

Digital Teaching Materials Based on Task-Based Language Learning (TBLL) with Environmental Education: Uses in Online Distance Learning

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ABSTRACT

The COVID-19 pandemic has resulted in online distance learning. Even though today, science and technology have advanced, the teaching materials used by teachers are still dominated by printed and non-interactive teaching materials. The purpose of this research is to develop digital teaching materials based on Task Based Language Learning (TBLL) containing environmental education in Indonesian language learning in secondary schools. The research was conducted when learning was conducted online remotely. This type of research is Research & Development (R&D) with the Plomp development model (Preliminary Research, prototyping phase, assessment phase). The research instrument used a questionnaire, observation sheet, and tests. This study describes the results of product practicality based on field trials, with details of product practicality by teachers, product practicality by students, and student learning activities when using the product. Based on the results of the study, it shows that digital teaching materials based on Task Based Language Learning (TBLL) containing environmental education are categorized as very practical with a score of 93.54% based on teacher questionnaires and categorized as very practical with a score of 80.62% based on student questionnaires. In addition, while using digital teaching materials, students were very active with a score of 93.33%. Based on this explanation, it can be concluded that digital teaching materials based on Task Based Language Learning (TBLL) containing practical environmental education are used by teachers, students and student activities.

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1. INTRODUCTION

The outbreak of COVID-19 has crossed borders and infected many people around the world (Asio & Bayucca, 2021; Klapproth, Federkeil, Heinschke & Jungmann, 2020; Singhal, 2020). The social distancing measures implemented by most countries have affected daily routines (Lee, 2020). The education sector is one of the most affected sectors (Aytaç, 2021). The COVID-19 pandemic is considered to be one of the greatest crises facing the education system from pre-school to tertiary levels (Toquero, 2020). In the process of a sudden pandemic, various efforts have been made to minimize the negative impact on educational activities by implementing "distance education" at various levels of education (Ozdemir, 2021). Distance education refers to education with a physical distance between the person who teaches and the person who learns. Based on its history, it can be seen that this education was even applied in the 19th century (Kutlu & Titrek, 2021).

The development of technology as well as the various opportunities and conveniences offered today, the use of distance education is increasingly widespread (Toquero, 2020). Although the COVID-19 pandemic has begun to show a bright spot, learning is still carried out remotely or done face-to-face. Even so, one day digital learning is predicted to be the fundamental basis of education, not an alternative or secondary (passive) support for face-to-face education. Due to the COVID-19 pandemic, digital learning will increase and become a major learning structure worldwide in the near future with rapid adaptation (Aytaç, 2021). Although online learning has been carried out since mid-March 2020, until now it needs to be evaluated comprehensively (Yudiawan, Sunarso, Suharmoko, Sari & Ahmadi, 2021).

Nowadays, being a digital citizen has become an obligation. The digital world exists in all aspects of life because of the practicality and liveliness it provides. With the COVID-19 pandemic In 2020, digital devices and the use of the Internet in education have made the number of users increase naturally (Krstić & Radulović, 2021). This is supported by the majority of studies showing positive perceptions of digital technology in general and its possible use in online learning (Lepp, Aaviku, Leijen, Pedaste & Saks, 2021). COVID-19 has caused a sudden shift from the classroom to online/e-learning platforms which has led to the emergence of a form of distance learning (Orhan-Karsak & Yurtçu, 2021).

A smart digital education environment is a new trend in the development of digital learning (Huang, Yang, & Hu, 2012; Grunis, Golovanova, Kirilova, Levina & Sizova, 2021). The digital education environment is a system of conditions and opportunities that includes information and communication infrastructure and a set of digital technologies and resources for learning (Tsarapkina, Plahina, Konoplyuk, Vaganova, Lapshova, 2021). In this environment students control their own learning experience, reflect on independent learning, and take responsibility for learning to stand out (Aydin & Erol, 2021). This environment is very dynamic, providing a constantly updated set of tools for pedagogical communication, so that educational information is transferred and received in the form of lectures, instructions and videos (Grunis, Golovanova, Kirilova, Levina & Sizova, 2021).

