to language in authentic use, (8) the learners' attention should be drawn to linguistic features of the input, (9) materials should provide the learners with opportunities to use the target language to achieve communicative purposes, (10) materials should take into account that learners differ in learning styles, (11) materials should take into account that learners differ in affective attitudes, (12) materials should permit silent period at the beginning of instruction, (13) materials should maximize learning potential by encouraging intellectual, aesthetic and emotional involvement which stimulates both right- and left-brain activities, (14) practices of learning materials development materials should not rely too much on controlled practice, and (15) materials should provide opportunities for outcomes feedback [23]. Therefore, it is advised that technology be incorporated into the creation of instructional materials.

The process of creating English teaching resources has numerous advantages. Teachers create their lesson plans based on the goals outlined in the learning outcomes. As a result, the curriculum and this instructional material are closely related. Curriculum developers make reference to the government-determined policies and curriculum content. It has been demonstrated that developing materials can significantly enhance students' learning outcomes. The use of teaching materials has many benefits; students can practice coding, take online tests or quizzes, get faster at answering questions, improve their English test scores, learn a foreign language, work in teams or independently, engage in online learning, obtain online references, use a variety of computer applications, continue up to date on current events, translate, and employ multimedia presentations in addition to showcasing innovative teaching techniques [12].

2.2 Practice of English learning materials integrated with technology

English IALT is advised to incorporate technology when creating instructional materials. The ASSURE model places technology's role in the fourth stage, which is technology use. The goal of incorporating technology into language instruction is to enhance students' reading, writing, speaking, and listening abilities [24]. She continued by saying that task-based learning, media for teaching and learning, and multitasking are real ways that technology is used in language instruction.

In settings where English is being used as a foreign or second language, teachers have been increasingly implementing flip-classroom and mobile assisted learning in recent years [25]. The use of multimedia technology, such as radio and TV shows, may boost language learners' listening comprehension. Learners enhance their reading and writing skills by using electronic dictionaries, computer reading programs, and online newspapers. Artificial intelligence (AI) technology has been adopted by practitioners recently to enhance learners' speaking abilities [17].

2.3 Challenges of English learning materials development integrated technology

A number of factors, including students, teachers, educational systems and policy makers, and the environment, contribute to the obstacles encountered when integrating the development of teaching materials and technology ([26]; [16]). The students basically have different characteristics or learning styles. They need different sources and activities of learning.

Teacher is key factor in technology integration in learning process, but teachers have low ability in operating technology [27]. Then, it is related with the third factor, the government as policy maker.

Because teacher found difficulty in operating technology, government should provide field trainers to monitor and help teachers operating technological aids. The lack of supporting media and tools causes limited technology adoption. This justification relates to obstacles to the use of technology in English language instruction.

In a slightly different context from the last explanation, interpersonal conflict is one of the challenges that arise when creating instructional resources which are integrated with technology. A mismatch in the goals and interests of the parties involved in creating the instructional materials may be the cause of this. Generally, the lack of infrastructure and other facilities, interpersonal conflict among stakeholders, particularly teachers and material developers, a lack of motivation, and learners' inadequate background knowledge are the main obstacles to integrating technology into the development of materials [28].

The challenges of pre-service teachers face when developing instructional materials have previously not received much attention. The previous study focuses on the difficulties of teachers encounter when implementing technology in English language instruction. Therefore, this study focuses on the difficulties of pre-service teachers face when creating technologically integrated learning resources. Through examination of 34 participants who completed daily logbook reports, researchers discovered the approaches they taken to address these issues.

3. Methods

This study employed surveys as its approach, which was quantitative in character. The quantitative approach, according to [29], analyzes a concept by creating particular hypotheses and employing data collection to either support or contradict the assumptions. Quantitative methods are used in this research since the data came from a wide number of populations that required quantifying. A quantitative approach using a survey to collect data from participants.

An individual or population is asked to characterize the attitudes, beliefs, actions, or traits of the sample or population in a survey [29]. It was thought that surveys typically provided clear, comprehensive data, making them suitable for use as tools for statistical analysis (descriptive statistics). A questionnaire is a tool for gathering survey data in a structured or ordered manner, according to [30]. A questionnaire typically took the form of numerical data, was flexible when the researcher was present, and could typically be completed all the way up to data analysis.

A research in challenge in integrating technology into education that created a questionnaire that was used to collect the data was conducted [31]. There are five categories that were extracted in the questionnaire i.e. Undersupply, insufficiency of resources, insufficiency of infrastructure, negative psychological state and difficulty of newer technology. In this research study, rather than determining all categories in integrating technology in education broadly, some categories were adopted to get description about students challenging in developing learning material integrated technology that consist of 3 categories such as students' insufficiency knowledge (8 items), insufficiency infrastructure/institution (5 items) and insufficiency of new technology development (4 items). The following table is the list of the questions.

Table 1. Questionnaire form

	Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Lack of knowledge in technology				
2	Lack of knowledge about how to operate technology for developing teaching materials.				
3	Lack of Communication between me and other students in the discussion group.				

