Technology Integration in Indonesian Language Class for Senior High School: A Systematic Review

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Abstract. Technology integration is inevitable due to the development of teaching and learning. The transformation of the digital-based learning process is adapted to the students’ necessity in learning, which vastly grew during the last Covid-19 pandemic. This systematic literature review focuses on integrating technology in Indonesian Language classes for the Senior High School level. The analysis used the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) methodology. There are 29 articles with a relevant focus to this review, which were published between 2018 and 2022. These articles came from Scopus, Semantic Scholar, and Google Scholar databases. Based on the analysis, technological-based learning is implemented with different forms and objectives, from video conference tools to social media, digital platforms, and applications. The use of technology is also adapted to the domain of learning: cognitive, affective, and psychomotor. Therefore, this article would be helpful for teachers, students, and schools in considering the integration of technology into the Indonesian language class.

Keywords: Technology-based learning, Indonesian language teaching and learning, PRISMA, systematic literature review, education.

1 Introduction

The Indonesian language is a learning subject that Indonesian students must take, starting from elementary to the higher education level [1][2]. Indonesian language class has different objectives for each level of education. On the senior high school level, the aim of an Indonesian language class is adjusted with the mid-teens students who are about to enter their late-teens period (15-18 years old). It is assumed that the students can think critically and systematically. Therefore, these students taught competencies are reading, analysing and identifying contents, arranging the outline of a proposal and scientific paper while also understanding its essence, distinguishing opinions and facts in an article, and analysing contents of a superficial literature work.

Now, Indonesian language class is taught based on technology. Hence, the teaching and learning processes are integrated with digital technology. This idea is in line with the development plan of education in Indonesia, which is adaptable to the digital transformation era. Aside from that, the student’s learning necessities also become influential, for example, during the implementation of study from home policy in the emergency period of the spread of Covid-19 [3]. The technological integration in learning is expected to push the field of education to be
proactive in actualising its potential. Besides, this momentum also provides extensive opportunities for the students to gain comprehensive insights to support the success in a learning process [4]. The direction of technological integration in Indonesian language classes is supported by the emergence of electronic learning (e-learning), digital learning (d-learning), and mobile learning (m-learning) [5]. These three terms are interchangeable, like online learning. These terms differ based on the tools used in [6].

Several technological tools are created along with the transformation of a learning pattern. One of the purposes of these tools is to ensure that the learning experience happens optimally. There are many educational institutions which are ready and eager to develop a learning management system (LMS) for their internal purposes [7][8]. Meanwhile, many video conference tools significantly impact the learning process, such as Zoom Meeting, Google Meet, Microsoft Teams, Moodle, and Schoology [9]. Social media, such as YouTube, Twitter, Instagram, TikTok, Facebook, et cetera, which grew in the digital era, were also used in the learning process [10][11][12][13][14]. Digital platforms in education are also developed massively and used as learning support tools, such as Zenius, Quipper School, Ruang Guru, et cetera [15][16][17]. Moreover, different applications are also used in this context, such as Powtoon, Nearpod, Sevima Edlink, Quizizz, Edmodo, Canva, Kahoot, et cetera [18][19][20][21][22][23][24][25]. Technology has various roles in an Indonesian language class, such as becoming a virtual medium, learning media, assessment tools, and additional tools.

The decision to integrate technology in an Indonesian language class, including determining a learning tool that would be used, should be adjusted with the learning objectives [26]. The objective of teaching the Indonesian language is correlated with the learning essence, which covers the linguistic (communication) and literature components. The linguistic elements cover four language skills: listening, speaking, reading, and writing [27]. The learning objective of an Indonesian language class is in the cognitive, affective, dan psychomotor domains. Therefore, it is crucial to understand the supportability of technology in the Indonesian language class. This systematic review is expected to become a helpful guide for teachers, students, and schools to understand the integration of technology in teaching the Indonesian language. This systematic literature review was conducted to answer the questions: (1) What learning tools are integrated into an Indonesian language class? and (2) Which domain or competence becomes their target of use?

2 Research Method

The authors used Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) in this systematic review. This review went through four phases of the flow diagram in reviewing and analysing articles [28]: identification, screening, eligibility, and inclusion. These phases were conducted in the review process sequentially. The review process focuses on using technology in an Indonesian language class for senior high school level in Indonesia following the Scopus, Semantic Scholar, and Google Scholar databases.

