Development of Human Literacy-Based Teaching Materials for Prospective Teachers of Early Childhood

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Abstract. The purpose of this study is to improve learning quality in child development psychology course through the preparation of human literacy-based teaching material. Specifically, it is hoped that this research can describe the process of developing teaching materials in child development psychology course, so that teaching materials based on human literacy are produced for prospective teachers of early childhood as a development product. The development of this teaching material was carried out using research and development (R&D) with the Four-D (4-D) model. There are four stages of development in this model: define, design, develop, and disseminate. This study's data analysis method was completed in two steps. First, validity analysis through average scores on aspects of the teaching materials developed. Second, if each category is valid then proceed to analysis of product effectiveness through analysis of practicality questionnaire data by students.

Keywords: Human Literacy, Teaching Materials, Early Childhood Teacher

1. Introduction

Industrial Revolution 4.0 has brought about major changes in many facets of human existence, including the economic, political, social, and cultural spheres. One of the most highly impacted sectors is science and technology. During the industrial revolution, a number of intelligent technologies evolved that may be linked to numerous aspects of human existence. As a result, developing higher-quality human resources is crucial in order to boost productivity via character development, which may be accomplished by promoting literacy in every facet of life, including the intellectual aspect.

Higher education is one type of educational institution that contributes to the quality of human capital. In terms of literacy, numerous initiatives may be established for improving literacy culture in education, particularly human literacy. Several factors contribute to the necessity of enhancing human literacy, with three main considerations. First, the World Economic Forum published a list of ten talents that workers, including educators must possess in order to adapt to future developments, particularly those associated with the Industrial Era 4.0. They must be able to handle complicated issues, think critically, be creative, manage emotions, collaborate with others (teamwork), make decisions, have a spirit of service,

negotiate, and be cognitively flexible. Second, more than half of these talents are soft skills, which will be critical for all educators in the future. Thus, the present generation must improve their soft skills. Third, every educator has to possess abilities that robots cannot in order to adjust to the changes that will arise in the period of Industrial Revolution 4.0, such as the ability to solve a problem (problem solving), collaborate in various fields, and communicate in order to convey ideas (Aoun, 2017).

In general, the conditions described above demonstrate the need to strengthen human literacy through several skills, including communication, collaboration, critical thinking, creative and innovative skills, all of which are demanded in the industrial era 4.0 and supported by all parties, particularly educational institutions at the higher education level. With the goal of developing high-quality, highly competitive human resources capable of dealing with technology advancements and competitiveness in the workplace throughout the Fourth Industrial Revolution.

Human literacy prepares us to meet our social environment by enabling us to communicate, interact with others, and be compassionate. In any job setting, we must be able to engage successfully with others, thus abilities like brainstorming, negotiation, and group decision making are becoming increasingly vital. Effective working relationships require more than just knowledge; the secret is to win over each team member's heart.

Human literacy is seen to be highly essential since it enables people to talk, connect with others, and utilize their human talents in order to be prepared in social circumstances. Furthermore, Persons with human literacy possess the communication, design, and humanities skills necessary to function in a human environment. Stated differently, the goal of literacy is to enable people to successfully navigate their environment.

Aoun (2017) identifies many fundamental features of human literacy. First, in order for professionals to interact with people outside of the digital sphere, they must possess human literacy. Second, the strongest networks in the industry are formed via interpersonal encounters, including teamwork. Third, individuals need to be able to work well with others in any kind of professional environment. This calls for skills like group decision making, brainstorming, and negotiating. Fourth, understanding diversity's importance is essential to human literacy. Pupils must completely integrate and respect diverse histories, identities, and beliefs while taking into account a variety of points of view. Fifth, people need to be able to interact with others in a kind and encouraging way. There is a considerable positive association between interpersonal ties and human literacy.

