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Development of an Instrument for the Early Detection of Intellectual Retardation in Children: A Comprehensive Approach for Parents

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ABSTRACT

This research aims to develop an instrument for the early detection of intellectual delay in children that can be used practically by parents. The instrument is designed to evaluate various aspects of a child's development, including communication, adaptive and maladaptive behavior, flexibility, imagination, pre-academic abilities, independence, motor, and sensory. The process of developing this instrument involves Focus Group Discussions (FGD) with experts and caregivers of children with special needs, as well as research methods that include observation, commands, and direct interviews to obtain comprehensive input. Through this stage of development, the instrument has experienced a significant improvement from initially only measuring 8 main variables to 9 main variables, with the addition of more detailed and in-depth assessment items. This addition reflects the need to monitor various dimensions of child development in a more holistic and detailed way. The results of this study show that the developed instrument not only increases the number of variables measured but also improves the quality and accuracy of assessment. This instrument is designed to make it easier for parents to detect children's developmental delays early, allowing intervention actions to be carried out more quickly and effectively. With this tool, it is hoped that parents can make a more precise evaluation of their child's development and identify specific and appropriate intervention needs. In conclusion, this instrument offers a practical and comprehensive solution to detect developmental delays in children, support the early detection process, and encourage more precise and targeted treatment. This research makes an important contribution to the development of early detection tools that can improve the quality of handling and support for children with special needs.

Keywords: Early detection instruments, Intellectual delays, Child development, Developmental assessment

INTRODUCTION

The development of this intellectual delay early detection instrument is motivated by the need to provide an effective tool for parents in identifying potential developmental delays in children. This instrument is designed to assist parents in understanding and monitoring children's development, especially in aspects of communication, behavior, and academic ability¹.

Intellectual delay is a condition that affects an individual's ability to function

adaptively in daily life². According to data from the World Health Organization (WHO), about 1-3% of the child population experiences intellectual delays, which can have a significant impact on their social, emotional, and academic³. In Indonesia, the prevalence of intellectual retardation also shows alarming numbers, with many children not being identified and not getting the right interventions⁴. According to recent research, children with intellectual delays often face a variety of challenges, including difficulties in motor,

sensory, and independence abilities. A study by Gans et al. (2008) showed that children with intellectual delays have difficulties in participating in daily activities, such as dressing and interacting with peers⁵. In addition, research by Neece (2014) revealed that factors such as family environment, education, and access to health services contribute to the development of intellectual retardation⁶.

Although many studies have been conducted, there is still a gap in understanding the factors that inhibit the development of children with intellectual delays⁴. Many parents and educators do not have enough knowledge on how to identify and deal with these delays. This causes many children not to get the support they need to reach their potential. In addition, the lack of comprehensive data on prevalence and effective interventions in various cultural contexts is also a challenge in this study. Along with increasing awareness of the importance of early intervention, attention to intellectual delays has increased in recent years. However, despite efforts to improve detection and treatment, many children are still missed in the identification process. This is due to social stigma, lack of training for educators and health professionals, and limited access to adequate services⁷.

To address this problem, a comprehensive approach is needed that includes increased awareness among parents, educators, and the public about the signs of intellectual retardation. Training for educators and health professionals is also essential to improve their ability to identify and provide appropriate interventions⁸. In addition, the development of evidence-based intervention programs and better health service accessibility will be very helpful in supporting children with intellectual delays⁹. By understanding the empirical conditions, research problems, problem chronology, and existing solutions, this article aims to provide deeper insights into the identification and management of

intellectual delays in children, as well as the factors that affect their development¹⁰.

The formulation of the problem in this study is how to develop an instrument for the early detection of intellectual delay in children that can be used practically by parents, and is able to measure various aspects of child development accurately and comprehensively. The novelty of this study develops an early detection instrument for intellectual delay that is specifically designed for use by parents. This instrument not only includes the assessment of aspects of communication and adaptive behavior, but also adds new variables such as imagination, flexibility, and pre-academic ability.

This expands the scope of evaluation and provides a more comprehensive detection tool, which was previously not widely available in an easily accessible and practical form for the general public. The state of the art of this research includes programs that incorporate multidisciplinary approaches, including social and emotional support, showing better results. In addition, the use of technology in education has also begun to be adopted to support the learning of children with intellectual delays¹¹. Thus, the state of the art in this article highlights the importance of a holistic and evidence-based approach to the identification and management of intellectual retardation, as well as the need for collaboration between different parties to support the development of affected children.

RESEARCH METHOD

This study uses a research and development (R&D) method that involves the development of observation-based, command-based, and interview-based instruments¹². The instrument was developed to identify intellectual delays in children through direct interaction with parents and children. The subjects in this study were children with special needs and their parents, who were observed to determine the presence of intellectual

delays. In addition, experts from the field of special education were also involved in the FGD to improve instrument¹³.