Phase 1: Identification phase

The chosen article must match the pre-determined criteria. First, the databases used for this systematic literature review are Scopus, Semantic Scholar, and Google Scholar. These three
platforms are the databases of scientific literature comprising research findings and conceptual studies, which are easily accessed and cover different disciplines. The articles taken from these databases were published between 2018 and 2022. The articles were identified by search engines using keywords in two languages, which are Indonesian and English. The keywords are related to the focuses shown in Table 1.

Table 1. Search Keywords from Indonesian and English

<table>
<thead>
<tr>
<th>Language</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesian</td>
<td>TIK AND bahasa Indonesia (Indonesian language), pembelajaran digital (digital learning) AND bahasa Indonesia (Indonesian language), teknologi (technology) AND bahasa Indonesia (Indonesian language), aplikasi (applications) AND bahasa Indonesia (Indonesian language), media inovatif (innovative media) AND bahasa Indonesia (Indonesian language), teknologi (technology) AND keterampilan berbahasa (language skills), teknologi (technology) AND keterampilan menulis (writing skills), teknologi (technology) AND keterampilan berbicara (speaking skills), teknologi (technology) AND keterampilan membaca (reading skills), teknologi (technology) AND keterampilan menyimak (listening skills), teknologi (technology) AND sastra (literature)</td>
</tr>
<tr>
<td>English</td>
<td>ICT AND Indonesian language, digital AND Indonesian Language, technology AND Indonesian language, application AND Indonesian language, elearning AND Indonesian language, mobile learning AND Indonesian language</td>
</tr>
</tbody>
</table>

Table 1 shows the keywords used in finding the relevant articles regarding technology integration in an Indonesian language class for senior high school level in Indonesia. The focus is on using technological tools and the learning domains, which becomes the objective of using technology. Then, the article was also identified based on the inclusion and exclusion criteria to ensure that the chosen articles align with the objective of this systematic literature review, as displayed in Table 2.

Table 2. The inclusion and exclusion criteria

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal article</td>
<td>Book chapters, book, proceedings, review, and meta-analysis paper</td>
</tr>
<tr>
<td>Articles published between 2018 till 2022</td>
<td>Articles that were not published between 2018 and 2022</td>
</tr>
<tr>
<td>The integration of technology in an Indonesian language class</td>
<td>Articles that are not published in Indonesian and English language</td>
</tr>
<tr>
<td>Sample of respondents from senior high school students</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 shows that the identification process for this research has fulfilled the inclusion and exclusion criteria. Therefore, the full text of each article was downloaded, except for the restricted articles.

*Phase 2: Screening phase*

The articles downloaded after identifying Scopus, Semantic Scholar, and Google Scholar databases were filtered by removing the duplicated articles. Then, articles were screened based on the title and abstract. The result of the abstract filtering was read, scanned, and selected again based on inclusion and exclusion. The abstract should be read to firmly determine the article's relevance, focusing on the review [29].

*Phase 3: Eligibility phase*

The screened articles were analysed and examined for eligibility in this phase. The articles were sorted based on their eligibility with the research focus based on the inclusion and exclusion criteria.

*Phase 4: Included phase*

After sorting the articles in the eligibility phase, the unselected articles from the screening phase were deleted. The deleted articles are book chapters, book proceedings, reviews, and meta-analysis papers not published in Indonesian and English. The articles which were not published between 2018 and 2022 were also removed. This is a critical process since this is the final step to complete the search process for articles. In detail, the authors used a PRISMA flow diagram for searching and selecting, as shown in Figure 1.

![Fig. 1. Flow of the systematic review process](image-url)
Twenty-nine articles were selected focusing on technological integration in an Indonesian language class for senior high school level. The articles were divided based on three research methods: seven quantitative studies, 15 qualitative studies, and seven mixed-method studies. Table 3 shows the analysis of the research methodologies. Overall, most of the selected research uses qualitative methods.