Human literacy is made up of five elements: social, physical, intellectual, cultural, and emotional. (1) Socially, a person must know how to build solid connections, be a leader and team member, and play an active role in society both in real life and virtual. (2) Physically, to foster the development of the body and neurological system, an individual has to be able to make healthy decisions, as well as be aware of the environment and serve as an agent of environmental change. (3) Intellectually, individuals may solve problems in inventive and introspective ways, adapt to new difficulties, develop objectives based on values, and achieve achievement. (4) Culturally, a person must understand the importance of these things and cultivate a mentality that promotes good attitudes, identities, and perspectives. (5) Emotionally, the ability to understand one's own emotions is necessary in order to recover from setbacks and acquire emotional intelligence, which will aid in their growth.

Human literacy may be strengthened in the field of education through learning activities that use suitable learning models (Suyatmini et al., 2021). As a result, a greater knowledge of learning models is required, particularly those tailored to the major subject provided, in order to improve human literacy. This demonstrates the need of providing

instructors and potential teachers with relevant information about learning resources, such as producing teaching materials based on human literacy. The teaching materials that will be designed and deployed should not only give early childhood prospective teachers with information about child development psychology, but they should also be capable of improving students' human literacy abilities.

Teaching materials are commonly described as the resources used by educators to facilitate learning. The teaching materials provided by educators can help students develop concepts and contain the materials, data, instruments, or media that lecturers employ to carry out instruction, including creating a conducive learning atmosphere. One can choose to print or not print instructional materials.

Teaching materials benefit both educators and students. Educators profit from them since they aid in the learning process, provide possibilities for knowledge development, serve as credit points for advancement, and may be a source of cash if teaching materials are published. Meanwhile, educational materials may help students learn independently by making learning more engaging and easy to grasp and accomplish each required skill.

Teaching materials play an important role in the learning process, specifically the reference used by teachers. Teachers must also be aware of several factors that must be considered when developing teaching materials, including accuracy of content, accuracy of coverage, digestibility, language use, illustrations, appearance/packaging, completeness, and teaching material components.

Human literacy based teaching materials are defined as learning resources for students that are developed and delivered by incorporating human literacy aspects into all learning activities. To meet the defined aims, teaching materials in child development psychology courses will include child development information as well as reference activities tailored to components of human literacy. The purpose of this development is to expand on the material and complement textbooks in order to increase knowledge, attitudes, and abilities connected to psychological principles of child development.

2. Method

This study used the 4-D (Four D) development model as its development model which is a methodology for developing learning tools. The 4D development model is divided into four basic stages: (1) Define, (2) Design, (3) Develop (Development), and (4) Disseminate.

Define stage is the stage of determining learning needs, which is divided into five stages of analysis: initial analysis, student analysis, task analysis, content analysis, and learning objective analysis. An initial analysis was conducted to identify current issues in teaching materials for child development psychology course. Student analysis will look at students' qualities from multiple perspectives, including academic talents, cognitive development, and student skills, as well as human literacy in students. Task analysis identifies the primary abilities required by students in the dimensions of human literacy. Establishing the content of the instructional materials is the aim of content analysis that will be generated. The study is conducted out using learning outcome analysis, as well as the methodical arrangement of learning content within these topics. Learning objectives are analysed to establish indicators of learning accomplishment using material and curriculum analysis. Learning goals allows researchers to choose what content and activities will be offered in the training materials.

Design stage seeks to create a learning prototype. This stage consists of three phases, which are: preparing a benchmark test is the first step that connects the define and design stages, selecting appropriate medium to present the course information, and format selection.

The purpose of development stage is to develop revised learning materials based on expert feedback. During this stage, the gadget is validated by specialists, revised, simulated, and limited trials are conducted with real students. The outcomes of these phases serve as a foundation for modification. The next stage is to do additional testing with students in line with the real class. Disseminate stage involves the use of tools that have been created on a larger scale, such as in other classrooms, schools, or by other teachers. Another goal is to determine the efficacy of materials in learning process.

