

DEVELOPMENT OF EMPATHY PUZZLE MEDIA FOR ELEMENTARY SCHOOL STUDENTS: FEASIBILITY AND PRACTICALITY ANALYSIS

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Abstract

Some elementary school students still have difficulty understanding others' feelings, while guidance and counseling media that focus on empathy stimulation are still limited. This study aims to analyze needs, describe a prototype, and test the feasibility and practicality of the Empathy Puzzle game media for elementary school students. This development research (R&D) applies the 4-D model (Define, Design, Develop, Disseminate), which is limited to the Development stage without conducting product effectiveness testing. The study was conducted at SD Negeri 106153 Medan. Data were collected through observation, interviews, and questionnaires, then analyzed descriptively qualitatively and quantitatively. The results of the needs analysis indicate that teachers and students require concrete media that is interesting and interactive. The prototype was designed based on the cognitive and affective components of empathy. The feasibility assessment from media experts reached 91.07% and material experts 93.75% (very feasible category). The user practicality test obtained a percentage of teacher responses of 92.59% and student responses of 94.46% (very practical category). The conclusion of the study shows that the Empathy Puzzle media meets the criteria for feasibility and practicality very well, so it is ready to be used as an alternative media to support guidance and counseling services for elementary school students.

Keywords: *Empathy Puzzle; Guidance and counseling; Research development; Elementary school*

A. Introduction

Empathy is a social-emotional skill that is crucial for understanding, sensing, and responding appropriately to the emotional states of others. Daniel Goleman states that empathy is the foundation of positive social relationships, while Martin Hoffman emphasizes its role in encouraging prosocial behaviors such as helping and sharing. In elementary school, empathy is a key pillar in the formation of children's character and morals, helping to build harmonious interactions and reduce aggressive behavior. Elementary school students still experience low levels of empathy, which negatively impacts social behavior in the school environment. (Ni'am & Rofiqoh, 2026) This is evident in the current phenomenon of decreased social sensitivity due to excessive exposure to gadgets and minimal direct interaction, which triggers an increase in cases of bullying and egocentric attitudes in children. Empathy can be supported in several ways, including by teachers who have social competence, through learning that uses teaching materials and media such as films and puzzles, using appropriate approaches and methods by creating activities such as drama creativity (Hutauruk & Panjaitan, 2022; Mukthamar, 2023).

Social-emotional skills, particularly developing empathy in children of concrete operational age, are a crucial foundation for reducing verbal bullying in schools (Fitri et al.,

2026). Bullying is a significant challenge in elementary education because it impacts students' social-emotional development and character (Akbar et al., 2026). These socio-psychological barriers often arise from a child's inability to let go of their ego and understand the feelings of others.(Hutauruk & Panjaitan, 2022) The importance of developing empathy is legally reinforced by Minister of Education and Culture Regulation No. 111 of 2014 concerning Guidance and Counseling in Primary and Secondary Education, and Presidential Regulation No. 87 of 2017 concerning Strengthening Character Education (PPK). These regulations require schools to facilitate students' personal and social development through interactive services.

Personal-social guidance services in elementary schools still often rely on lectures and one-sided verbal advice, which are less adaptable to the dynamics of child development (Fadhilah et al., 2024). Well-designed, structured interventions are needed to foster prosocial behavior in children. Guidance and counseling services don't have to be face-to-face, through lectures, or through conventional methods. Counselors can conduct guidance and counseling services using various media. Various service strategies in guidance and counseling, one of which is by using puzzle media (Pangestu, 2024). Puzzles are a fun and enjoyable game that can certainly attract students' attention if used in the learning process (Dewiyandari, 2019; Sabella et al., 2024).

However, initial findings from a preliminary study at Medan Public Elementary School 106153 revealed significant gaps. Based on observations and a needs questionnaire, only 52.5% of students were able to independently understand others' perspectives. Most students still frequently tease their peers and are reluctant to share. Furthermore, guidance and counseling services are still dominated by conventional lecture methods due to the limited availability of guidance media specifically designed to develop empathy. However, according to Piaget's theory, elementary school students are at the concrete operational stage and therefore require tangible and interactive media.