As millennials take place in the classroom, new technology-based teaching approaches have emerged to accommodate changing learning styles and needs (Üstünlüoğlu & Dahlgren, 2021). In addition, the pandemic has also led to the need for a self-contained digital education environment based on access and interaction, and materials that can be used in this environment (Aydin & Erol, 2021). This digital transformation represents a step further where people, machines, and products are directly connected to their environment (Azevedo & Almeida, 2021; Vial, 2019).

Born into technology, digital natives prefer visual rather than textual learning (Kirschner & De Bruyckere, 2017; Demir & Sönmez, 2021). Where digital technology has become widespread in all areas of our lives, individuals are reading from screens rather than from print sources. It is becoming increasingly difficult for individuals to leave the screen and return to paper out of habit (Öztop & Nayci, 2021). The most useful feature of tablet-assisted learning is the fun and easy-to-use aspect that students find superior to the everyday materials they use (Durgungoz & Durgungoz, 2021; Moreno, 2020).

According to digital native students, videos and smartphone applications should be used for more effective learning while their teachers underline the importance of using authentic materials for language teaching (Demir & Sönmez, 2021). Today, it is important to prepare materials used in education by

integrating them into the digital age as well as in every stage of life (Ilhan, Kaba & Sin, 2021). Teaching materials that are prepared by considering the characteristics of students with the integration of technology make a positive contribution to the development of academic achievement, motivation and students' thinking skills (Ebuara, 2012). The diverse population requires a modern approach to language teaching that leverages the "multimodal functions of digital technologies". Digital teaching materials are a suitable example of such teaching tools (Li, 2021).

Digital teaching materials must be a learning tool (Subrahmanyam & Renukarya, 2015), and are considered successful in terms of achieving educational goals (Kabak & Korucu, 2021). These principles illustrate that digital textbooks help build effective brain networks. (Li, 2021). In addition to verifying that current high school students have a sufficient basis for using information tools for learning, it also verified that students feel that the use of digital teaching materials can improve their learning performance (Tsai, Cheng, Tsai, & Lou, 2021). In summary, it is important for teachers to integrate teaching materials with technology from an instructional designer's perspective and utilize these materials in the teaching process to achieve goals that produce permanently effective outcomes (Şimşek & Yazici, 2021).

The teaching materials that are prepared must take into account the characteristics and the current situation. During the pandemic, learning is more dominated by task-based learning, so integrating the Task Based Language Learning (TBLL) method in digital teaching materials can be used as an alternative in learning. Task engagement is clearly needed, particularly in the area of language learning (Aubrey, King, & Almukhaild, 2020; Olga-Baldwin, 2019). TBLL is one of the best communicative approaches that can underlie effective language learning practices using Web 2.0 technology because it can actively involve students in doing and creating real-world tasks (González-Lloret & Ortega, 2014 & González-Lloret, 2017).

Task-based synchronous online communication can encourage the negotiation of meaning (Pellettieri, 2000). The interaction between TBLL and technology can be attributed to the penetration of the Communicative Approach and CALL into the educational realm, which requires similar characteristics, such as an emphasis on authenticity, meaningful resources, and real-world activities (Thomas & Reinders, 2010; Husnawadi, 2021). In TBLL, students focus on task completion, not on the study of non-contextual linguistic structures (Doughty & Long, 2003). The emphasis in TBLL is not on learning the language or form itself, but on engaging in authentic, pragmatic, contextual, and functional use of language (Arslanyilmaz & Susan, 2010).

Based on this, TBLL-based digital teaching materials will be more meaningful by incorporating real-life tasks and instructional 'tasks' into classroom teaching (Baralt & Gómez, 2017; Perveen, 2021). One of the topics that can be integrated into these digital teaching materials is environmental education. Earth is currently suffering from innumerable suffering caused by the terrible human activities that relentlessly pollute the environment (Rogayan, 2019). In the current era of globalization, we are faced with many social upheavals including dilemmas related to the environment (Rogayan & Nebrida, 2019). We cannot prevent natural disasters and even man-made disasters; however, we can minimize the damage it does (Marpa, 2020). In this case, solving environmental problems that need to be addressed as a whole can be achieved not only by repairing the damaged environment, but also by developing awareness to protect it (Calis & Yildirim, 2020).