Table 3. Number of studies based on research methods

<table>
<thead>
<tr>
<th>Research methods</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>7</td>
</tr>
<tr>
<td>Qualitative</td>
<td>15</td>
</tr>
<tr>
<td>Mixed-method</td>
<td>7</td>
</tr>
</tbody>
</table>

To ensure the reliability of this systematic review, the findings from the previous empirical studies regarding the integration of technology in an Indonesian language class were compared and analysed.

3 Result and Discussion

In total, there are 180 articles identified from three databases from 2018 and 2022, which are Scopus (n=28), Semantic Scholar (n=38), and Google Scholar (n=114). The keywords helped select and collect articles relevant to technological integration in an Indonesian language class. There were eight duplicate articles deleted, which resulted in 172 articles remaining. The remaining articles were filtered, and 99 articles were removed after getting through the title and abstract selection. Then, the other 44 articles were removed. Some of them were removed due to restricted access to the full text. Meanwhile, the further removed texts consisted of review papers, meta-analyses, and bibliometric studies. In the end, there were 29 articles selected based on the pre-determined inclusion and exclusion criteria for this systematic review.

Based on the review, the learning tools used in the language class were varied. Nine articles focus on video conference tools for online learning, such as Zoom Meeting, Google Meet, Microsoft Teams, Moodle, and Schoology. These apps were embedded with an interactive learning video feature. Eight articles discuss the use of social media in learning, such as YouTube and Tik Tok. Meanwhile, four articles present the best practice in using digital platforms, such as Edmodo, Quizizz, Ruang Guru, and Quipper School. 8 articles contain information on how to use different apps in learning, as shown in Table 4.

Table 4. Types of learning tools

<table>
<thead>
<tr>
<th>Learning tools</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual media, video conference</td>
<td>[30][31][32][33][34][35][36][37][38][39]</td>
</tr>
<tr>
<td>Social media</td>
<td>[40][41][13][42][14][43][44][45]</td>
</tr>
<tr>
<td>Digital platform</td>
<td>[46][21][17][16]</td>
</tr>
<tr>
<td>Application</td>
<td>[18][19][20][22][23][47][24][25]</td>
</tr>
</tbody>
</table>

In detail, the review’s findings are described in Table 5, concerning the characteristics and themes of the research, as follows.
<table>
<thead>
<tr>
<th>No.</th>
<th>Author(s)</th>
<th>Research Methods</th>
<th>Learning Tool(s)</th>
<th>Learning domain/Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Rusdiana and Pratiwi (2021)</td>
<td>Qualitative</td>
<td>Integrative learning management system (video, gmeet, e-worksheet)</td>
<td>Cognitive/descriptive text</td>
</tr>
<tr>
<td>2.</td>
<td>Oktavia et al. (2020)</td>
<td>Qualitative</td>
<td>Interactive learning videos, YouTube</td>
<td>Affective/activity</td>
</tr>
<tr>
<td>4.</td>
<td>Rahayu (2021)</td>
<td>Quantitative</td>
<td>Screen recording video</td>
<td>Cognitive/proposal text</td>
</tr>
<tr>
<td>5.</td>
<td>Septari (2022)</td>
<td>Qualitative</td>
<td>Tik Tok</td>
<td>Psychomotor/listening skill</td>
</tr>
<tr>
<td>6.</td>
<td>Apriliani et al. (2021)</td>
<td>Qualitative</td>
<td>Schoology (e-module, game, video, quiz interactive, e-worksheet)</td>
<td>Cognitive/affective/psycho motor</td>
</tr>
<tr>
<td>8.</td>
<td>Sari et al (2022)</td>
<td>Qualitative</td>
<td>Integrative learning management system (video, group task, related link material)</td>
<td>Cognitive/affective/psycho motor</td>
</tr>
<tr>
<td>11.</td>
<td>Shidik et al. (2022)</td>
<td>Mixed</td>
<td>Interactive learning videos</td>
<td>Affective/interest in reading</td>
</tr>
<tr>
<td>13.</td>
<td>Aslami (2021)</td>
<td>Qualitative</td>
<td>Nearpod application</td>
<td>Cognitive/biography text</td>
</tr>
<tr>
<td>15.</td>
<td>Yamarista and Saviiri (2021)</td>
<td>Qualitative</td>
<td>Tik Tok</td>
<td>Cognitive/procedure text</td>
</tr>
<tr>
<td>16.</td>
<td>Safitri and Damaianti (2021)</td>
<td>Qualitative</td>
<td>Google Form, Quizziz Video conference (zoom, gmeet)</td>
<td>Learning evaluation Cognitive/affective/psycho motor</td>
</tr>
<tr>
<td>19.</td>
<td>Murahmanita et al. (2021)</td>
<td>Quantitative</td>
<td>Interactive learning videos, YouTube</td>
<td>Psychomotor/writing skill/film review text</td>
</tr>
<tr>
<td>21.</td>
<td>Ulya (2021)</td>
<td>Qualitative</td>
<td>Educandy game</td>
<td>Learning evaluation</td>
</tr>
<tr>
<td>23.</td>
<td>Saepuloh et al. (2021)</td>
<td>Quantitative</td>
<td>Podcast</td>
<td>Psychomotor/writing skill/poetry</td>
</tr>
<tr>
<td>24.</td>
<td>Rusli (2021)</td>
<td>Qualitative</td>
<td>Bibibibattle</td>
<td>Affective/interest in reading</td>
</tr>
<tr>
<td>25.</td>
<td>Pelangi (2020)</td>
<td>Qualitative</td>
<td>Carva application</td>
<td>Cognitive/affective/psycho motor</td>
</tr>
<tr>
<td>29.</td>
<td>Arianti et al. (2021)</td>
<td>Qualitative</td>
<td>Schoology</td>
<td>Psychomotor/writing skill/biography text</td>
</tr>
</tbody>
</table>
From the comparison of the learning domain and competence that also becomes the objectives, it is concluded that the choice of used tools and decision for the integration of technology in the Indonesian language class is aimed at improving the effectiveness in learning, especially during the Covid-19 pandemic, which urged the implementation of online learning. Specifically, there are nine articles of which research findings affirm that technology integration is aimed at the cognitive domain of learning, three articles were focused on the affective purposes, ten articles emphasised the psychomotor aspects, and seven articles stated the general objective of integration, which was integrative on the three learning domains. The integration of technology in an Indonesian language class may be aimed at the effectiveness of the learning process and the supporting tools to achieve the objectives in the cognitive, affective, and psychomotor domains, as presented in Figure 2.