Data for research was gathered through: a) documentation studies to identify important documents required in child development psychology, particularly those based on human literacy, b) interviews with interview guides, c) validation questionnaires for experts or expert judgment, and d) response questionnaires from students to assess product effectiveness and evaluate quality teaching materials.

Data on expert assessments of instructional materials based on human literacy were collected using the initial instrument for this study. Before materials are tested, they are developed based on the findings of this examination. The content, presentation, graphic, and linguistic appropriateness are all included in this validation form. The validation instrument's blueprint is displayed in Table 1 below.

Table 1. Blueprint of Teaching Materials Validation Instrument

Indicator	Number of Items
Content	6
Presentation	4
Linguistic	5
Graphic	3

The second instrument for this research was using questionnaire on the practicality of teaching materials by students. The practicality instrument's blueprint is displayed in Table 2 below.

Table 2. Blueprint of Practicality Instrument

Aspect	Indicator	Number of Items
Cognitive	Understanding the contents of material	3
	Clarity of study instructions and information	2
	Appropriate appearance of material	3
Affective	Motivation	2
	Attractiveness	2
	Curiousity	1
Psychomotor	Questioning	1
	Respond to questions	1

In this study, there were two stages in the data analysis procedure. First, validity analysis through the average score for features of the instructional materials generated using the formula:

$$R = \frac{\sum_{i=1}^{n} V_i}{n}$$

R = the average rating of the validators
Vi = score of the result of the i-validator assessment
n = number of validators

Next, the calculated average is validated using predetermined standards. Here's how to obtain these requirements.

$$76 - 100 \quad = \text{very valid}$$
$$51\text{-}75 \quad = \text{valid}$$
$$26\text{-}50 \quad = \text{less valid}$$
$$0\text{-}25 \quad = \text{invalid}$$

Second, if each category is valid then proceed to analysis of product effectiveness by the following method of analyzing survey data about students' perceptions of how practical teaching materials are:

$$\underline{\textbf{Total score obtained}} \textbf{ x 100\%}$$
$$\textbf{The ideal total}$$

The following is an interpretation of the quantitative calculation's percentage findings:

Not practical	:	0% – 25%
Less practical	:	25% – 50%
Practical	:	51% – 75%
Very practical	:	75% – 100%

3. Results and Discussion

This development study was conducted utilizing the Four-D (4-D) model. This paradigm has four development stages: Define, Design, Develop, and Disseminate. This approach was selected because its goal is to provide human literacy-based teaching materials for courses on child development psychology. The study findings are listed below, arranged in accordance with the phases of the 4-D Model.

a. Define

This stage is used to identify and define the needs for instructional materials, as well as to collect information about the product to be generated. This stage involved preliminary investigations and literature evaluations on child development psychology and human literacy. Researchers took anecdotal notes and had interactions with instructors in the early childhood education study program. As of now, all of the analyses—initial, student, task, content, and learning objective—have been finished.

1) Initial Analysis

An initial study was conducted to identify the main issues in generating instructional materials. The primary issue that researchers discovered was a lack of sufficient teaching materials that integrated learning outcomes in child development psychology courses. Aside from that, in today's digital environment, it is critical for pupils to have human literacy rather than focusing just on technology. Universitas Negeri Medan is presently being instructed to include four literacies into education, one of which is human literacy. Human literacy is meant to help students enhance a variety of vital soft skills, such as critical thinking, communication, tolerance, teamwork, and so on.

2) Student Analysis

At this step, the researcher observed possible users of the educational materials that would be generated. This step is completed at the start of planning. This teaching material is intended for early childhood education students in their second semester at Universitas Negeri Medan as prospective early childhood teachers.

3) Task Analysis

It was determined through a task analysis that the primary activities that students would perform when they utilize human literacy-based child development psychology teaching materials. Based on the initial problem analysis and user study of teaching materials, the researcher defined the tasks required in generating teaching materials. These assignments are in the form of activities that incorporate the five elements of human literacy.