4	Lack of materials in the form of soft files that can be input for developing teaching materials.				
5	Lack of time to look for sources or materials from technology-based devices.				
6	Lack of Facilities and infrastructure for devices such as laptops and PC computers.				
7	Lack of Facilities and infrastructure supporting technological operations, namely internet signals				
8	Lack of knowledge how to edit, output and input materials for developing teaching materials				
9	Lack of time in the process of editing, layout and inputting learning materials.				
10	Lack of time in the process of editing, layout and inputting learning materials.				
11	Difficulty in collaborating with fellow students to find materials, process and complete the development of teaching materials from software.				
12	Limited information technology facilities and infrastructure in the form of laptops and PC computers provided by institutions for student academic activities.				
13	The technological supporting facilities and infrastructure in the form of internet provided by the institution are inadequate.				
14	Guidance and training on information technology from the campus community to students is inadequate.				
15	Lack of understanding in the latest technology problems operating new technology features.				
16	Lack of in understanding new technology because of limited time.				
17	Lack in using new technology because it requires a lot of time and money				

The survey consisted Likert-type scale items that addressed students', Technology Integration Challenges (Use a Likert scale from 1 - Strongly Disagree to 4 - Strongly Agree). The questionnaires were constructed in Google form (<https://forms.gle/phVui9LRgdWdZdRX8>), distributed online and accessible. The participant's national language, Bahasa Indonesia, was employed to ensure proper knowledge of the instrument. The replies of the participants were processed to generate and analyze percentages using descriptive statistics.

A total of 43 EFL students of English Language Study Program in Universitas PGRI Yogyakarta participated in the quantitative part of the study with online survey. These 43 students were enrolled in the learning resources course or learning media, 9 male and 34 female. Some of them have joined microteaching and pre service teacher in some schools. Most were referred to students based on their use of the technology as a learning tool. The participants were contacted by the researcher out of interest in the research because they were invited to participate in the survey.

4. Results and Discussion

4.1 Results

The total number of participants who participated in the research was 43 students of English department of UPY who took English material development subject in the previous semester. There were 34 female participants and 9 male participants. So the female students dominated in this survey.

The research study has to investigate the students challenge in integrated technology in developing english learning material. Therefore, the questionnaire survey was distributed to participants through online using Google Form. The result of questionnaire was analyzed using descriptive statistics to get the result. The analysis aims to measure the average score of the items.

4.1.1. The ratio of overall categories

Table 1 shows the order of categories from the highest mean to the lowest . The highest mean score is

Table 2. Rang of the three categories of challenge in integrating technology in developing material

Rank	Categories	Mean	Standard Deviation
1	Insufficiency infrastructure	2,79	0,341
2	Insufficiency new technology	2.39	0, 101
3	Insufficiency students' knowledge	2,30	0,165

^aTable footnote.

presented by the Insufficiency infrastructure with a mean score of 2,79 and a standard deviation of 0,341, while the lowest mean score is showed by the Insufficiency students' knowledge with mean score of 2,30 and standard deviation of 0,165.

4.1.2. The result of each categories

In this section, the result of each category will be explained in detail with the focus on the average and standard deviation dealing with the challenge of students in integrating technology in developing learning material.

4.1.2.1 Insufficiency infrastructure

Based on the results, the insufficiency infrastructure has got the highest average mean , the item of questionnaire is presented in the following table.

Table 3. Insufficiency infrastructure

No	Items	Mean	Standard Deviation
1	Lack of Facilities and infrastructure for devices such as laptops and PC computers.	2,34	0,794
2	Lack of Facilities and infrastructure supporting technological operations, namely internet signals	2.56	0, 776
3	Limited information technology facilities and infrastructure in the form of laptops and PC computers provided by institutions for student academic activities.	3,17	0,803
4	The technological supporting facilities and infrastructure in the form of internet provided by the institution are inadequate	3,04	0,771
5	Guidance and training on information technology from the campus community to students is inadequate	2,82	0,773

^aTable footnote.

Table 3 describes the insufficiency infrastructure categories that consists of 5 item questions. The highest mean of this item “Limited information technology facilities and infrastructure in the form of laptops and PC computers provided by institutions for student academic activities” with mean score 3,17 and standard deviation 0,803.

4.1.2.2 Insufficiency New Technology

Based on the results, the insufficiency New Technology has got the medium average mean , the item of questionnaire is presenetd in the following table.

Table 4. Insufficiency of New Technology

No	Items	Mean	Standard Deviation
1	Lack of understanding and using new or latest technology	2,26	0,707
2	Lack of understanding in the latest technology problems operating new technology features.	2.36	0, 622
3	Lack of in understanding new technology because of limited time.	2,41	0,669
4	Lack in using new technology because it requires a lot of time and money	2,51	0,675

^aTable footnote.

The highest items score for the Insufficiency New Technology category is Lack in using new technology because it requires a lot of time and money with mean score 2,51 and standard deviation 0,675.

4.1.2.3 Insufficiency students' knowledge

Based on the results, the Insufficiency students' knowledge covered the lowest average mean, the item of questionnaire is presented in the following table.

Table 5. Insufficiency of students' knowledge

No	Items	Mean	Standard Deviation
1	Lack of knowledge in technology in general	2,36	0,581
2	Lack of knowledge about how to operate technology for developing teaching materials.	2.39	0, 542
3	Lack of Communication between me and other students in the discussion group.	2	0,5
4	Lack of materials in the form of soft files that can be input for developing teaching materials.	2,24	0,662
5	Lack of time to look for sources or materials from technology-based devices	2,92	0,679
6	Lack of knowledge how to edit, output and input materials for developing teaching materials	2,46	0,636
7	Lack of time in the process of editing, layout and inputting learning materials.	2,48	0,711
8	Difficulty in collaborating with fellow students to find materials, process and complete the development of teaching materials from software.	2,14	0,691

^aTable footnote.

The highest items score for the Insufficiency students' knowledge category is Lack of time to look for sources or materials from technology-based devices with mean score 2,92 and standard deviation 0,679.

4.2 Discussions

Based on the result of the research presented previously, there are three categories of students' challenge in integrating technology in developing materials i.e.: insufficiency infrastructure, students' knowledge and insufficiency of new technology.

The insufficiency infrastructure was the top-ranked categories when it was completed ranked. The mean (M=2,79) and standard deviation (SD=0,341) was presented. The next categories was the insufficiency of new technology with mean (M=2,39) and standard deviation (SD=1,101). The last category was insufficiency students' knowledge with mean (M=2,30) and standard

deviation (SD=0,165). The students agreed with the assertions made about the students challenge in technology integration

4.2.1. Insufficiency infrastructure

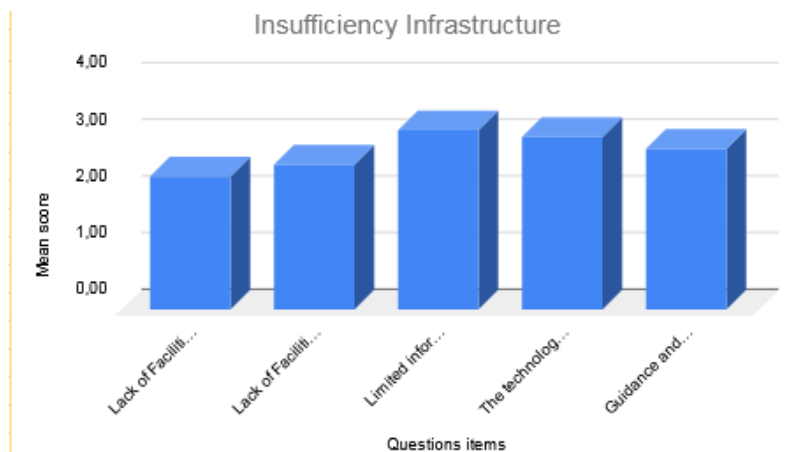


Figure 1. The graph of insufficiency infrastructure

The data in figure 1 paints a clear picture of the significant challenge students face due to insufficient infrastructure when developing technology-integrated learning materials. There are three categories which need to be considered:

- Inadequate IT Infrastructure and Support (Item 3): emerges as a major obstacle. The highest mean score (3,17) Limited information technology facilities and infrastructure in the form of laptops and PC computers provided by institutions for student academic activities. Here, the role of institution become the most important in facilitating students in developing technology-integrated materials that often requires specific skills in using software, online platforms, and digital tools. Without proper training and support, students may lack the necessary know-how to utilize technology effectively.
- Unreliable Internet Connectivity. Insufficient internet access presents another significant challenge. Developing technology-integrated materials often requires access to online resources, collaboration tools, and platforms for sharing and publishing. Unreliable internet hinders students' ability to leverage these technological resources.
- Limited Device Availability. A lack of laptops and computers. Without access to these fundamental tools, students are unable to develop and utilize technology in their learning materials.

Some challenges happened in technology as infrastructural issues such as lack of technology in the classroom, problems with hardware, internet, technology outdated quickly and power outages [32] Teachers mentioned that they had either no technology or lack of technology in their classroom. Such infrastructural problems exist in similar technology integration projects. Another infrastructural problem is that there is either no Internet or slow Internet connection in the classroom.

The issues of challenge of technology use for teaching and learning also found in some previous research findings [33]; [34]; [35], and [36]. Those results were lack of supporting technological facilities (i.e., related to the poor internet connection and electricity) as the main issues that hinder the full integration of technology in schools.

Reviewing those previous research findings, this study expands a similar result of challenge in technology that is insufficiency infrastructure such as Inadequate IT Infrastructure and Support, Unreliable Internet Connect and Limited Device Availability.

The Implications of the challenges need for a multi-pronged approach to ensure students have the infrastructure needed for technology-integrated learning materials development:

- a. Increased Resource Allocation: Institutions should prioritize allocating resources towards acquiring a sufficient number of laptops and computers for student use.
- b. Improved Internet Infrastructure: Investments in strengthening internet connectivity and ensuring reliable access for all students are crucial.
- c. Enhanced IT Training and Support: Providing regular training workshops and dedicated support services can equip students with the necessary skills and knowledge to leverage technology effectively.
- d. Alternative Strategies: Developing resource kits with offline tools and activities can provide fallback options when internet access is limited.

By addressing these infrastructure challenges, institutions can empower students to explore the full potential of technology in their learning materials, leading to a more engaging and effective learning experience

4.2.2. Insufficiency new technology

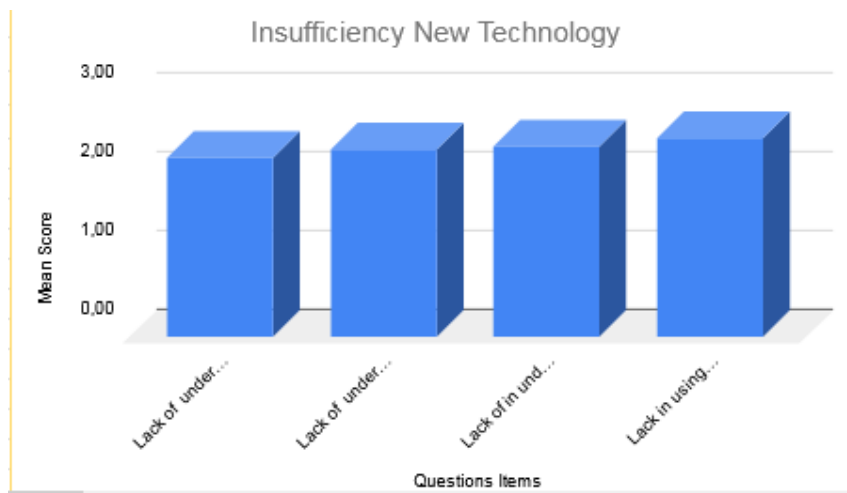


Figure 2. The graph of insufficiency new technology

The bar graph titled "Insufficiency New Technology" suggests that students perceive a lack of new technology as a challenge when integrating technology into their learning materials. While a low mean score might indicate this is a less significant obstacle compared to others. The potential challenges that can be identified i.e.:

- a. Limited Access to Cutting-Edge Tools: Students might not have access to the latest software, hardware, or online platforms that could enhance their learning materials. This could limit the creativity, functionality, and overall quality of the materials they develop.
- b. Incompatibility Issues: Even if students have some technology available, it might not be compatible with the requirements of the learning materials they want to create. This can lead to frustration and hinder the development process.
- c. Steeper Learning Curve: New technology often comes with a steeper learning curve. Students might struggle to learn and master new tools effectively within the timeframe they have for developing the materials.

The unequal access to technology and resources across different socioeconomic backgrounds. Students from disadvantaged backgrounds might be more likely to lack access to the latest

technology, putting them at a disadvantage when it comes to developing technology-integrated learning material.

Viewing new technology solely as a means of accessing knowledge limits chances for beneficial educational reform and can even lead to negative outcomes. To achieve meaningful and cost-effective transformation, we must prioritize addressing the types of new knowledge made available by technology and how it aligns with the requirements of modern citizens. Pachler, 1999.

4.2.3. Insufficiency students' knowledge

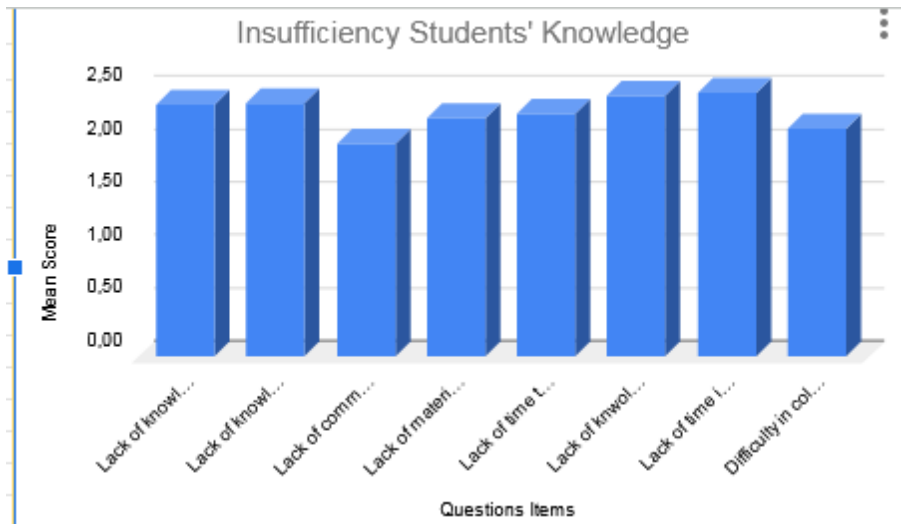


Figure 3. The graph of insufficiency students knowledge

The image you sent appears to be a bar graph titled "Insufficiency Students' Knowledge". The X axis lists various reasons students lack the knowledge to integrate technology into learning materials, and the Y axis shows the mean score for each reason. The graph highlights several areas where students might struggle with the technological aspects of developing learning materials. Some top three challenges that need to be underlined such as:

- a. Difficulty in Applying Knowledge (Lack of knowledge application): This could indicate a gap between students' theoretical understanding of technology and their ability to use it for a specific purpose, like creating educational materials.
- b. Difficulties with Collaboration Tools (Lack of communication): This suggests students might lack the skills required to use software or online platforms for collaborative learning material development.
- c. Time Constraints (Lack of time). This could be due to various factors, but it highlights the potential challenge students face in managing the time needed to develop technology-integrated materials alongside other academic commitment.