In today's information age, technological advances benefit people by making our life easier, but on the other hand, they cause some negative things in life, environmental problems being one of them (Önal, 2020). Students, on the one hand, are always in touch with innovative technologies and living functions, but, on the other hand, are limited to environmental education knowledge so that the philosophy of environmental education can hardly be put into practice in everyday actions in school teaching situations (Chen, Chen & Shieh, 2020). When individuals increase their knowledge related to environmental issues, they will be more aware of environmental issues and increase their environmental responsibility (Aminrad, Zakariya, Hadi & Sakari, 2013; Ural & Dadli, 2020). Therefore, we can use education as a process of changing individuals, acquiring desired behaviors, thoughts, value judgments, knowledge and skills in individuals in solving environmental problems (Yeşilyurt, Balakoğlu & Erol, 2020).

Environmental education first appeared in education as a specialized field in the 70s, which was an era of increasing environmental problems (Yüzbaşıoğlu, 2020). Although there are a number of ways to combat environmental problems, education is the first key to creating awareness (Hollstein & Smith, 2020). The environmental awareness and sensitivity shown by an individual is possible in a long process that starts in the family from an early age and then continues in school (33). Education for a sustainable environment allows individuals to gain awareness of environmental issues, to achieve certain values and attitudes (Guler & Afacan, 2012; Afacan, 2020). It aims to train students to love and protect nature, recognize and study the environment in which they live, be sensitive to the environmental problems they face, and seek to improve the environment (Calos & Yildirim, 2020).

Although Environmental Education is recognized as an important and cross-cutting theme, its presence is still not expressive in the curriculum. The insertion of environmental themes in teaching practice should be a continuous process, interdisciplinary in nature, emphasizing citizenship for sustainability (Marques & Xavier, 2020). In addition to integrating environmental themes in learning, it is important to use different methods and techniques and visual and auditory elements rather than methods and techniques that make students dependent on textbooks and limit them to what the teacher teaches (Topal, Yildirim & Onder, 2020). Based on this explanation, the purpose of this research is to develop digital teaching materials based on Task based Language Learning (TBLL) with environmental education content used in online distance learning.

2. METHODS

This type of research is Research & Development (R&D) with the aim of producing a product through certain stages. This research was conducted to develop products in the form of digital teaching materials based on Task Based Language Learning (TBLL) containing environmental education (TBLL) which are used in online distance learning. The development model used in this study is an adaptation of the existing model, namely the Plomp model (2013). This model consists of three stages, namely, Preliminary Research (needs analysis, student analysis, curriculum analysis, concept analysis, analysis of the formulation of learning objectives), prototyping phase (product design and validation), assessment phase (trial product to determine the value of practicality and effectiveness). This research produces digital teaching materials based on the model syntax which is innovated first according to the needs and students and learning situations. Products based on the text-based 2013 curriculum. The research was conducted during online distance learning due to distance restrictions during the COVID-19 pandemic. Learning is done synchronously and asynchronously. Synchronous learning is carried out using the Zoom Meeting application and asynchronous learning using digital teaching materials developed with the ISpring application.

The product trial was conducted at SMA N 2 Padang. The selection of these schools was carried out by purposive sampling with the provisions that students were registered as State Senior High School students in Padang City; open to accept innovation; can establish good cooperation; and have adequate facilities and infrastructure for the implementation of research. The trial was carried out from September to October 2021. The trial schedule was adjusted to the school curriculum so that the product developed was suitable for use at that time, namely in learning procedure texts carried out in odd semesters. The research instruments were questionnaires, observation sheets, and tests. The data analysis technique used in this research is descriptive data analysis technique, which describes the validity, practicality, and effectiveness of the learning model.