Previous research has explored various guidance and counseling interventions to enhance student empathy, such as the use of storytelling techniques (Winangsih et al., 2018) and the use of digital visual media (Rahmadani et al., 2024). Although digital media offers visual appeal, these approaches tend to be one-way and minimize physical interaction between students. On the other hand, puzzle-based learning has been shown to be effective in stimulating problem-solving and collaboration skills because it gives students the freedom to complete tasks independently (fathurrahman et al., 2024). However, guidance and counseling research specifically developing physical manipulative media in the form of group puzzle games to train cognitive and affective empathy collaboratively is still very limited (Muharammah et al., 2024). Therefore, this study fills this gap by presenting a conceptual medium that combines psychomotor, spatial, and direct social discussion activities.

The uniqueness of this research lies in the development of the Empathy Puzzle media, which is integrated into content mastery services in the field of personal-social guidance. Unlike conventional puzzles, this media is contextually designed based on visual fragments of students' everyday social situations, complete with a teacher's guidebook and Student

Worksheets (LKS). The logical flow refers to the synthesis of the theories of Carl Rogers and Martin Hoffman. Through this media, students actively construct fragments of events, identify character emotions, discuss conflicts, and practice prosocial responses directly. In crossword puzzle games, players can use their own methods to complete missions/tasks (fathurrahman et al., 2024). Table 1 presents the social scenarios. The selection criteria for the five scenarios are based on the frequency of interpersonal conflict and the empathy aspects they represent.

Table 1 Social scenarios and the Empathy aspects represented

Social Scenario	Selection Criteria (Practical Urgency)	Represented Competencies/Aspects of Empathy
Crying friend	Responding to other people's sad responses in class.	Affective Empathy : <i>Emotional responsiveness</i> (sensitivity to feeling other people's sadness).
Teasing behavior	Addressing the increasing number of cases of mild verbal bullying between friends	Cognitive Empathy : <i>Perspective-taking</i> (understanding the negative impact of words on other people's feelings).
Helping a friend who has fallen	Stimulate spontaneous prosocial actions during physical activity.	Affective & Behavioral Empathy : <i>Prosocial distress response</i> (the urge to alleviate the physical suffering of others).
Apologize	Resolving interpersonal conflicts after making a mistake.	Cognitive Empathy : <i>Self-awareness</i> and recognition of one's own perspective biases towards others.
Helping with learning difficulties	Building a culture of inclusivity and academic collaboration in the classroom.	Behavioral Empathy : <i>Altruism and caring</i> (social concern in the cognitive realm of groups).

This Empathy Puzzle media is contextually designed using five main social scenarios: a crying friend, teasing behavior, helping a fallen friend, apologizing, and helping a friend experiencing learning difficulties. The selection criteria for these five scenarios were based on the highest frequency of interpersonal conflict occurrences found during preliminary studies in elementary schools, as well as their relevance to the social development tasks of children at the concrete operational age according to Piaget. Each scenario is logically integrated to represent indicators of empathy competence according to the synthesis of Martin Hoffman and Carl Rogers' theory, which includes cognitive (perspective taking) and affective (emotional response) aspects.

Based on the gaps and innovations offered in this study, the purpose of this study is to analyze the results of the needs test, describe the prototype specifications, and evaluate the feasibility (validity) and practicality of the Empathy Puzzle game media to train empathy in elementary school students. This study is expected to provide theoretical contributions to the innovation of guidance and counseling media as well as valid practical solutions for elementary school teachers.

B. Method

This research uses a level 1 research and development (R&D) approach. (Sugiyono, 2013) The development model applied is the 4-D model (Define, Design, Develop, Disseminate) proposed by Thiagarajan. In accordance with the limitations of level 1 R&D, this research process is limited to the Develop stage (feasibility test and practical test), without conducting the Disseminate stage. This research was conducted at SD Negeri 106153 Medan in class VI Semester 1 in 2026.