Overall, the data suggests that student knowledge is a key factor when it comes to integrating technology into learning materials development. By addressing the specific knowledge gaps identified and providing targeted support, educators can empower students to leverage technology more effectively in creating engaging learning experiences.

Teachers are aware that competence in technology integration requires specific knowledge and skills. Moreover, those knowledge and skills are strongly believed to be considerably sophisticated and demanding in a way that acquiring them necessitates a higher authority like universities or institutions providing in-service training [31].

4. Conclusion

This research has investigated students who took learning material development subject to explore challenges in integrated technology to support teaching and learning. The lack of insufficiency infrastructure is the main challenge for students in developing learning material to integrate technology into their teaching and learning practices in the next semester. The challenges of insufficiency infrastructure categories consist of increased resource allocation, improved internet infrastructure, and enhanced IT training and support.

Meanwhile, the second level of challenge is insufficiency new technology as obstacle perceived investigation. The challenges cover limited access to cutting-edge tools, incompatibility issues, and steeper learning curve. In addition, the lack of students' knowledge is the minor challenge that is divided into three categories such as difficulty in applying knowledge, difficulties with collaboration tools of communication, time constraints.

Finally, we offer practical ideas for challenge in integrating technology in developing learning material such as increased resource allocation, improved internet infrastructure, enhanced IT training and support. By addressing these infrastructure challenges, institutions can empower students to explore the full potential of technology in their learning materials, leading to a more engaging and effective learning experience.

References

- [1] K. L. Yeung, S. K. Carpenter, and D. Corral, "A comprehensive review of educational technology on objective learning outcomes in academic contexts," *Educ. Psychol. Rev.*, pp. 1–48, 2021.
- [2] P. Kawinkoonlasate, "Integration in Flipped Classroom Technology Approach to Develop English Language Skills of Thai EFL Learners.," *English Lang. Teach.*, vol. 12, no. 11, pp. 23–34, 2019.
- [3] W. Admiraal *et al.*, "Preparing pre-service teachers to integrate technology into K–12 instruction: evaluation of a technology-infused approach," *Technol. Pedagog. Educ.*, vol. 26, no. 1, pp. 105–120, 2017, doi: 10.1080/1475939X.2016.1163283.
- [4] T. Batane and A. Ngwako, "Technology use by pre-service teachers during teaching practice: Are new teachers embracing technology right away in their first teaching experience?," *Australas. J. Educ. Technol.*, vol. 33, no. 1, 2017.
- [5] S. İ. Kuru Gönen, "A qualitative study on a situated experience of technology integration: Reflections from pre-service teachers and students," *Comput. Assist. Lang. Learn.*, vol. 32, no. 3, pp. 163–189, 2019.
- [6] A. Boonmoh and I. Kulavichian, "Exploring Thai EFL pre-service teachers' technology integration based on SAMR model," *Contemp. Educ. Technol.*, vol. 15, no. 4, p. ep457, 2023, doi: 10.30935/cedtech/13567.
- [7] E. Harmandaoğlu Baz, C. Balçıklanlı, and P. T. Cephe, "Introducing an innovative technology integration model: Echoes from EFL pre-service teachers," *Educ. Inf. Technol.*, vol. 23, pp. 2179–2200, 2018.
- [8] H. S. Cukur, "Technology Integration Beliefs and Practices of Turkish Novice Efl Teachers After Online Practicum," *Turkish Online J. Distance Educ.*, vol. 24, no. 3, pp. 294–310, 2023, doi: 10.17718/tojde.1138742.
- [9] J. M. Fernández-Batanero, M. Montenegro-Rueda, J. Fernández-Cerero, and I. García-Martínez, "Digital competences for teacher professional development. Systematic review," *Eur. J. Teach. Educ.*, vol. 00, no. 00, pp. 1–19, 2020, doi: 10.1080/02619768.2020.1827389.
- [10] E. F. Prastikawati, "Pre-service EFL teachers' perception on technology-based formative

