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Identification of Young Gifted Children in Childcare and Kindergarten: A Mixed Methods Study

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ABSTRACT

Early identification of gifted children is crucial for meeting their specific developmental needs. However, early identification is complex. This mixed-methods study examined childcare workers' ($n = 42$) and kindergarten teachers' ($n = 97$) identification practices, adjustments for gifted children, and self-efficacy in identifying giftedness. Moreover, five case studies provided qualitative insights. The results indicate that kindergarten teachers, unlike childcare workers, commonly use protocols and instruments to identify young gifted children. Furthermore, kindergarten teachers had greater knowledge of the characteristics of giftedness than childcare workers. