

How to track the need for digital disaster learning resources for prospective elementary school teachers?

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Abstract. In the current digital era, the need for digital learning resources in education is very important and urgent to develop. It includes developing digital disaster learning resources for prospective elementary school teachers. This article will discuss SWOT analysis (Strengths [S], Weaknesses [W], Opportunities [O], Threats [T]) as an instrument for conducting a needs analysis to develop digital disaster learning resources for prospective elementary school teachers. This research uses a literature study method, with research implementation stages consisting of (a) collecting reference sources, (b) verifying literature sources, and (c) conceptualization. From the research stages that have been carried out, the needs analysis instrument for developing digital disaster learning resources for prospective elementary school teachers can be classified into four forms, namely strength analysis (S) consisting of five question items, weakness analysis (W) consisting of three question items, opportunity analysis (O) consists of two question items, and threat analysis (T) consists of two question items. Based on this, it is necessary to carry out a SWOT analysis to prepare an analysis instrument for developing digital disaster learning resources for prospective elementary school teachers. The recommendation from the results of this study is that the needs analysis instrument using SWOT analysis can be adapted for use in needs analysis instruments for developing media and other learning resources.

Keywords: needs analysis, SWOT analysis, digital disaster learning resources.

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INTRODUCTION

Indonesia is prone to natural disasters caused by geological and hydrometeorological processes. Natural disasters can cause material losses, casualties and psychological impacts on the communities affected. Therefore, Indonesia's young generation needs resilient knowledge, skills and attitudes in natural disasters (Apronti et al., 2015; Laraswati et al., 2020; Noviana, Syahza, et al., 2023). One way to form a disaster-resilient generation is through disaster education in schools.

Disaster education is a learning process that aims to increase community awareness, understanding and preparedness for natural disasters. Disaster education can be carried out at various levels of education, including elementary school (Agustini et al., 2020; Noviana et al., 2020; Sulasmi, 2022). Elementary school is a strategic level of education for providing disaster education because, at this age, children begin to form thought patterns and behaviors that will influence their future.

One factor that determines disaster education's success in elementary schools is the quality and quantity of learning resources used by teachers and students (Agustini et al., 2020; Gong et al., 2021; Septikasari & Ayriza, 2018). Learning resources, such as books, media, tools, environment, and others, can facilitate learning. Good learning resources must be under the curriculum, student characteristics, learning objectives, and the disaster context in each region.

With the development of information and communication technology, disaster learning resources are not only conventional learning resources but also digital learning resources. Digital learning resources, such as applications, websites, videos, games, simulations, and others, are

based on digital technology (Geovanny et al., 2022). Digital learning resources have several advantages, such as being easy to access, interactive, interesting, and can be adapted to learning needs.

However, using digital learning resources for disaster education in elementary schools is still not optimal. It can be caused by several factors, such as limited facilities, skills and digital literacy of teachers and students, lack of availability and relevance of quality digital learning resources, and lack of support from related parties, such as the government, educational institutions and the community.

Therefore, it is necessary to analyze the need for digital disaster learning resources for prospective elementary school teachers through a SWOT analysis. SWOT analysis identifies strengths, weaknesses, opportunities and threats for a particular business or project (Kumari et al., 2023; Noviana et al., 2023; Thapa & Paudel, 2023). SWOT analysis can be used to evaluate strengths, weaknesses, opportunities and threats in a project or a business venture or to evaluate one's product lines or competitors. SWOT analysis can also help in the decision-making process so that it can be used as an effective tool for analyzing factors that influence the company as a decision-making process for determining strategies. Analysis of the need for digital disaster learning resources for prospective elementary school teachers through SWOT analysis aims to find out what digital learning resources are needed, how to obtain, use and develop these digital learning resources, as well as what obstacles and challenges are faced in using learning resources the digital. It is hoped that the results of this need analysis can become a reference for prospective elementary school teachers in preparing themselves to implement disaster education by using appropriate and effective digital learning resources.

METHOD

Based on the research objectives, namely to find out what digital learning resources are needed, how to obtain, use and develop these digital learning resources, as well as what obstacles and challenges are faced in using these digital learning resources so that an analysis of the needs for disaster learning resources is obtained. Digital for prospective elementary school teachers through SWOT analysis, the research method used is a literature study. The stages of implementing literature study research consist of three stages: collecting reference sources, verifying literature sources, and conceptualization (Figure 1).