- assessment in their teaching practicum,” *ELT Forum J. English Lang. Teach.*, vol. 10, no. 2, pp. 163–171, 2021, doi: 10.15294/elt.v10i2.47965.
- [11] E. Wulandari, “LINGUA PEDAGOGIA (Journal of English Teaching Studies) Vol.1, No.1, March 2019 Online: <https://journal.uny.ac.id/index.php/lingua-pedagogia/index>,” vol. 1, no. 1, pp. 29–45, 2019.
- [12] R. Rintaningrum, “Technology integration in English language teaching and learning : Benefits and challenges Technology integration in English language teaching and learning : Benefits and challenges,” 2023, doi: 10.1080/2331186X.2022.2164690.
- [13] W. Liang, “University teachers’ technology integration in teaching English as a foreign language: evidence from a case study in mainland China,” *SN Soc. Sci.*, vol. 1, no. 8, p. 219, 2021.
- [14] R. Singh, “Barriers of technology integration in teaching English,” *Int. J. Acad. Res.*, vol. 1, no. 2, pp. 24–37, 2019.
- [15] E. Dinc, “Prospective teachers’ perceptions of barriers to technology integration in education,” *Contemp. Educ. Technol.*, vol. 10, no. 4, pp. 381–398, 2019, doi: 10.30935/cet.634187.
- [16] R. Khodabandelou;, J. E. M. That;, M. A. A. S.Selvaraju;, and T. Y. Ken;, “Exploring the Main Barriers of Technology Integration in the English Language Teaching Classroom: A Qualitative Study,” vol. 4, no. 1, 2016, doi: 10.7575/aiac.ijels.v4n.1p.53.
- [17] S. Günüç and N. Babacan, “Technology integration in English language teaching and learning,” *Position. English Specif. Purp. an English Lang. Teach. Context*, vol. 1, 2018.
- [18] O. Atabek, “Experienced educators’ suggestions for solutions to the challenges to technology integration,” *Educ. Inf. Technol.*, vol. 25, no. 6, pp. 5669–5685, 2020, doi: 10.1007/s10639-020-10243-y.
- [19] F. Mishan and I. Timmis, “Materials development for TESOL,” *Mater. Dev. TESOL*, pp. 1–218, 2015, doi: 10.1093/elt/ccx062.
- [20] B. Tomlinson, “Materials Development in Language Teaching: Edition 2,” 211AD.
- [21] L. Iswati, “Developing ADDIE model-based ESP Coursebook,” *Indones. EFL J.*, vol. 5, no. 2, pp. 103–112, 2019.
- [22] A. M. Almelhi, “Effectiveness of the ADDIE Model within an E-Learning Environment in Developing Creative Writing in EFL Students,” *English Lang. Teach.*, vol. 14, no. 2, pp. 20–36, 2021.
- [23] B. Tomlinson, “Materials Development in Language Teaching, Second Edition,” Second., Cambridge: Cambridge University Press, 2011, p. 473.
- [24] R. Rintaningrum, “WHAT CAN WE LEARN FROM ICT USERS IN ENGLISH LANGUAGE TEACHING AND LEARNING: LECTURERS’ VIEWS,” 2018.
- [25] T. BAŞAR and L. ŞAHİN, “Technology integration in teaching English as a foreign language: A content analysis study,” *J. Educ. Technol. Online Learn.*, vol. 5, no. 1, pp. 204–222, 2022, doi: 10.31681/jetol.972577.
- [26] Z. N. Khlaif, “Factors Influencing Teachers’ Attitudes Toward Mobile Technology Integration in K-12,” *Technol. Knowl. Learn.*, vol. 23, no. 1, pp. 161–175, 2018, doi: 10.1007/s10758-017-9311-6.
- [27] T. Fütterer, R. Steinhauser, S. Zitzmann, K. Scheiter, A. Lachner, and K. Stürmer, “Development and Validation of a Test to Assess Teachers’ Knowledge About How to Operate Technology,” *Comput. Educ. Open*, vol. 5, no. November, p. 100152, 2023, doi: 10.1016/j.caeo.2023.100152.
- [28] S. Islam, F. Hossain, and M. Rahman, “Challenges of Materials Development for the Tertiary Level EFL Learners in Bangladesh : Materials Developers’ Perspectives,” vol. 8, no. 12, pp. 6818–6830, 2020, doi: 10.13189/ujer.2020.081248.
- [29] J. D. Creswell, J.W. and Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Los Angeles: Sage, 2018.
- [30] L. Cohen, L. Manion, and K. Morrison, *Case studies*. 2018.

- [31] O. Atabek, “Challenges in Integrating Technology Into Education,” *Turkish Stud. - Inf. Technol. Appl. Sci.*, vol. 14, no. ITAS Volume 14 Issue 1, pp. 1–19, 2019, doi: 10.7827/turkishstudies.14810.
- [32] S. Vatanartiran and S. Karadeniz, “[Part III – Plan Description] A Needs Analysis for Technology Integration Plan: Challenges and Needs of Teachers,” *Contemp. Educ. Technol.*, vol. 6, no. 3, pp. 206–220, 2015.
- [33] R. Butarbutar and S. M. R. Leba, “Teachers’ perspectives on teaching EFL speaking virtually: A case study of COVID-19 pandemic survival,” *Am. J. Soc. Sci. Humanit.*, vol. 8, no. 1, pp. 46–54, 2023, doi: 10.55284/ajssh.v8i1.852.
- [34] U. Fauzan and L. H. Pimada, “ICT-Based Teaching of English at Madrasah Aliyah in Kalimantan,” *TARBIYA J. Educ. Muslim Soc.*, vol. 5, no. 2, pp. 193–211, 2018, doi: 10.15408/tjems.v5i2.10414.
- [35] N. L. S. Habeahan, S. M. R. Leba, W. Wahyuniar, D. B. Tarigan, S. I. Asaloei, and B. R. Werang, “Online teaching in an Indonesian higher education institution: Student’s perspective,” *Int. J. Eval. Res. Educ.*, vol. 11, no. 2, pp. 580–587, 2022, doi: 10.11591/ijere.v11i2.21824.
- [36] Y. C. Gai Mali *et al.*, “Issues and Challenges of Technology Use in Indonesian Schools: Implications for Teaching and Learning,” *IJIET (International J. Indones. Educ. Teaching)*, vol. 7, no. 2, pp. 221–233, 2023, doi: 10.24071/ijiet.v7i2.6310.