The research described in this article will describe the results of the practicality of the product. Validity was obtained by asking several experts to evaluate the product through a questionnaire. If the product has been declared valid, the product is tested in schools and used during learning. After learning is complete, students and teachers fill out a product practicality questionnaire. In addition, practicality is also assessed from the learning activities that are assessed using the learning activity observation sheet. While the results of the effectiveness of the product, will be explained further in another article.

3. FINDINGS AND DISCUSSION

Based on the results of the needs analysis research, it shows that the types of teaching materials used by teachers in learning Indonesian still rely on printed teaching materials, such as printed books (Kemendikbud), printed books (private publications), printed modules and student worksheets. Although learning has taken place online in recent years, distance learning has also started in the last year due to the COVID-19 pandemic. Based on this, students' knowledge and skills regarding the use of digital devices are sufficient to apply digital teaching materials in Indonesian language learning. Furthermore, the results of the needs analysis research show that teachers and students have a positive response to the integration of environmental education into Indonesian language learning. Furthermore, the Task-Based Language Learning Approach is the most widely used approach by teachers in online distance learning during the COVID-19 pandemic compared to other learning approaches.

Based on the results of the needs analysis, a teaching material is needed according to the needs and situation of students. These teaching materials can be used as an alternative that can be used in learning Indonesian during the COVID-19 pandemic, namely learning from home or distance learning. The digital teaching materials were developed on the basis of TBLL and contain environmental education. Based on the results of the preliminary research, although the TBLL approach has been used in Indonesian language learning, the learning process is not in accordance with the essence of TBLL. Likewise with environmental education, although teaching materials already contain several things about the environment, they have not been able to cause students' environmental awareness. Therefore, digital teaching materials were developed by following the developed syntax which can be seen in Figure 1 below. An explanation of this model can be seen in the following article (Atmazaki, Ramadhan & Indriyani, 2021; Ramadhan, Atmazaki, Sukma & Indriyani, 2021).

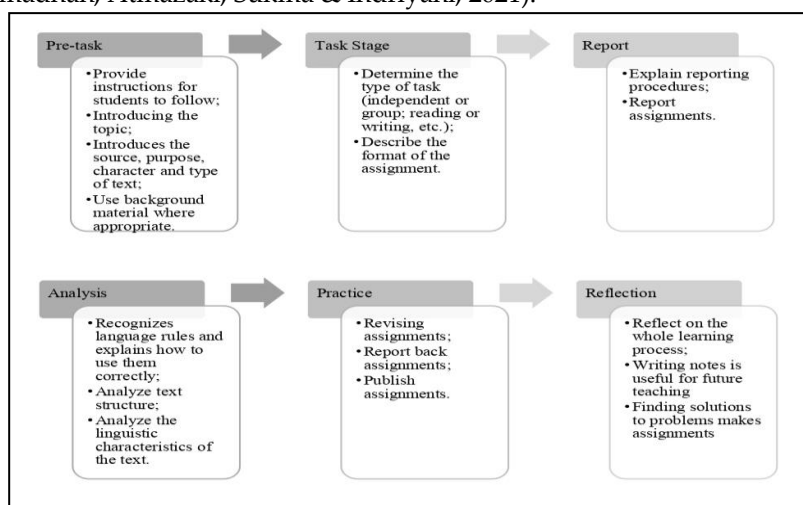


Fig. 1. Task-based digital teaching materials design

After the preliminary research and prototyping phases are completed, the product is validated first. Based on the validation results, it was found that the digital teaching materials were valid and the teacher's response was positive with the model. After that, the assessment phase is carried out to test digital teaching materials that have been designed and validated. The activities carried out at this stage consist of two, namely (a) practicality test, and (b) effectiveness test. These two stages are carried out simultaneously in the field. The test was carried out with Indonesian language teachers. To find out the practicality of the learning model, the teacher assesses the learning activities by filling out a questionnaire that has been provided by the researcher. The questionnaire was filled out after the learning process was completed. The practicality of digital teaching materials is useful for knowing whether the designed digital teaching materials are practical teaching materials to be used in learning Indonesian. The practicality questionnaire contains statement items which were developed based on the practical indicators of teaching materials, namely ease of use and can be studied according to the specified time.

