Strategy for Exploring Children's Talent by Early Childhood Teacher: Method, Constraint, and Solution

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Article Info	Abstract
	Early childhood talent exploration by Early Childhood Education (ECED) teachers is an essential challenge in optimizing children's future potential. However, teachers' methods are often insufficiently structured, with constraints regarding training, limited time, and resources. This study aims to explore the methods used by ECD teachers in researching children's talents and the constraints they face in implementing these strategies. The technique used was a qualitative approach with a case study involving in-depth interviews with 10 teachers and observations in three PAUD institutions. The results show that spontaneous observation, project-based activities, and standardized evaluation tools are the primary methods teachers implement. However, most teachers face constraints regarding lack of training, limited time, and inadequate resources. To improve the effectiveness of talent acquisition, this study suggests the importance of continuous training, increased resources, and the application of more systematic evaluation methods. The findings contribute to the development of early childhood education theory and practice and point to the need for policies that support the development of teachers' skills in identifying and developing children's talents.

1. INTRODUCTION

Exploring children's talents from an early age is one of the essential aspects of early childhood education (ECED), where childhood is considered a golden period for cognitive and emotional development (Gondiawati & Nurhayati, 2024; Karwati & Nurhayati, 2024; Nurhayati & Millenia, 2024; Taufikin & Ma'shumah, 2021). During this period, children experience rapid development that affects all aspects of their lives, from social skills to academic abilities (Bigelow et al., 2025; Ghofur & Nurhayati, 2023; Marliana et al., 2021; Nursa'adah et al., 2022). Research on early childhood giftedness has shown that effective identification and development of giftedness early in life can impact the ability to learn and interact with the world around them. Therefore, early childhood teachers are vital in exploring children's potential and talents in a systematic and research-based way (Hertzog, 2022; Kirisci & DiNgeç, 2024).

However, in the field, ECD teachers face many challenges in recognizing and developing children's talents (Matthews & Rhodes, 2020). These include the limited training teachers have, the lack of adequate evaluation tools, and the absence of clear standards for identifying children's talents. At the same time, the approach used by many teachers is still informal, relying on spontaneous observations without standardized measurement tools (Jean Gubbins & Hayden, 2021). This study aims to identify these challenges and offer research-based solutions to improve the effectiveness of early childhood talent acquisition.

The main problem in this study is the lack of training for PAUD teachers to correctly recognize and identify children's talents (Musthafa & Navaneeth, 2025). Many PAUD teachers lack the specific skills needed to recognize children's potential, which ultimately hinders their development (Shumakova, 2020; Zinovyeva et al., 2021). As a general solution, it is necessary to provide ongoing training for ECD teachers so that they can identify and develop children's talents more appropriately (Housman, 2021). In addition, using more valid and standardized methods in talent extraction is also very important to improve the quality of teaching at the ECD level.

Previous literature has proposed various approaches to enhance children's talent acquisition. For example, Renzulli & Reis (2020) suggests applying a three-ring model that integrates creativity, intellectual ability, and motivation in developing children's aptitudes. This model can help teachers identify both academic aptitude and children's creative and social aptitude. In addition, Gardner's theory of multiple intelligences also provides insight into the fact that children's talents are not limited to intellectual intelligence alone but include intelligence in various fields, such as music, art, or social skills (Borah et al., 2022; Shyamala Bharathy, 2019). Therefore, a more holistic approach to recognizing children's talents is key to creating an inclusive learning environment that supports the development of their full potential.

However, while these approaches have been widely discussed in the literature, significant research gaps remain, particularly in their practical implementation in the field. For example, there is a lack of empirical research exploring the effectiveness of different talent acquisition methods in diverse ECD settings (Haris, 2025; Myran & Masterson, 2021; Pearson et al., 2024). Previous studies have also not addressed how these methods can be adapted to various cultural and social contexts. Therefore, this study aims to fill this gap by identifying the methods used by ECD teachers to explore children's talents and analyze the constraints teachers face.