4) Content Analysis

A concept analysis was conducted to identify the content of teaching materials in child development psychology courses. This idea analysis begins by determining the materials and sub-materials that will be presented. The learning objective of early childhood education study program determines the scope and depth of studying content.

5) Learning Objectives Analysis

Curriculum and material analysis are used to analyze learning objectives and determine indications of learning accomplishment. Learning objectives allows researchers to choose what content and activities will be offered in the training materials.

In the child development psychology course, there are learning objectives of early childhood education study program that are imposed on this course, namely:

a) Independently demonstrate a responsible attitude toward work in their area of expertise;
b) Have sincerity, commitment, and sincerity to develop the attitudes, values, and abilities of students;
c) Master early childhood development and learning;
d) Apply logical, critical, innovative, quality, and measurable thinking in carrying out specific work in the field of early childhood education and in accordance with work competency standards in the concerned field;
e) Demonstrate performance as an independent, quality, and measurable early childhood educator;
f) Plan and implement learning through play activities in accordance with children's development, knowledge, and technology based on the national cultural values

After that, the researcher developed the objectives for this course which was developed from each learning objectives as follows:

a) Demonstrate responsible behavior in completing child development analysis reports independently or in groups
b) Demonstrate sincerity, commitment and sincerity to stimulate aspects of student development
c) Mastering the concept of early childhood development
d) Capable of utilizing logical, analytical, inventive, high-quality, and quantifiable reasoning to assess and resolve issues related to children's development
e) Able to demonstrate performance as an independent, quality and measurable early childhood educator
f) Capable of creating play activities that are appropriate for children's growth, knowledge, and technology based on the cultural values of the country, and with the ability to establish indicators for every area of children's development.

Learning outcomes in this course will be integrated with elements of human literacy, namely:

a) Socially, students must learn how to build solid connections, work well in teams and as leaders, and be engaged citizens both online and off.
b) Physically, students need to be physically capable of making decisions that promote their body and neurological system development, as well as environmentally conscious enough to be change agents in their surroundings.
c) Intellectually, kids can develop into creative, thoughtful problem solvers who can adapt to novel situations and establish objectives that are grounded in their moral principles.
d) Culturally speaking, pupils must be made aware of these matters and cultivate mindsets that will uphold positive identities, attitudes, and outlooks.
e) Emotionally, in order to overcome obstacles and cultivate the emotional intelligence that will support their growth, pupils need to be able to comprehend their feelings.

b. Design

After receiving the findings from the definition step, then go on to the design stage. This design stage intends to provide human literacy-based teaching resources for use in child development psychology course. This design phase includes:

1) Selection of Teaching Content

On the basis of the learning objectives and concept analyses completed during the preceding defining step, the development of teaching materials for the Child Development Psychology course consists of 7 (seven) chapters; namely the first chapter is physical and psychomotor development, the second chapter is about cognitive development, the third chapter is about language development, the fourth chapter is about social development, the fifth chapter is about emotional development, the sixth chapter is about moral development, and finally the seventh chapter is about artistic development. Each chapter consists of 5 stages of activities related to the integration of human literacy elements, namely increasing social, physical, intellectual, cultural and emotional elements.

2) Format Selection

The teaching materials developed are Child Development Psychology teaching materials whose target users are early childhood education students. This teaching material is printed on A4 paper, which is 21 cm by 29.7 cm in size. The paper is oriented in portrait mode. A gray backdrop is used in the design of the front cover combined with dark blue, brown and black. On the cover there is also writing based on human literacy which characterizes teaching materials packaged with material enrichment through the integration of human literacy elements.

The following sheet contains the foreword and table of contents. The table of contents provides a list of the chapters that will be covered in this instructional material. Following that, an introduction is given, and each chapter is given a boundary sheet, with discussion exercises for students at the end of the chapter to aid in student learning.