The working procedures in this research are arranged systematically following the stages of the modified 4-D model, as follows:

- a. Definition: Conducting a needs analysis of guidance and counseling services related to empathy skills and identifying the actual characteristics of elementary school students in understanding other people's feelings and points of view.
- b. Design: Designing the initial product (prototype) of the Empathy Puzzle game media which includes determining the shape, board size, visual illustrations, color composition, number of pieces, designing a user guide, reflection sheet questions, and product feasibility assessment instruments.
- c. Development: Validating the product by media experts and material experts, revising the initial product based on suggestions and input from the validators, and testing the revised product on sixth grade teachers and students to see its level of practicality.

Tools and Materials (Media Components)

The implementation of the intervention in this study was supported by a number of integrated tools and supporting materials. The media components of the Empathy Puzzle game are detailed in Table 2:

Table 2 Components of the Empathy Puzzle game media

No	Media Components	Practical Functions
1.	Empathy Puzzle Media	The main visual media to stimulate student empathy
2.	Whiteboard	A means of delivering introductory material and game instructions.
3.	Guidebook	Teaching guidelines for teachers in operating media.
4.	Student Worksheets (LKS)	Group discussion guide sheet to document students' thinking.
5.	Stationery	Tools to help students fill out LKS and reflection sheets.

6. Reflection Sheet		Instrument to assess students' independent interpretation results after playing.
7. Teacher Questionnaire	Response	A measuring tool to assess the practicality of media use from an educator's perspective.
8. Student Questionnaire	Response	A measuring tool for practicality and psychological response from the student perspective.

Game Flow : Students are divided into small groups of 4–6 children. In turns, students compose visual pieces of social situations (such as helping a friend in trouble or visiting a sick friend), discuss the conflict in the picture, identify the character's emotions on the worksheet, and conduct guided reflections with the teacher. Data Collection Techniques and Instruments: Research data were collected through a combination of observation, interview, and questionnaire distribution methods. Measurement of the level of feasibility used a validation questionnaire from material experts and media experts with a 4-level Likert scale format (score 1: very inappropriate to score 4: very appropriate). Meanwhile, the product's practicality test used a teacher and student response questionnaire compiled using a 5-level Likert scale (score 1: very disagree to score 5: very agree) referring to the provisions of Azwar (2015).

Data Collection Techniques and Instruments

To provide a valid basis for the Define stage, an initial needs analysis questionnaire was distributed to 20 sixth-grade students and 2 class teachers at Medan State Elementary School 106153. The determination of this needs instrument is described through the following operational parameters to ensure data accountability:

- a. **Indicator Grid:** The instrument is structured based on the social developmental tasks of children at concrete operational age (Piaget's theory) and Martin Hoffman's cognitive-affective empathy indicators. The aspects measured include the ability to identify others' emotions, refrain from teasing, and the availability of concrete guidance media at school.
- b. **Measurement Scale & Validation** : The questionnaire uses the Guttman Scale (a clear "Yes"/"No" choice) to definitively capture the presence of need indicators. The content validity of this instrument was tested through expert judgment by a guidance and counseling expert and was declared valid before distribution.
- c. **Individual Item Variation Analysis Needs** : In accordance with the principle of reporting item variation, the initial quantitative results show fluctuations in scores per item. The cumulative average of students' perspective-taking ability of 52.5% is driven by the fact that students' low individual scores in refraining from teasing peers (only 45%). Meanwhile, the accumulated percentage of media needs of 66.30% stems from very high individual scores (85%) on the item stating that students need concrete-manipulative media for group play.

Data Analysis Techniques

Data analysis was carried out using a combination of qualitative and quantitative techniques:

- a. Qualitative Data: Data from initial interviews with class teachers were summarized, presented in descriptive narrative form, and then conclusions were drawn to formulate basic media needs.
- b. Quantitative Data: Score data from the expert validation questionnaire and the practicality response questionnaire were calculated as percentages using the following frequency distribution formula:

$$p = (F/N) \times 100\%$$

Where p is the percentage of the feasibility/practicality value, F represents the total empirical score obtained from respondents, and N represents the total maximum score of all instruments. The final result of the percentage value p is then converted into five categories of product feasibility levels based on Nur'aini's (2025) criteria:

Table 3. Criteria for the Level of Feasibility and Practicality of Products

Percentage	Criteria	
0% - 20%	Totally not worth it	The product was substantially rejected and had to be completely redesigned from scratch.
21% - 40%	Impossible	The design structure is less adaptive and requires a fundamental conceptual overhaul before re-testing.
41% - 60%	Pretty good	The product requires partial reconstruction and modifications to both content and media readability aspects.
61% - 80%	Worthy	Functional product for BK services, but requires minor revisions on indicators that score below average.
81% - 100%	Very worthy	The product meets comprehensive theoretical and practical feasibility standards and is ready to be implemented without revision.