The main objective of this study is to identify the methods used by ECD teachers in exploring children's talents and analyze the challenges faced in implementing these strategies. The research questions include: (1) How do PAUD teachers explore children's talents? (2) How do teachers implementing talent exploration strategies face the obstacles? (3) How can we improve the effectiveness of exploring children's talents in PAUD? In addition, this study also aims to provide policy recommendations that can support improving the quality of early childhood education. This research is expected to significantly contribute to the development of early childhood education theory and practice, especially in terms of exploring children's talents. By filling the gaps in previous research, the results of this study can serve as a reference for educators, policymakers, and other researchers to develop more effective methods and strategies for exploring early childhood talent.

2. METHODS

This study employed a qualitative descriptive case study approach. The case study design was chosen because it provides an in-depth understanding of real-life contexts, particularly how early childhood education (ECE) teachers in different social and cultural settings explore children's talents. The use of this approach is considered appropriate since the research focused on natural classroom practices and teachers' lived experiences rather than experimental or controlled situations (Iswahyudi et al., 2023; Nurhayati et al., 2025). The research was carried out in three ECE institutions (PAUD) located in Demak District, Central Java, each representing different social and cultural backgrounds. The participants were ten ECE teachers selected through purposive sampling. The main criteria for selection were a minimum of three years of teaching experience and prior familiarity with the concept of identifying and developing children's talents. These criteria ensured that the data collected would be relevant and reliable, reflecting the realities faced by teachers in diverse contexts.

Data for the study were gathered in three forms: verbal data, behavioral data, and written data. Verbal data were obtained through in-depth semi-structured interviews with the teachers. These interviews explored their strategies, challenges, and personal experiences in identifying children's talents, while the flexibility of semi-

structured questioning allowed the researcher to probe deeper into emerging topics. Behavioral data were collected through non-participant classroom observations, during which the researcher analyzed how teachers interacted with children, identified potential talents, and responded to signs of ability during learning activities. Written data were obtained through the analysis of institutional documents, including curricula, lesson plans, and child development reports, in order to determine the extent to which these materials aligned with established theories of talent exploration. The instruments used in data collection consisted of an interview guide, an observation sheet, and a document checklist, each designed with specific indicators. The interview guide included questions related to teachers' knowledge of talent indicators, strategies applied in classrooms, challenges encountered, and examples of practice. The observation sheet focused on teachers' responsiveness to children's behaviors and their methods of recognizing potential talents, while the document checklist was used to assess the alignment between teaching materials and principles of talent acquisition.

All data were analyzed using thematic analysis based on Braun and Clarke's (2006) model, which involves six stages: familiarization with data, generating codes, identifying themes, reviewing themes, defining themes, and producing the report. The analysis was carried out inductively, allowing themes to emerge directly from the data without imposing prior theoretical assumptions. To ensure the credibility and trustworthiness of the findings, data triangulation was applied by comparing results from interviews, observations, and document analyses. Member checking was also conducted by asking participants to review and confirm the interpretations, thereby reducing bias and strengthening the accuracy of the results. The overall flow of the research followed a systematic process beginning with preparation, which included selecting sites, determining participants, and developing instruments. This was followed by data collection through interviews, observations, and document analysis. The collected data were then analyzed thematically, validated through triangulation and member checking, and finally compiled into a comprehensive report. This structured sequence ensured that the research process was rigorous, transparent, and aligned with the study objectives (Figure 1).
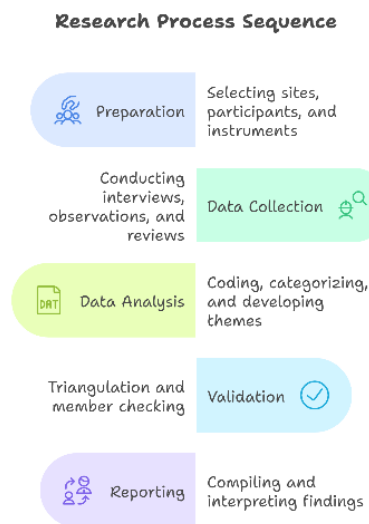