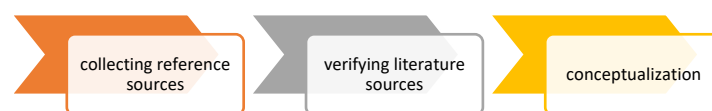


Figure 1. Research stages

Collecting reference sources stage

The reference source collection stage is done by determining the research topic and searching for literature sources. At the stage of determining the literature topic, this is done by determining relevant research topics based on the research objectives. Then, at the literature source search stage, searches are carried out from various sources in the form of books, journals, articles, theses, dissertations, reports, or online media originating from credible authors or institutions. Search for sources via online search platforms via Google Scholar and ScienceDirect

with the keyword "SWOT analysis of digital learning resources." For sources for books, theses, dissertations, and research reports, use Google Scholar; for articles, use ScienceDirect.

Verifying literature sources stage

The literature source verification stage is carried out by selecting literature sources, reading and recording literature sources, and grouping literature sources. The literature sources are selected by selecting sources appropriate to the topic and research objectives. Reading and recording literary sources is done by reading the title, abstract, keywords and conclusion. Moreover, using tables, the step of grouping literature sources is done by grouping library sources based on similarities, differences, relationships or existing themes.

Conceptualization stage

The conceptualization stage is the stage for writing a literature review, which is carried out objectively, critically, systematically and coherently. The results of this literature review were used to create, compile and develop an analysis instrument for the needs of digital disaster learning resources for prospective elementary school teachers through SWOT analysis.

RESULTS

Analysis of the needs for digital disaster learning resources for prospective elementary school teachers through SWOT analysis aims to determine what digital learning resources are needed, how to obtain, use and develop digital learning resources, and what obstacles and challenges are faced. Based on the results of this needs analysis, it is hoped that it can become a reference for prospective elementary school teachers to prepare themselves to implement disaster education by using appropriate and effective digital learning resources.

The following are the results of a SWOT analysis based on a literature review that researchers conducted to create, compile and develop an analysis instrument for the needs of digital disaster learning resources for prospective elementary school teachers (**Figure 2**).

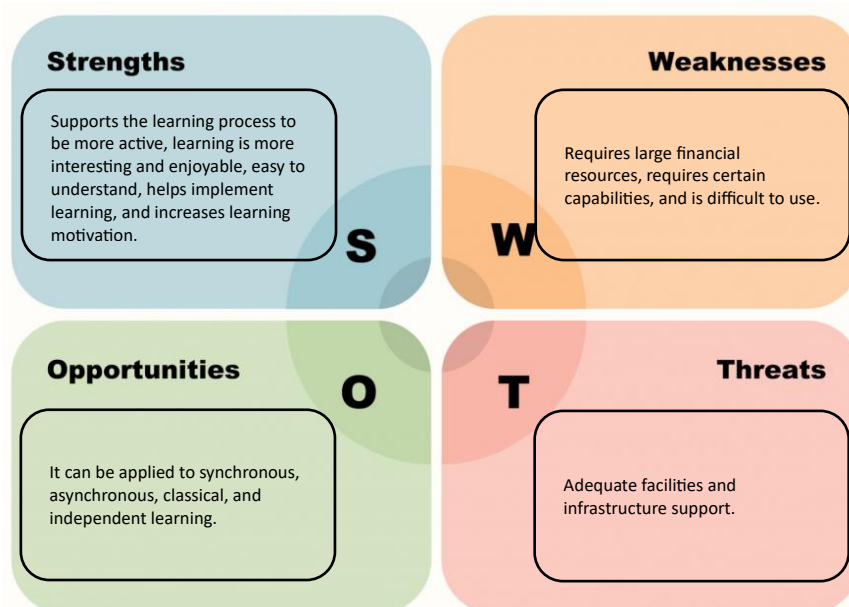


Figure 2. SWOT analysis to develop digital disaster learning resources.

Based on **Figure 2**, the content design for creating, compiling and developing an analysis instrument for the needs of digital disaster learning resources for prospective elementary school teachers can be seen in **Table 1** below.