The 5th International Conference on Teacher Education and Professional Development (InCoTEPD) in collaboration with SEAMEO and JETA

14 June 2024

Dear Nafisah Endahati,

On behalf of the conference committee, I would like to thank you for submitting your abstract for the 5th International Conference on Teacher Education and Professional Development (InCoTEPD) under the theme of "**Teachers' Professional Development in the Age of AI**" to be held in Yogyakarta, Indonesia on 25 – 26 June 2024.

We are pleased to inform you that your abstract entitled **Technology integration in English learning materials development: do students meet challenges?** has been reviewed and **ACCEPTED** for presentation at the conference parallel sessions.

Please be reminded of the following important deadlines:

- The abstract **MUST** be written in English. The revised abstract **MUST** be sent to the email incotepd@uny.ac.id by 10 June 2024 at 11.59 PM.
- Full paper submission deadline is 20 June 2024.
- Early bird registration period is until 3 June 2024.
- Regular registration deadline is 21 June 2024.
- Payment of the conference registration fees (as stated on the conference website) is required to pay in advance. The information on the mode of payment is available in the conference website. As soon as payment is made, please mail the copy of the proof of payment to incotepd@uny.ac.id.
- You are responsible for booking your own accommodation. The information on the alternative accommodations is available at the conference website.
- Kindly note the abstract template should be as follows.

Paper title: maximum 15 words; written in English; font Times New Roman; size 14; Bold; one space; left alignment.

Author¹, Author², Author³

¹ Affiliation, City and Country, ✉ (e-mail) xxxx@xxxxx.xxx

² Affiliation, City and Country, ✉ (e-mail) xxxx@xxxxx.xxx

³ Affiliation, City and Country, ✉ (e-mail) xxxx@xxxxx.xxx

Abstract: 200-250 words; written in English; font Times New Roman; size 12; one space; left alignment.

Keywords: Select a maximum of 5 words to enable your manuscript to be easily identified and cited.



The 5th International Conference on Teacher Education and Professional Development (InCoTEPD) in collaboration with SEAMEO and JETA


Notes on your presentation

A conference programme will be available on the conference website. We assume that you will be present for the entire conference and trust that you will understand that we cannot undertake to offer a presentation slot at a particular time. I look forward to welcoming you to Yogyakarta in June.

We eagerly anticipate your attendance and full paper submission.

Your regards,

Dr. Ir. Darmono, M.T., IPM., ASEAN Eng.
Conference Chair



Technology integration in English learning materials development: do students meet challenges?

Presented in

The 5th International Conference on Teacher Education and Professional Development (InCOTEPD) In Collaboration with SEAMEO and JETA

25 – 26 June 2024 _ UNY Auditorium





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Education Department**



**Faculty of Teacher Training
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Universitas PGRI Yogyakarta

Background of the Study

- The English Language Education Study Program (PBI) is an educational institution that is responsible for delivering quality education so that it should produce **professional English teacher candidates**.
- The efforts to achieve the goals are holding **courses** which support each candidate to have **high skills teaching English** for learners.
- A **mandatory subject** is **learning materials development**.



Background of the Study


- Pre-service EFL teachers gain experience in creating instructional materials, which helps them to develop **logical, systematic, and creative thinking skills.**
- Then, **technology integration** in learning materials development is required to boost **learners' participation.**
- It does not only stimulate **students' autonomy** in learning activities, but also improves their **learning results.**






Objective of the Study

This study focuses on **identifying challenges** to the technological integration in the development of English learning materials faced by EFL pre-service teachers.







The notion of English learning materials development

- ❑ **Materials development refers** to any activity carried out by authors, educators, or students to offer language input sources, to utilize those sources in ways that optimize the possibility of intake, and to inspire intentional output; in other words, the provision of language knowledge and/or experiences in ways that support language acquisition (Tomlinson)
 - ❑ Materials should **help learners to feel at ease**. In this case, technology integration in learning materials development is needed.
- 




Practice of English learning materials integrated with technology

- ❑ The ASSURE model places technology's role in the fourth stage, which is technology use. The goal of incorporating technology into language instruction is to enhance students' reading, writing, speaking, and listening abilities .
 - ❑ ASSURE (**A**nalyze learners, **S**tate objectives, **S**elect method, **U**timize media and materials, **R**equire learner participation, **E**valuate and revise)
 - ❑ Artificial intelligence (AI) technology has been adopted by practitioners recently to enhance learners' language skills.
- 



Challenges of English learning materials development integrated with technology

- ❑ A number of factors, including students, teachers, educational systems and policy makers, and the environment, contribute to the obstacles encountered when integrating the development of teaching materials and technology.
 - ❑ Low ability in operating technology, lack of supporting media and tools, interpersonal conflict among stakeholders, lack of motivation, and learners' inadequate background knowledge are several main obstacles to integrating technology into the development of materials
- 

The research method

This study employed quantitative survey.