Figure 1. Research Flowchart

3. RESULT AND DISCUSSION

This section presents the findings of the study regarding the methods used by early childhood education (ECE) teachers in exploring children's talents, the obstacles they encounter, and the strategies they suggest to improve talent exploration practices. Data collected from interviews, observations, and document analysis were synthesized thematically. The results are organized into three main parts, which are methods used by teachers, constraints encountered, and strategies for improvement. Each subsection provides an analysis of the data and a discussion of its relevance to prior research.

Methods Used by ECD Teachers in Exploring Children's Talent

This research focuses on the methods used by PAUD teachers to explore children's talents. Based on interviews and observations, several methods are widely used by teachers to recognize children's potential.

First, spontaneous observation. Most PAUD teachers rely on spontaneous observation to recognize children's talents. This method is done by observing children's behavior, interests, and skills in various daily activities, both in and outside the classroom. Teacher A said something like this.

"We often pay attention to how the child interacts with props or classmates. If a child shows more interest in a particular activity, such as playing music or drawing, we will give that child more attention."

Eight out of 10 teachers interviewed stated that spontaneous observation is their main method of exploring children's talents. Teachers feel that by continuously observing children in play activities, they can easily recognize special talents or interests possessed by children.

Second, project-based activities. The second widely used method is project-based learning (PBL). Teacher B said something like this.

> "By giving projects, we can see children's talents in working together, solving problems, or even creativity in making things. This method provides space for children to develop more naturally."

Seven out of 10 teachers revealed that they often involve children in creative projects, such as making art, simple science projects, and group activities. This effective method allows children to demonstrate their skills and interests in a more open and collaborative setting.

Third, use of standardized evaluation tools. In addition to observation and project-based activities, some teachers use standardized evaluation tools, although their use is still limited. These tools, such as multiple intelligence tests, provide a more objective picture of children's intelligence in different areas. Three of the 10 teachers interviewed revealed that they are starting to try using more structured evaluation tools to deepen their understanding of children's aptitudes.

The data analysis shows that teachers predominantly used three approaches to recognize children's talents: spontaneous observation, project-based activities, and standardized evaluation tools. Spontaneous observation was the most frequently employed method, used by 8 out of 10 teachers. This finding suggests that teachers tend to rely on natural interactions and everyday classroom activities to detect children's interests and abilities. Teachers reported that observing how children engage with peers and materials during play allowed them to recognize emerging skills, such as an inclination toward art or music. This aligns with Subotnik et al. (2021), who emphasized the importance of informal, unstructured contexts in supporting talent development. Table 1 below summarizes the frequency and interpretation of the methods used by teachers in this study.

Table 1. Talent Exploration Methods Used by ECD Teachers

Methods	Frequency	Percentage	Interpretation
Spontaneous Observation	8 out of 10	80%	Teachers find spontaneous observation effective for identifying children's natural interests and talents in daily activities.
Project Based Activities	7 out of 10	70%	This activity allows children to display creativity and collaboration, allowing teachers to recognize more hidden talents.
Use of Evaluation Tools	3 out of 10	30%	The use of standardized evaluation tools is still limited, but it is an option to explore children's talents more objectively and structured.

The finding also aligns with Gardner's theory of multiple intelligences, which states that children's talents can be identified through various forms of intelligence, both seen through formal and informal learning activities, such as play and creative projects (Cicalò, 2020; Kornhaber, 2019). Spontaneous observation applied by ECD teachers can capture children's interests naturally, without formal restrictions that could limit their expression. This supports the theory proposed by Subotnik (2021) which underlines the importance of creating a supportive environment where children can develop their talents naturally through unstructured activities. Research by Renzulli & Reis (2020) suggested that teachers should be able to see and appreciate different types of talents, both academic and non-academic, and this can be done more holistically through daily observations. However, using standardized evaluation tools such as multiple intelligence tests is still limited in ECD practice. This suggests a gap between theory and practice in the field, where structured methods are still considered less important or not prioritized. In contrast to what Gagné (2023) suggested, which emphasizes the importance of using systematic evaluations in exploring children's aptitudes, this finding indicates that practice still relies on more flexible and informal approaches. To further contextualize these findings, Table 2 compares the current study with previous research.