The main variables measured were delays in various aspects of development, such as communication, behavior, flexibility, imagination, pre-academic ability, independence, motor, and sensory. The instrument used in this study is the result of development in the form of a questionnaire involving aspects of developmental delays. Each aspect was assessed based on the results of observation and direct interaction between children and parents¹⁴. Data collected from observations and interviews were analyzed descriptively. The results were used to assess whether the child experienced delays in certain aspects based on the

assessment score given to each variable measured¹⁵.

RESULT AND DISCUSSION

The development of this intellectual delay early detection instrument has succeeded in creating a comprehensive tool that is easy for parents to use. With this instrument, it is hoped that parents can be more proactive in monitoring and supporting children's development, as well as take the necessary steps if signs of delay are found.

The development of an instrument for the early detection of intellectual retardation in children resulted in some significant key findings, as shown in the table below.

Table 1. Results of instrument development

No	Variable	Result
1.	Increase in the Number of Variables Measured	The instrument developed has increased from 8 main variables measured in the initial version to 9 main variables in the final version. The addition of these variables reflects efforts to evaluate more relevant and crucial aspects of child development
2.	Addition of Assessment Items	With the addition of variables, there is also the addition of more detailed assessment items for each variable. These new items are designed to measure specific aspects of each variable in more depth, providing a more accurate picture of a child's development.
3.	Improved Quality and Accuracy of Assessment	Changes and additions to these assessment items improve the quality and accuracy of the instrument in detecting developmental delays. The newly developed instrument is able to more precisely identify areas that need attention and intervention, compared to previous instruments
4.	Functionality for Parents	This instrument is designed to make it easier for parents to assess child development. With a simpler display and the addition of clear instructions, parents can use this instrument more easily to identify developmental delays in their children
5.	Feedback from Caregivers and Experts	The feedback obtained during the Focus Group Discussion (FGD) shows that this instrument is more relevant and useful than the previous version. Caregivers and experts appreciate the additional details that allow for a more holistic

No	Variable	Result
		evaluation of the child's development
6.	Conformity with Practical Needs	The developed instrument is considered to be in accordance with the practical need for early detection, and can be used effectively by parents to conduct an early assessment of a child's development. It helps in making early and targeted interventions

These results show that the development of the instrument has succeeded in producing a more comprehensive, accurate, and practical tool for detecting intellectual delays in children. This instrument can be used routinely by parents and educators to monitor children's development. In addition, it is necessary to conduct training for parents and teachers on how to use this instrument in order to provide optimal results. The development of this instrument not only provides a detection tool, but also raises awareness among parents and educators of the importance of early intervention in supporting child development.

The development of an instrument for the early detection of intellectual delay in children is an important step in improving the effectiveness of early detection and intervention. This discussion will outline some of the key aspects of the development of this instrument.

Addition of Variables and Assessment Items. The addition of one main variable from 8 to 9 variables in the instrument reflects an adjustment to the need for a more comprehensive evaluation of child development. These new variables provide additional scope for aspects of development that were previously not accommodated. The addition of more detailed assessment items allows for a more in-depth evaluation of each variable, aiding in the identification of delays with a higher level of detail ¹⁶.

Quality and Accuracy of Assessment. The improvement in the quality and accuracy of the assessment of the instrument results from the addition of

more specific and detailed assessment items. With more complete information, these instruments can be more effective in identifying developmental issues that simpler instruments may miss. This higher accuracy is critical to ensure that interventions can be made in a timely manner, before the problem develops more serious ¹⁷.

Functionality for Parents. The instrument developed is designed to be used by parents with the aim of making it easier for them to assess their child's development ^{6,18}. The simplicity and clarity of the instructions provided make this instrument easier to understand and implement. This is important because parents are often at the forefront of observing a child's development and can provide crucial early information ¹⁹.

Response from Caregivers and Experts. Feedback from the Focus Group Discussion (FGD) shows that this instrument meets the practical and relevant needs of caregivers and experts. Their evaluation provides validation that the instrument is effective in a real context, as well as reflecting that changes and additions are made in accordance with the user ¹.

Suitability for Early Detection Needs. This instrument has been designed with the main goal in mind, namely early detection of developmental delays. With this tool, it is hoped that parents can more quickly recognize the signs of delay and immediately seek professional help if ²⁰. Better early detection has the potential to reduce the long-term impact of

developmental delays by allowing for earlier and more precise interventions ²¹.

Implications for Further Practice and Research. The development of this instrument paves the way for better early detection practices and supports the development of further research in this area. This instrument could be the basis for additional research that could explore the effectiveness of early detection-based interventions, as well as expand knowledge about the factors that affect intellectual delay in children ²².

This discussion shows how the development of early detection instruments can improve the ability to identify and manage developmental delays more effectively, as well as their impact on future practice and research.

CONCLUSION AND RECOMMENDATION

This early detection instrument for intellectual delay developed through observation, command, and interview methods has proven to be effective in identifying various aspects of children's developmental delays, such as communication, behavior, flexibility, imagination, pre-academic ability, independence, motor, and sensory. This instrument makes it easy for parents to detect any delays with clear and measurable guidance. The results of this study make a significant contribution to early detection efforts and interventions for children with special needs, in order to improve their overall quality of life.

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