Questionnaire was adapted to find data of the research.

The questionnaire was categorized into three aspects as student's insufficiency of knowledge, insufficiency of infrastructure/institution, and insufficiency of new technology development knowledge.

The questionnaires were constructed in Google form (<https://forms.gle/phVui9LRgdWdZdRX8>), distributed online and accessible.

The survey consisted Likert-type scale items that addressed students' Technology Integration Challenges (a Likert scale from 1 - Strongly Disagree to 4 - Strongly Agree)

Result

There are three categories : insufficiency of infrastructure, of new technology knowledge, and of student's knowledge

The ratio of over all categories : the highest mean falls to the insufficiency of infrastructure.

Limited information technology **facilities and infrastructure** in the form of laptops and PC computers provided by institutions for student academic activities" with mean score 3,17 and standard deviation 0,803

Lack in using **new technology** because it requires a lot of time and money with mean score 2,51 and standard deviation 0,675

The insufficiency **students' knowledge** category is lack of time to look for sources or materials from technology-based devices with mean score 2,92 and standard deviation 0,679.

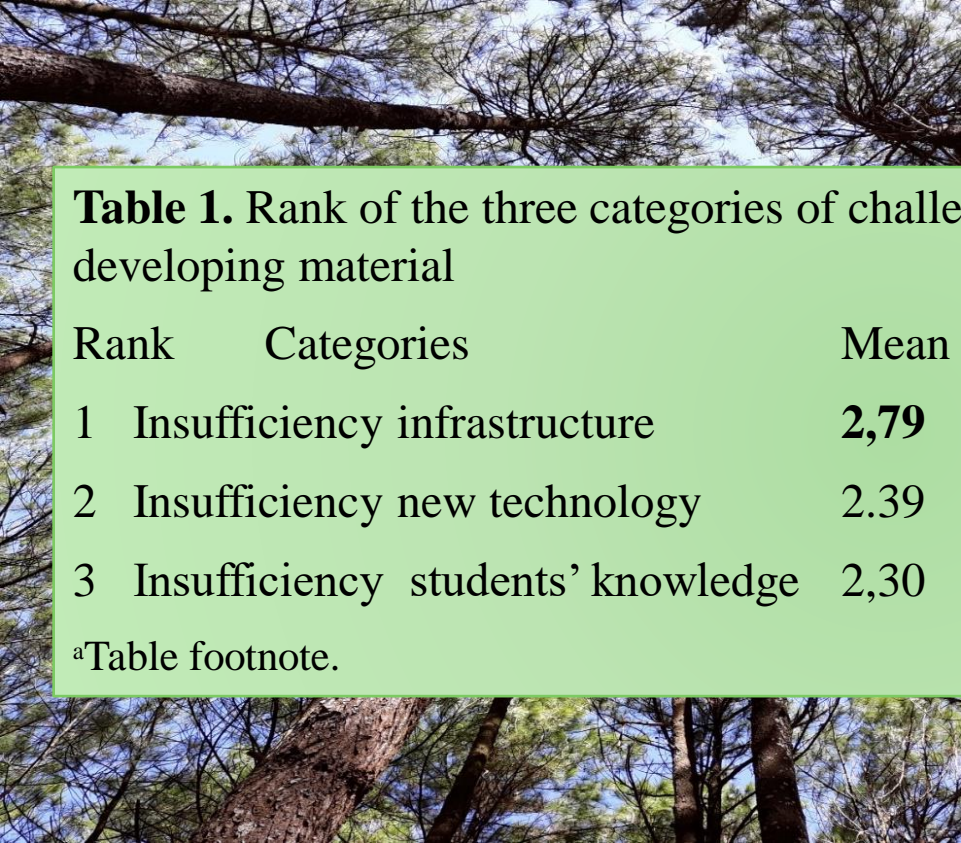


Table 1. Rank of the three categories of challenge in integrating technology in developing material

Rank	Categories	Mean	Standard Deviation
1	Insufficiency infrastructure	2,79	0,341
2	Insufficiency new technology	2.39	0,101
3	Insufficiency students' knowledge	2,30	0,165

^aTable footnote.



Conclusion & suggestion

1. **The lack of insufficiency of infrastructure is the main challenge** for students in developing learning materials integrated with technology.
2. Other challenge in technology integration of learning materials development met by pre-service teachers is the insufficiency of new technology.
3. Finally, it is recommended to enhance resource allocation, and internet infrastructure, as well as IT training and support.

Learning outcome



Terima kasih





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Yogyakarta, 24 June 2024

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