

Introducing Animals Through *Tiny Tracks*

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ABSTRACT

Keywords:
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This study aims to develop an interactive learning media titled "Introducing Animals through Tiny Tracks" designed for children with Down Syndrome. The media takes the form of a digital game that can also be applied manually on a board, where students are encouraged to recognize types of animals based on specific categories such as pets, poultry, and wild animals. The research adopts the 4D development model (Define, Design, Develop, and Disseminate). The results show that Tiny Tracks was rated as highly feasible by media and material experts, with an overall average score of 8 out of 10. The assessed aspects include readability (8), visuals and form (9), instructions (7), color (8), and thematic suitability (8). The media was found to be engaging, easy to use, and effective in helping children with Down Syndrome understand the basic concept of animal classification. These findings indicate that Tiny Tracks has strong potential as an interactive and inclusive learning media supporting educational goals for children with special needs.

INTRODUCTION

Education for children with special needs requires a different approach compared to that for typical students. Children with Down Syndrome have unique cognitive and motoric development characteristics, making it essential to use learning methods that accommodate their needs. One effective strategy to increase learning engagement is through interactive media that combine visual elements, color, and simple motor activities.

Educational games are among the most attractive tools for thematic learning. In the context of introducing animals, *Tiny Tracks* is designed to help students learn to recognize different types of animals in a fun and interactive way. Through the activity of attaching animal pictures to their corresponding categories on a game board, children can learn to identify shapes, colors, and animal classifications in a simple and engaging manner.

This research is significant because inclusive learning media specifically designed for children with Down Syndrome are still rarely developed. Furthermore, it demonstrates how simple technology such as interactive games can be adapted for manual application, ensuring flexibility in inclusive school environments. Therefore, this study aims to develop and assess the feasibility of *Tiny Tracks* as an educational media for introducing animals to children with Down Syndrome.

The objectives of this study are to:

- 1) Develop an interactive learning media *Tiny Tracks* that is easy to use for children with Down Syndrome;
- 2) Determine the feasibility level of the media based on expert validation results.

RESEARCH METHOD

This study employs a descriptive method with a 4D development model consisting of *Define, Design, Develop, and Disseminate*. The descriptive approach was used to provide a detailed explanation of each stage of development to ensure that the final media

productw truly meets the learning needs of children with Down Syndrome and is suitable for use in inclusive education environments.

The development process involved four main stages:

1) Define Stage

At this stage, a needs analysis was conducted through observation of the characteristics of children with Down Syndrome, particularly regarding cognitive abilities, visual perception, and fine motor skills. The analysis revealed that children with Down Syndrome require simple, colorful, and easy-to-understand visual media. Additionally, teachers need flexible and easy-to-use media during teaching activities.

2) Design Stage

Based on the analysis results, the researcher designed the *Tiny Tracks* game in the form of an interactive board. The media contains animal images that can be attached and removed using Velcro, accompanied by category labels such as pets, poultry, and wild animals. The colors and illustrations were designed to be visually appealing, while the game instructions were written in clear and concise language suitable for both children and accompanying teachers.

3) Develop Stage

After completing the initial design, the researcher created a prototype and conducted validation tests with media and material experts. The validation used an assessment sheet covering aspects such as readability, visuals and form, instructions, color, and thematic suitability. Feedback from the experts was used to improve the weaknesses before dissemination.

4) Disseminate Stage

After revision based on expert feedback, the *Tiny Tracks* media was introduced to teachers and observers in inclusive education environments to obtain preliminary responses regarding its usefulness, effectiveness, and classroom implementation potential.

This research did not directly involve children with Down Syndrome in the testing phase but focused on expert validation to ensure the product's feasibility before classroom application.

RESULTS AND DISCUSSION

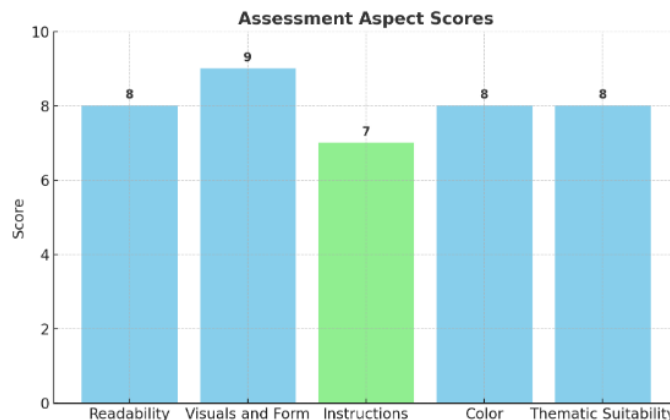
The *Tiny Tracks* media was successfully developed as an educational visual-based game to help children with Down Syndrome recognize animals. Validation was carried out by two experts, media and material experts.

The validation results showed an overall average score of 8 out of 10, which falls into the "highly feasible" category. The detailed assessment results are shown below:

Table 1. Validation Results of "Tiny Tracks" Learning Media

Assessment Aspect	Score	Category
Readability	8	Highly Feasible
Visuals and Form	9	Highly Feasible
Instructions	7	Feasible
Color	8	Highly Feasible
Thematic Suitability	8	Highly Feasible

Figure 1. Bar Chart of “Tiny Tracks” Validation Results
(The chart illustrates scores per aspect: Readability 8, Visuals 9, Instructions 7, Color 8, Theme 8)



The assessment results indicate that *Tiny Tracks* features attractive visuals, is easy to understand, and aligns with the characteristics of children with Down Syndrome. The use of contrasting and cheerful colors effectively draws students' attention, while simple and clear animal illustrations minimize confusion.

The instruction aspect received a slightly lower score (7), as some directions needed to be simplified for easier understanding by teachers and students with cognitive limitations. Overall, *Tiny Tracks* proved to be effective in helping children with Down Syndrome build a basic understanding of animal recognition and classification. The media also supports thematic learning that emphasizes direct experience and active participation of students.

CONCLUSION

Based on the research findings and expert validation, the “*Introducing Animals through Tiny Tracks*” learning media is declared highly feasible as a learning aid for children with Down Syndrome. This media provides an enjoyable, interactive, and easily understandable learning experience.

Furthermore, *Tiny Tracks* represents an innovative inclusive learning tool that can be adapted both digitally and manually (as a board game), making it flexible for various learning environments. This research is expected to serve as a foundation for developing similar media in special education and thematic learning contexts.

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