Table 2. Comparison of Talent Exploration Methods with Previous Research

Methods	Previous Research	This Study	Similarities & Differences
Spontaneous Observation	(Gagné, 2023; Subotnik et al., 2021)	8 out of 10 teachers use spontaneous observation	Equation: Identification of children's talents through observation. Differences: Focus on daily activities rather than standardized tests.
Project Based Activities	(Renzulli & Reis, 2020; Tomlinson, 2017)	7 out of 10 teachers use creative projects to identify talent	Similarities: Use of projects for talent development. Differences: Broader application in various fields.
Use of Evaluation Tools	(Gagné, 2023; Gardner & Hatch, 1989)	3 out of 10 teachers use standardized evaluation tools	Similarities: Use of structured evaluation to identify talent. Differences: Still limited to practical application.

Constraints Faced by Teachers in Implementing Talent Exploration Strategies

In implementing the method of extracting children's talents, PAUD teachers face various constraints that affect its effectiveness. Based on interviews, some of the main constraints faced by teachers are lack of training, time constraints, and lack of resources.

First, lack of teacher training. Most PAUD teachers revealed no specific training in identifying and developing children's talents. Only 2 out of 10 teachers have attended specialized training exploring children's talents. This lack of specialized knowledge and skills is one of the main obstacles to implementing more effective methods. Teacher D explained something like this.

"We often feel inadequately trained in recognizing children's talents. The training we receive is limited to the basics of education, while talent exploration requires a more specialized approach."

Second, time limitations. PAUD teachers' limited time to observe each child individually is also a significant constraint. A total of 6 out of 10 teachers stated that they find it difficult to give sufficient attention to each child, given the large number of children in a class. This limitation reduces the opportunity for teachers to make thorough observations of children's talents. Teacher F revealed something like this.

"We have limited time to interact more deeply with children. Sometimes, we have to sacrifice our personal approach to complete the material we have to teach."

Third, resource limitations. Limited resources are also a challenge in exploring children's talents. ECD teachers revealed that they often do not have appropriate evaluation tools or supportive facilities to conduct project-based activities. Three out of 10 teachers stated that they are constrained in terms of tools and materials for creative activities, which makes it difficult for them to identify children's talents in more depth. Teacher E stated something like this.

"We want to organize more interactive and creative activities, but sometimes the limited space and materials make us limited in exploring the potential of children."

Despite using various methods, teachers face notable challenges that limit their effectiveness. Data analysis identified three primary obstacles: lack of training, time limitations, and limited resources. A majority of teachers (8 out of 10) stated that they had not received specialized training on talent exploration. This lack of expertise hindered their ability to apply more systematic approaches. Similarly, 6 out of 10 teachers highlighted the difficulty of allocating sufficient time for individual observation due to large class sizes. In addition, 5 out of 10 teachers pointed out inadequate resources such as limited teaching materials, which constrained their ability to conduct project-based activities. Table 3 presents the frequency and interpretation of these obstacles.

Table 3. Obstacles Faced by Teachers in Talent Exploration

Obstacles	Frequency	Percentage	Interpretation
Lack of Training	8 out of 10	80%	Teachers feel that they do not have specific skills in identifying children's talents, which limits the effectiveness of the talent acquisition methods used.
Time Limitations	6 out of 10	60%	Limited time is an obstacle in providing individualized attention to each child, so talent exploration is hampered.
Limited Resources	5 out of 10	50%	Lack of tools and facilities for project-based activities hinders the maximum development of children's potential.