The practicality of teaching materials was assessed by four teachers. The results of the analysis based on the practicality of the learning model questionnaire by the teacher can be seen in table 1.

Table 1. Practicality of digital teaching materials by teachers

Rated aspect	Score	Practicality (%)	Category
Ease to use	1400.00	93.33%	Very practice
Time used	281.25	93.75%	Very practice
Overall practicality value		93.54%	Very practice

The practicality of digital teaching materials by students is collected after the Indonesian language learning activities using digital teaching materials based TBLL containing environmental education are completed. Practical data collection is done through filling out questionnaires by students. Through filling out questionnaires, students give their assessments and opinions about digital teaching materials that have been used in the learning process. The practicality of digital teaching materials assessed by students includes aspects of the ease and time spent studying when learning to use these digital teaching materials. This practicality questionnaire was filled by 30 students. After students fill out the questionnaire, recapitulation and calculations are carried out to determine the practicality value. Furthermore, an analysis is carried out based on the statement items, and an overall analysis is carried out. The results of this analysis can be seen in table 2.

Table 2. Practicality of digital teaching materials by student

a. Ease of Use

No.	Statement	Practicality (%)	Category
1.	I can easily learn digital teaching materials according to the instructions in it.	82.47	Very practice
2.	I can understand and follow well every instruction in digital teaching materials.	81.67	Very practice
3.	I can understand and follow well every instruction contained in digital teaching materials.	82.50	Very practice
4.	The use of letters and writing in teaching materials is clear and easy to understand.	81.70	Very practice
5.	Pictures and videos in digital teaching materials guided me to understand the concept of learning to write texts.	85.00	Very practice
6.	I can easily understand the concepts presented in digital teaching materials.	82,50	Very practice
7.	Presentation of material in digital teaching materials allows me to learn the material repeatedly during distance learning (DL).	82,5	Very practice
8.	Presentation of material in digital teaching materials allows me to learn the material repeatedly during DL.	81,70	Very practice
9.	Learning to use digital teaching materials stimulates my activities to study independently during DL.	80.82	Very practice
10.	Digital teaching materials can help me build the concept of writing procedure text materials.	82.50	Very practice
11.	I can ask questions more easily by doing the work digitally while DL.	80.80	Very practice

12.	Makes it easier for me to get feedback from the teacher by doing assignments digitally during DL.	80.82	Very practice
13.	I easily submit work digitally when DL.	80.80	Very practice
14.	I easily process the submitted work because it is done digitally during DL.	81.67	Very practice
15.	I easily collaborate while studying if it is done digitally during DL.	79.13	Practice
16.	My productivity and efficiency is increased by digitally taking classes during DL.	80.00	Very practice
Overall practicality value		81.66%	Very practice

b. Time Uses

No.	Statement	Practicality (%)	Category
1.	Learning with digital teaching materials helps my learning speed when DL.	80.83	Very practice
2.	I can do the exercises and evaluations contained in digital teaching materials in a timely manner during DL.	80.82	Very practice
3.	Learning by using digital teaching materials can save my study time when DL.	78.33	Practice
4.	I can write more by writing with the help of digital teaching materials when DL.	80.00	Very practice
5.	I became faster in reading because I read digital teaching materials when DL.	81.7	Very practice
6.	My text writing speed increases as I write digitally when DL.	76.8	Very practice
Overall practicality value		79.58%	Very practice

For this practical value, in addition to filling out questionnaires by teachers and students, observations were also made on learning activities carried out by teachers and assisted by researchers. Student learning activities were obtained through observation using the student learning activity observation sheet. The observation sheet consists of statement items related to student learning activities using the stages of the learning model developed using digital teaching materials. Student activity data was collected by the teacher as the first observer, and the researcher as the second observer. This observation aims to see the suitability of activities that are expected to appear in students who learn Indonesian by using digital teaching materials based TBLL containing environmental education. The observed student activities consisted of six aspects, namely pre-task, task stage, report, analysis, practice, and reflection. After the data was obtained, an analysis was carried out based on the results of the observations made. The results of observations from the learning process using the developed digital teaching materials can be seen in table 3.