![Learning Domains](image)

**Fig. 2. Learning Domains**

The integration of technology in teaching Indonesian influences the learning process. Different learning tools are more comprehensive than learning media and assessment tools. Hence, teachers are responsible for selecting the learning tools that align with the learning pattern and objectives of [48]. This also becomes a challenge for the teacher, considering that teaching Indonesian covers not only theoretical aspects but also practical skills. Besides the pedagogical aspect, teachers must view the attractiveness aspect in determining which learning tools they will use [49].

In this era, learning tools are the essential elements that must be prepared when arranging the lesson plan. Learning tools allow students to learn actively and independently. Teachers should not only prepare one learning tool, but it may also be a combination of several relevant tools with the learning pattern and objectives. The best practice for integrating technology in the Indonesian language class has been chiefly explained from the previous research. The result of the review emphasises the benefit that could be gained from using technology in learning, like improving effectiveness in education, encouraging the students to be active, and bringing attraction to the students.
4 Conclusion

This systematic literature review analyses 29 articles concerning technology integration in an Indonesian language class for the senior high school level. The study digs deeper into using learning tools and the targeted learning domains. The findings show that various classroom learning tools, such as virtual or video conferences, social media, digital platforms, and applications, are used in the classroom. Technology integration in teaching Indonesian targets the cognitive, affective, and psychomotor learning domains. The discussion shows that integrating technology makes teaching and learning easy and effective. The students or the teachers could feel the benefit of integration, specifically when it is impossible for them to do it in person/face-to-face. From the sampled learning tools above, the students can access it anywhere and anytime, allowing them to have flexible learning patterns. The complete coverage of the learning domain is possible due to the use of the learning tools. However, the level of achievement from each domain should be dug deeper. There should be solutions to the obstacles in implementing technological integration in learning, such as the infrastructure, signal coverage, and technical proficiency. The findings of this review could be used by the teachers and stakeholders in the field of education to explore the other learning tools to ensure their maximum benefit for the learning process.

References


M. Ulya, “Penggunaan Educandy Dalam Evaluasi Pembelajaran Bahasa Indonesia,” …