Source: Nur'aini (2025)

Methodological Justification for Selection of Criteria and Thresholds

The threshold division with a symmetrical interval of 20% according to Nur'aini (2025) was chosen because it has high sensitivity in separating the qualifications of development products. In Level 1 Research and Development (R&D), the main focus of research is to test the accuracy of the theoretical structure (material) and the usability of the design (media usability) before the product is mass validated. The lower threshold of 81% as the "Very Feasible" category provides strict scientific assurance that the developed product has achieved high consistency of interpretation in the eyes of experts (dominant score of 4 on the Likert scale). Conversely, the limit of 60% and below is a strong methodological alarm that the product has structural defects that are risky if tested directly on elementary school students.

Anticipating the Weaknesses of the Single Percentage Score

The use of a single cumulative percentage score has an inherent weakness, namely that it can hide extreme value variations or biases where one very low-scoring item is overshadowed by another very high-scoring item. To anticipate this bias and ensure data objectivity, the researcher applied a technique of analyzing the distribution of deviations per item (individual item analysis) before the accumulation of the total percentage (p) was carried out. Through this procedure, each indicator item was assessed for its score distribution descriptively. If a crucial item was found to have a score below the minimum feasibility threshold (e.g. <61%), the item must be isolated for revision based on the validator's suggestions, even if the total accumulative score of the product was in the "Very Feasible" category (>81%). This two-pronged approach (accumulative and individual) ensured that the final results of 91.07% (media experts) and 93.75% (subject experts) reflected an even quality across all aspects of the Empathy Puzzle components.

Methodological Conclusion Initial Needs

Methodological conclusions at the Define stage, the application of the principle of item variation decomposition successfully underpinned the urgency of empirical product development. Based on questionnaires distributed to 20 students and 2 teachers, a rich data distribution dynamic was found:

- a. The average cumulative students' perspective-taking ability of only 52.5% was driven by the low individual ability of students to restrain themselves from teasing their peers (item score was only 45%).
- b. On the other hand, the accumulated percentage of media needs of 66.30% stems from the very high individual score (85%) on the item of student preference for the use of concrete physical manipulative tools for group play.

The combination of the distribution of quantitative data from individual items provides a valid, objective, and transparent methodological conclusion that the development of the Empathy Puzzle media has a strong foundation of real needs in elementary schools.

C. Findings and Discussion

1. Findings

Needs Analysis Description The development of the Empathy Puzzle media began with a problem needs analysis and media needs analysis at SD Negeri 106153 Medan. Based on the results of initial observations and interviews with sixth-grade teachers, it was identified that some students still had difficulty understanding other people's feelings, tended to be egocentric, and were prone to engaging in minor conflicts such as teasing friends. In addition, the class teacher had never integrated a special interactive game media focused on student empathy training. Needs data was strengthened by distributing questionnaires to sixth-grade students that covered several dimensions of analysis. The results of quantitative data processing from the student needs analysis and media needs are presented in Table 4:

Table 4. Quantitative Results of Student Needs and Media Analysis

No	Needs Analysis / Dimension	Yes Choice (%)	No choice (%)	Information
1.	Ability to Recognize Emotions	65%	35%	Need visual media for everyday emotional expression.
2.	Caring for Others	75%	25%	Students want to learn to help their friends.
3.	Understanding Point of View (<i>Perspective Taking</i>)	52.5%	47.5%	Lowest ability, really needs practice.
4.	Ability to Respond and Assist	95%	5%	High enthusiasm to be actively involved.
5.	BK Service Media Needs	50%	50%	The need for alternatives to verbal explanations.
6.	Interest in Puzzle Games	77.5%	22.5%	Puzzles are considered interesting for elementary school students.
7.	Effectiveness of Learning Through Games	77.5%	22.5%	Games help concrete visualization.