The main obstacles found in this study were the lack of training for ECD teachers, limited time, and inadequate resources. This finding is in line with previous research showing that limited teacher training in talent recognition and learning differentiation can hinder the identification of children's talents (Shearer, 2020). This lack of training may lead to teachers' low understanding of the importance of talent exploration and the appropriate way to do it.

This is also reflected in Tomlinson's (2017) statement, which emphasizes that continuous teacher training is key to improving the effectiveness of teaching strategies, including exploring children's talents. Therefore, educational institutions must provide adequate training and resources to support teachers in recognizing and developing children's potential(Munggarani et al., 2025; Musa et al., 2024). Time limitations are also a significant constraint, as found in a study by Subotnik et al. (2021) who stated that limited time to interact with each child could reduce the opportunity for teachers to conduct in-depth observations. This limitation is also supported by the findings in this study, where 6 out of 10 teachers found it difficult to provide individual attention to children in need. To highlight connections with prior research and potential solutions, Table 4 summarizes the obstacles alongside recommendations from the literature.

Table 4. Obstacles to Talent Exploration and Solutions from Previous Research

Obstacles	Previous Research	This Study	Suggested Solution
Lack of Training	(Robinson, 2010; Shearer, 2020)	8 out of 10 teachers expressed a lack of training in talent scouting	Continuous training for teachers in identifying children's talents.
Time Limitations	(Subotnik et al., 2021)	6 out of 10 teachers find it challenging to find time for in-depth observations	Improved teacher-child ratio and more flexible learning.
Limited Resources	(Tomlinson, 2017)	5 out of 10 teachers expressed limited resources for project activities	Provision of tools and facilities to support project-based activities and evaluation.

How to Increase the Effectiveness of Children's Talent Exploration in PAUD

Teachers suggested several solutions related to training, resources, and a more systematic methodology to improve the effectiveness of extracting children's talents in PAUD. Regarding improving the effectiveness of talent search, the results of interviews and observations show that PAUD teachers suggested several steps that could be taken to improve the practice. One of them is to provide further training to teachers on more specific and research-based talent acquisition techniques. Teacher G emphasized: *"More in-depth training on theories of giftedness and how to identify it would help us to work more effectively with children."* In addition, improving facilities and infrastructure was also suggested, such as providing more tools and materials that can support children's creativity. Teacher H said: *"If we have more tools and spaces that allow children to explore their interests, we believe more talent will be unearthed."* To overcome time constraints, teachers suggested developing a more flexible schedule that provides more opportunities for interaction and in-depth observation of children. Teacher, I offered an idea: *We may need a schedule that allows more time for observations or project-based activities. This will enable us to understand the child's talents better."* In addition, integrating differentiation methods in teaching is also considered essential to give special attention to the talents and needs of individual children. Teacher J noted: *"The differentiation method allows us to tailor the material to the child's ability, so that they can develop according to their talents."*

First, continuous training for teachers. Most PAUD teachers revealed that they need ongoing training that focuses on exploring children's talents so that they can better understand the various methods for recognizing children's potential. Eight out of 10 teachers stated that they would like more intensive, research-based training on identifying and developing children's talents early on. Second, Provision of Resources and Facilities. Some teachers also suggested that PAUD institutions provide more tools and facilities to support project-based activities. This will help teachers be more creative in designing activities that can uncover children's talents. Seven out of 10 teachers emphasized the importance of supporting tools and materials to support talent-based teaching. Third, Use of More Standardized Methods. To increase objectivity in talent exploration, some teachers suggested using more standardized evaluation tools, such as multiple intelligence tests, to provide more accurate data on children's intelligence in various fields. This is expected to provide more precise guidance for teachers in determining the steps to develop children's talents. Table 5 summarizes the strategies proposed by teachers.

Table 5. Ways to Improve the Effectiveness of Talent Extraction

Solution	Frequency	Percentage	Interpretation
Continuous Training	8 out of 10	80%	Teachers need more in-depth training to identify and develop children's talents more effectively.
Resource Provision	7 out of 10	70%	Lack of facilities is an obstacle to exploring talent, so it is important to add tools and materials to the talent-based teaching process.
Use of Standardized Methods	5 out of 10	50%	Using more standardized evaluation tools will help increase objectivity in recognizing children's talents.