Table 1. Aspects, descriptions, statements, and answer choices

No	Aspects	Descriptions	Statements	Answer Choices
1.	Strength	Supports the learning process to be more active, learning is more interesting and enjoyable, easy to understand, helps implement learning, and increases learning motivation.	<ol style="list-style-type: none"> Digital learning resources support the learning process to be more active. The use of digital learning resources in learning is more interesting and fun. Digital learning resources are easy to understand in the learning process. Digital learning resources help in implementing learning. Digital learning resources can increase students' learning motivation. 	Strongly Agree, Agree, Disagree, and Strongly Disagree.
2.	Weakness	Requires large financial resources, requires certain capabilities, and is difficult to use.	<ol style="list-style-type: none"> Digital learning resources require large financial resources. Digital learning resources require certain abilities. Digital learning resources are difficult to use. 	Strongly Agree, Agree, Disagree, and Strongly Disagree.
3.	Opportunities	It can be applied to synchronous, asynchronous, classical, and independent learning.	<ol style="list-style-type: none"> Digital learning resources can be applied synchronously and asynchronously. Digital learning resources can be used for classical learning or independent learning. 	Strongly Agree, Agree, Disagree, and Strongly Disagree.
4.	Threat	Adequate facilities and infrastructure support.	<ol style="list-style-type: none"> Learning resources can only be used with adequate facilities and infrastructure. Use of digital learning resources only on certain materials. 	Strongly Agree, Agree, Disagree, and Strongly Disagree.

DISCUSSION

SWOT analysis is a technique used to identify strengths, weaknesses, opportunities, and threats to create, compile and develop an analysis instrument for the needs of digital disaster learning resources for prospective elementary school teachers (Kumari et al., 2023; Shobeiry, 2022; Thapa & Paudel, 2023). The strength analysis aims to identify and evaluate internal factors that support or provide advantages for prospective elementary school teachers using digital disaster learning resources (Atmojo et al., 2017). Strengths analysis can help prospective teachers discover their potential and abilities related to digital disaster learning resources and how to maximize and utilize these strengths. Meanwhile, the weakness analysis aims to identify and evaluate internal factors that hinder or cause disadvantages for prospective elementary school teachers in using digital disaster learning resources (Thapa & Paudel, 2023). Weakness analysis can help prospective teachers discover obstacles and difficulties related to digital disaster learning resources and how to overcome and reduce these weaknesses.

Then, the opportunity analysis aims to identify and evaluate external factors that support or benefit prospective elementary school teachers using digital disaster learning resources (Kumari et al., 2023). Opportunity analysis can help prospective teachers discover potential and possibilities related to digital disaster learning resources and how to exploit and expand these opportunities. Threat analysis aims to identify and evaluate external factors that hinder or cause harm to prospective elementary school teachers using digital disaster learning resources (Prasetyaningtyas & Wening, 2021; Shobeiry, 2022). Threat analysis can help prospective teachers discover risks and challenges related to digital disaster learning resources and how to anticipate and reduce these threats.

The needs analysis instrument created, compiled and developed must measure prospective elementary school teachers using digital disaster learning resources. In the strength aspect, the instrument must be able to measure the strength of prospective teachers from various aspects, such as knowledge, skills and attitudes towards digital disaster learning resources. Meanwhile, the instrument must measure prospective teachers' weaknesses from various aspects, such as access, facilities, guidance, support, availability, relevance and quality of digital disaster learning resources.

Then, for the opportunity aspect, the instruments used must measure prospective teacher opportunities from various aspects, such as technological developments, government policies, community needs and educational trends. Furthermore, in the opportunity aspect, the instrument should be able to measure threats to prospective teachers from various aspects, such as natural, social, technological, information, and educational disasters. Apart from that, the four aspects of the SWOT analysis need to be measured objectively, validly and reliably.

The steps for creating, compiling and developing an instrument for analyzing the needs of digital disaster learning resources for prospective elementary school teachers are as follows: (a) Determine variable constructs in the aspects of strengths, weaknesses, opportunities and threats for prospective elementary school teachers in using learning resources digital disaster. A variable construct is an abstract concept that describes the characteristics or dimensions of the variable to be measured; (b) determines the indicators of the variable construct in the aspects of strengths, weaknesses, opportunities and threats for prospective elementary school teachers using digital disaster learning resources. Indicators are statements that measure or show the level of existence or achievement of a variable construct; (c) compiling instrument items from variable construct indicators on the strengths, weaknesses, opportunities and threats for prospective elementary school teachers using digital disaster learning resources. Instrument items are questions or statements used to measure indicators of variable constructs, and (d) developing an analysis instrument for the needs of digital disaster learning resources for prospective elementary school teachers through SWOT analysis. Instrument development is a process for testing and improving

the quality of instruments that have been prepared. Instrument development can be carried out using conceptual validation, empirical validation, testing, and revision techniques.

CONCLUSION

Based on the research results and discussion previously presented, this research concludes that a SWOT analysis needs to be done to develop an analysis instrument for developing digital disaster learning resources for prospective elementary school teachers. Then, the recommendation from the results of this study is that the needs analysis instrument using SWOT analysis can be adapted for use in needs analysis instruments for developing media and other learning resources.

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