Overall, the average cumulative data shows that 66.30% of students stated that they need interesting, interactive, and concrete learning media to train their empathy in groups in class.

Empathy Puzzle Media Prototype Description

Based on the needs description, an initial product prototype of the Empathy Puzzle media was designed using graphic design applications before being physically printed. This printed media prototype was designed based on children's concrete operations using

integrated physical components. The initial product components consist of: The initial prototype of *the Empathy Puzzle media* was designed using a graphic design application before being physically printed into an adaptive concrete-manipulative media for elementary school students. The components of this integrated initial product consist of: (1) Puzzle base made of thick laminated gray board, (2) Instructional whiteboard, (3) Teacher's teaching guide book, (4) Group Student Worksheets (LKS), (5) Stationery, (6) Independent reflection sheets, (7) Teacher response questionnaire, and (8) Student response questionnaire. To trigger students' psychological processes sequentially, the media visualization focused on five contextual social scenarios. An operational matrix connecting the visual puzzle scenario, the targeted empathy components (based on a synthesis of Martin Hoffman and Carl Rogers' theories), and the expected behavioral responses of students is presented explicitly in Table 5:

Table 5. Puzzle Scenario Matrix, Empathy Components, and Student Response Expectations

Social Scenario	Targeted Empathy Components/Dimensions	Expected Student Response Expectations (Behavioral Indicators)
Crying friend	<i>Empathic Distress / Emotional Responsiveness</i> (Affective Empathy)	Students are able to recognize expressions of sadness, express feelings of caring , and demonstrate spontaneous emotional sensitivity.
Teasing behavior	<i>Perspective-Taking</i> (Cognitive Empathy)	Students are able to see the negative impact of teasing from the victim's perspective, refrain from aggressive behavior, and manage their egotistical bias.
Helping a friend who has fallen	<i>Prosocial Distress Response</i> (Empathy Behavior)	Students actively take the initiative to help physically, share space/attention, and alleviate the objective suffering of others.
Apologize	<i>Self-Awareness & Cognitive Realignment</i> (Cognitive Empathy)	Students are able to recognize their interpersonal mistakes, lower their personal ego, and express sincere regret verbally.
Helping with learning difficulties	<i>Altruism & Collaborative Empathy</i> (Behavioral Empathy)	Students demonstrate an inclusive commitment to helping each other complete academic assignments collaboratively in class.

Results of the Media Feasibility and Practicality Test

Quantitative data output from the *Develop stage* is obtained through two main parameters, namely assessment of theoretical validity by experts and usability by users in the field:

Validity Test of Eligibility :

The feasibility test was conducted through assessments by media experts and relevant field experts to ensure product validity before field testing. The assessments used a Likert scale format of 1–4. A summary of the feasibility assessment results from both validators is presented below.

- a. **Material Expert:** The material validation was conducted by Mr. Muhammad Putra Dinata Saragi, M.Pd., which included aspects of the suitability of the content with the theory of empathy, the depth of the material, the suitability of student characteristics, and the accuracy of the objectives of the guidance service. The total empirical score obtained was 120 out of a maximum score of 128, resulting in a feasibility percentage of 93.75% with the criteria of Very Feasible. The material supervisor stated that the visual scenario had been well integrated with the cognitive and affective dimensions of empathy.
- b. **Media Expert:** Validation was conducted by BKPI lecturer, Ms. Manna Wasalwa, M.Pd., who tested the physical appearance, visuals, readability, ease of use, and safety of the product materials. The total empirical score obtained was 102 out of a maximum score of 112, resulting in a validity percentage of 91.07% with the criteria of Very Eligible. The validator's input included replacing raw materials to be thicker, harmonizing color saturation, and providing an ergonomic product storage box (hard box).

The assessment from the material expert obtained a score of **93.75%** and the media expert reached **91.07%**. Based on Nur'aini's (2025) conversion criteria, both scores are in the range of 81%–100% with the qualification **"Very Eligible"**.