Each chapter is accompanied by stages of learning activities that are integrated with elements of human literacy. Students are directed to develop various soft skills related to human literacy. In the first stage, the activity carried out was "Let's Move" to develop physical elements. The second activity is "Let's Reflect & Think" to develop intellectual elements. In the third stage, students will carry out the "Let's Elaborate" activity to develop cultural elements. The activity in the fourth stage is

"Let's Discuss" to develop social elements. And finally the fifth stage, the activity carried out by students is "Let's Present" to develop emotional elements.

c. Develop

This stage is the realization of the book product design that has been created. This development was first validated by two validators, each of whom is an expert in their field. The two experts consist of psychology experts as well as media and teaching materials experts. The validation test findings for the human literacy-based child development psychology teaching materials are as follows.

Table 3. Test Results of Learning Materials Validity

Indicator	Presentage	Category
Content	80	Valid
Presentation	95	Very valid
Linguistic	96	Very valid
Graphic	86,67	Very valid

Considering the results of the validity test questionnaire for the development of human literacy-based instructional materials, the media may be classified as valid, with a validity percentage of 89.42%. The average percentage of content compatibility is 80%, indicating that the information meets the indicators and needs of the students. The information has defined learning objectives, is backed by appropriate theory, and is presented accurately and coherently, adhering to existing facts and concepts. The average percentage of media from the presenting feasibility aspect is 95%. The feasibility of presentation is connected to the systematic presentation of each learning activity along a specified path. The presentation is interactive and participatory (including sections that encourage students to engage in learning). Aside from that, the text is accompanied by factual images and visuals.

According to the linguistic component, the level of validity of language use in this media is 96%. This demonstrates that the training materials are clear, concise, communicative, interactive, effective, and efficient. The visual percentage is 86.67%, indicating that graphic background/layout settings, typography, image selection, and animation are still considered legitimate.

Following professional validation, a small-scale field test was conducted to assess the practicality of utilizing human literacy-based instructional materials in the classroom. Practicality in question is a standard of practicality, ease of media/teaching materials to use. The practicality test of this teaching material was carried out by filling out a questionnaire by students. The purpose of this step is to evaluate how well instructional materials work as a tool for learning. According to a review of students' practicality questionnaire scores, 82,46% of them fell into the very practical category when it came to instructional materials. For more details, see Table 4 below.

Table 4. Test Results of Students Practicality

Aspect	Indicator	Percentage	Category
Cognitive	Understanding the contents of material	84,49	Very practical
	Clarity of study instructions and information	73,61	Practical
	Appropriate appearance of material	84,95	Very practical
Affective	Motivation	81,59	Very practical
	Attractiveness	81,59	Very practical
	Curiousity	84,72	Very practical

Psychomotor	Questioning	87,5	Very practical
	Respond to questions	81,25	Very practical

From the results of the analysis of the practicality test questionnaire for child development psychology teaching materials, With an 82.46% practicality rating, it can be concluded that this media is very practical. This means that the teaching materials developed have met practicality requirements, namely ease of use and benefits obtained in supporting human literacy in students. The average percentage of media from the cognitive aspect is 81.02%, which means it is very practical. Indicators that determine the practicality of media from a cognitive perspective are that students are able to comprehend the lessons' content, the study instructions and information are clear, and the display of the teaching materials is appropriate. The average percentage of media obtained from the affective aspect is 82.63%, which means it is very practical. Media is stated to be very practical because it can increase student learning motivation, make it interesting to learn, and create curiosity in students. The average percentage of media obtained from the conative aspect is 84.37%, which means it is very practical. This can be interpreted as that the students' capacity to ask and respond questions can be enhanced by using teaching materials based on human literacy.

4. Conclusion

Human literacy-based teaching materials for prospective early childhood teachers is categorized as both of very valid and very practical. Validity percentage is 89,42, while practicality percentage is 82.46%. This means that the teaching materials developed have met validity and practicality requirements. The teaching material is based on theory, ease to use, and have benefits obtained in supporting human literacy in students.

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