Improving the effectiveness of exploring children's talents can be done with several steps, such as continuous teacher training, increased resources, and the use of more systematic methods. As Renzulli & Reis (2020) stated, continuous teacher training is essential to improving teachers' skills in identifying children's talents. Teachers who have been well-trained in the theory of talent exploration will be better able to apply various methods to recognize children's potential (Kurniawati et al., 2024). Providing more resources is also an important factor. Tomlinson (2017) noted that a resource-rich environment strongly supports the development of children's talents. Therefore,

educational institutions must provide sufficient tools, facilities, and time to support project-based activities and more in-depth evaluation (Murniati & Nurhayati, 2024; Nuryanti et al., 2024; Patimah & Nurhayati, 2023). Finally, using more structured and standardized methods will also increase the effectiveness of talent acquisition. Using valid and reliable evaluation tools, such as multiple intelligence tests or portfolio-based assessments, can provide more objective data on children's potential, which in turn will help teachers plan more effective instruction. Table 6 below compares these findings with prior studies to highlight the similarities and differences.

Table 6. Solutions to Improve the Effectiveness of Talent Extraction

Solution	Previous Research	This Study	Similarities & Differences
Continuous Training	(Renzulli & Reis, 2020; Tomlinson, 2017)	8 out of 10 teachers need additional training	Equation: Teacher skill development through training. Differences: Teachers feel there is a lack of specific training.
Resource Provision	(Tomlinson, 2017)	7 out of 10 teachers want more tools and facilities for projects	Equality: Provision of resources to support learning. Differences: Focus on evaluation tools and creative projects.
Use of Standardized Methods	(Gagné, 2023; Subotnik et al., 2021)	5 out of 10 teachers use standardized evaluation tools	Similarities: Use of evaluation tools for talent extraction. Differences: Still limited to application in the field.

This study demonstrates that ECE teachers rely heavily on informal methods such as observation and project-based learning to identify children's talents. While these approaches are effective in capturing children's interests naturally, they are often limited by teachers' lack of training, insufficient time, and inadequate resources. To address these challenges, continuous professional development, improved facilities, and gradual integration of standardized methods are essential. In line with previous research, the findings highlight the need for a holistic and evidence-based approach to talent exploration that bridges the gap between theory and practice in early childhood education.

4. CONCLUSION

This study aims to explore and analyze the methods of talent acquisition used by ECD teachers, the obstacles faced in implementing these strategies, and the steps that can be taken to improve the effectiveness of talent acquisition. The results show that spontaneous observation, project-based activities, and standardized evaluation tools are ECD teachers' most frequently used methods in recognizing children's talents. However, the main obstacles teachers face are the lack of adequate training, time constraints, and insufficient resources to support the implementation of more systematic methods. To improve talent acquisition effectiveness, this study recommends continuous training for teachers, increased resources, and the use of more structured and evidence-based evaluation methods. These findings suggest that exploring children's talents in PAUD needs to be done more comprehensively, given the importance of developing children's potential from an early age. The findings emphasize the importance of the teacher's role as a facilitator who observes and provides the support needed to help children develop their talents. Therefore, more in-depth education and training for ECD teachers is needed to ensure they have sufficient skills and knowledge to identify and support children's talents more effectively and measurably. This research significantly contributes to the existing body of knowledge, especially in exploring children's talents in ECD. The results of this study can be used to design better policies in early childhood education, emphasizing the importance of teacher training and provision of adequate resources. Further research could be conducted to explore the application of more standardized evaluation methods in the ECD context and to analyze how the social and cultural context affects children's talent acquisition. Limitations of this study include the limited scope of three ECD institutions and the relatively small number of participants, which may affect the generalizability of the results to a broader level.

5. ACKNOWLEDGMENTS

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