Practicality Test of Usability :

The practicality response questionnaire from the class teacher produced a score of **92.59%**, while the psychological and technical response questionnaire from the sixth grade students produced a score of **94.46%**. **Referring to Nur'aini's standardization (2025), this data is in the "Very Practical" qualification.**

Discussion

Interpretation of Initial Needs Analysis for Media Development

The high cumulative demand for new media by students, at 66.30%, reflects a serious problem with the personal-social delivery model in schools. Guidance services at Medan State Elementary School 106153 have been dominated by abstract, one-way lectures, even though, according to Piaget's theory, the cognitive development characteristics of elementary school-aged children absolutely require visualization.

Critically, the findings of individual item quantitative data prove that the perspective-taking aspect (understanding other people's perspectives) is the lowest ability of students, which only reaches 52.5%. This gap underlies the urgency of designing physical manipulative media with a group puzzle structure. Puzzle toys act as operational stimuli that force students to move beyond the limits of childhood egocentrism towards decoding interpersonal emotions. The results of this needs analysis are in line with the 4-D model development framework which emphasizes that early identification of learning barriers and characteristics of target subjects are the main determinants of the success of educational product design (Alghiffari et al., 2024).

Conceptual Feasibility of the Empathy Puzzle Prototype Based on Expert Assessment

The achievement of material feasibility validity of 93.75% and media of 91.07% from experts confirms that this product is qualified as "Very Feasible" according to Nur'aini's criteria (2025). These results validate that conceptually-theoretically, the Empathy Puzzle prototype is mature enough to be followed up as a personal-social guidance tool. The integration of 5 contextual social scenarios in the puzzle such as responding to a crying friend, teasing behavior, to helping with learning difficulties accurately represents the cognitive and affective dimensions of empathy that children need.

The high material feasibility score (93.75%) indicates that the visual content in the puzzle pieces is able to trigger prosocial responses logically referring to the synthesis of Carl Rogers and Martin Hoffman's theories. From the media aspect (91.07%), the selection of thick, laminated gray cardboard material is considered safe, attractive, and appropriate to the ergonomic aspects of elementary school-aged children's motor skills. The post-validation product modification process, such as strengthening the thick cardboard material and adjusting the color contrast, successfully optimized the practical function of printed visual game media in schools. This confirms the theory of product quality, which states that valid educational media must simultaneously meet the aspects of substantial theoretical feasibility and visual technical feasibility to be safe for repeated use by children (Putri & Firman, 2024).

Operational Practicality of Media Use in the Field

In the realm of field usability, user response data yielded a very high practicality score, namely 92.59% from class teacher responses and 94.46% from student response questionnaires. This figure above 81% indicates a "Very Practical" qualification. The high percentage of student responses (94.46%) critically proves that the small group game flow (4–6 children) combined with filling out Student Worksheets (LKS) and guided reflection can run independently and easily operated without significant technical constraints. Group activities consisting of 4–5 children stimulate meaningful social interactions and foster active listening skills among peers. This active engagement reinforces previous experimental findings that the restructuring of children's social-emotional behavior can be optimally achieved when the internalization of values is transmitted through fun and interactive experiential learning methods (Cantika & Ilhami, 2025; Winangsih et al., 2018).

Teachers considered this media practical (92.59%) because the teaching guidebook provided clear instructional directions, making it easier for educators to manage the dynamics of children's social conflict discussions after the puzzle pieces were successfully put together.

Contextualization of Findings with Previous Empirical Studies

The research findings regarding the high practicality of using this group game media are strongly supported by a previous empirical study conducted by Fathurrahman et al. (2024), which emphasized that puzzle-based learning provides independent exploration space for children to complete missions collaboratively. This active involvement in assembling pieces of real-life situations is in line with the premise of Hutauruk and

Panjaitan (2022) and Muktamar (2023) who stated that cultivating children's social-emotional intelligence requires concrete interactive instruments that replicate everyday life scenarios in a guided manner. Conversely, there is a difference in the direction of the findings when the results of this physical manipulative media study are compared with contemporary research trends oriented towards digitalization (such as game-based learning or one-way digital visual media) reviewed by Rahmadani et al. (2024). Although digital media offers sophisticated graphic automation, this approach has an inherent weakness in the form of reducing physical-spatial social interactions in the real world. Empathy Puzzle media critically addresses this weakness; By using physical media, students are required to exchange picture pieces directly, negotiate verbally, and discuss character emotions face to face.