Table 3. Student learning activities

Aspect	Frequency	Activity (%)	Category
Pre-task	30	100	Very active
Task stage	27	90	Very active
Report	27	90	Very active

Analysis	27	90	Very active
Practice	30	100	Very active
Reflection	27	90	Very active
Total		560.00	Very active
Average		93.33%	active

Based on the results shown in table 3, it is concluded that the digital teaching materials developed are practically used to improve student learning activities.

Based on the results of the study, it shows that digital teaching materials based on Task Based Language Learning (TBLL) containing practical environmental education are used in language learning and increase student learning activities. This study is supported by previous research, Ilhan, Kaba & Sin (2021) stating that teaching materials are one of the resources that are often used for educational effectiveness. When designed and used properly, it brings advantages such as increasing teaching effectiveness, providing retention in learning, and making the learning process enjoyable. Meanwhile, Calvalho & Yeoman (2021) states that the creation of teaching materials (eg digital stories or text production) plays an important role in grounding one's learning activities, but the materials themselves act as cues to act around us. Okada & Brien (2015, in Li, 2021) state that the development of textbooks in the new era must focus on three principles, namely synergy (using several modalities); multidimensional and consensus; and connect networks dynamically.

Preville (2018) states that the social life of Generation Z takes place online and they are comfortable in that environment, so that the integration of technological devices using mobile devices allows them to be used in language learning. This finding is similar to the suggestion of Godwin-Jones (2018) who also proposed the use of mobile devices in the classroom because it involves the use of images, audio, and video into instruction as a motivational tool for the digital generation. Courville (2011) talks about digital content provided by today's technology. Digital content created with today's technology can offer an experience that students will be active in the learning environment.

Many experts recommend and develop and test the use of digital teaching materials in learning, and more and more during the COVID-19 pandemic. Among them, Ilhan, Kaba & Sin (2021) revealed that the use of digital comics in distance education increases success and helps develop positive attitudes towards learning. Furthermore, Arroba & Acosta (2021) examines the effectiveness of authentic digital storytelling as an alternative strategy to improve speaking skills in EFL classes at the university level. The results showed that authentic digital storytelling significantly improved students' speaking skills; however, its implementation requires the willingness of teachers to apply new communicative strategies inside and outside the classroom. Aydin & Erol (2021) stated that during the COVID-19 pandemic, the distance education model was used as an alternative learning model, although temporarily, and in this process, certain problems were encountered. Based on the findings, it is recommended to design multimedia materials that allow two-way interaction and increase collaboration between institutions to solve digital problems.

Elçi (2021) stated that although online teaching materials were found in the profit theme there were more mentions of it as a necessity. The pandemic period appears to be the best time to question the technological and pedagogical infrastructure available to faculty members and as a result initiate the necessary professional development studies. Meanwhile, Calvalho & Yeoman (2021) states that in order for teachers to be successful in designing innovative learning, educators need to develop their capacity to trace the intricate connections between people, ideas, digital tools and teaching materials, and tasks to see the whole learning in action. Furthermore, Kabak & Korucu (2021) the findings suggest that, with the necessary preparation, the innovative applications used in this study can benefit students' academic

achievement, their attitudes towards language learning, and their attitudes towards computer-assisted teaching.

4. CONCLUSION

Based on the results of research and discussion, it is concluded that digital teaching materials based on Task Based Language Learning (TBLL) containing practical environmental education are used in language learning and increase student learning activities. The research results described in this study are a description of the results of product practicality research. Details for the results of other stages of research can be read in other articles. Although digital teaching materials were developed during the COVID-19 pandemic, when learning is carried out remotely, these teaching materials can be used and used as models for face-to-face learning. The use of digital teaching materials can be done if schools, teachers and students have electronic devices such as computers and smartphones, besides that an internet network is needed so that the learning process can take place.

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