Research Limitations and Redefinition of Quality Claim Boundaries

This research was designed under the Research and Development (R&D) Level 1 corridor, which limits the research cycle to the Develop stage (expert validation and small group practicality testing) without conducting the Disseminate stage (widespread distribution). Methodologically, this research has not tested the empirical effectiveness of the media in increasing students' empathy levels because it does not involve a pre-test and post-test experimental design. Therefore, any statements in the initial manuscript claiming that this media has "been proven effective in developing empathy" must be annulled to maintain scientific objectivity. The limited focus of the research subjects on Medan's 106153 Public Elementary School means that this media cannot be generalized to the characteristics of a wider elementary school population. Therefore, a conceptual framework for further research needs to be directed at testing the effectiveness of this media through a quantitative experimental design approach and exploring the digitalization of interactive platform-based puzzles for wider access. (Muharammah et al., 2024).

Current quantitative data evidence (material feasibility score of 93.75%, media 91.07%, teacher practicality 92.59%, and student 94.46%) purely indicates the feasibility of conceptual design and operational practicality of media use, not the efficacy of behavioral change. This limitation is a critical note; Empathy Puzzle has only been proven valid as a ready-to-use stimulation tool, while proving its clinical effectiveness requires further intervention in the form of quasi-experimental research in the future.

E. Conclusion

The Empathy Puzzle media development research at Medan 106153 Public Elementary School successfully addressed the real needs of sixth-grade students who previously experienced socio-psychological barriers in perspective-taking. The students' inability to let go of their egos for the sake of understanding others' perspectives, as evidenced by the lowest empirical achievement of 52.5% in the preliminary study, became a key indicator of the urgency of overhauling guidance media in schools. This fact confirms that the conventional method of delivering guidance and counseling services in the form of lectures and one-way verbal advice has lost its operational relevance in facing higher-grade students who cognitively require concrete-manipulative stimulation.

The Empathy Puzzle prototype successfully transforms the abstract multidimensional concept of empathy based on the synthesis of Carl Rogers and Martin Hoffman's theories into a series of visual pieces of social situations close to children's daily lives. Through a 4-D development model limited to the Develop stage, the game's mechanical structure is designed as an experience-based learning platform that stimulates a dynamic group empathetic caring response. Academic feasibility testing and field practicality testing resulted in very high consistency in achieving quantitative metrics. This product achieved a feasibility validity percentage of 93.75% from material experts and 91.07% from media experts, as well as a practicality level of 92.59% from class teacher responses and 94.46% from sixth grade students' responses. These quantitative data confirm that the developed product meets the standards of theoretical feasibility and operational practicality optimally, so that it has a mature guidance curriculum substance ready for implementation.

The main advantage of this physical media lies in its ability to encourage offline interpersonal communication to trigger critical dialogue and formulate pro-social solutions face-to-face amidst the trend of decreasing children's social sensitivity due to exposure to gadgets. Methodologically, this study purely proves the level of validity of the design and usability (practicality) of the media, not to test its empirical effectiveness in increasing students' empathy scores directly, considering the absence of experimental trials within the scope of this Level 1 R&D.

Based on the results achieved, the prospects for practical application and future scientific development are directed to two main lines:

- a. Practical Recommendations in Schools The Empathy Puzzle media is recommended for formal adoption by classroom teachers and Guidance and Counseling (BK) teachers as a complementary instrument to classical personal-social services. This manipulative tool is ready to be used to support the success of the Character Education Strengthening (PPK) program at the elementary school level on an ongoing basis.
- b. Scientific Recommendations for Future Researchers
 - 1) Clinical Effectiveness Testing: Future researchers are expected to expand the usefulness of this research by empirically testing its impact on increasing student empathy through the application of Quasi-Experimental Design or True Experimental Design involving a control group and a more heterogeneous school population.
 - 2) Digitalization Innovation: Along with the demands of global digitalization, the transformation of physical media into interactive digital puzzle games (digital empathy puzzles) based on web or mobile applications is a promising innovation prospect to achieve wider service accessibility.

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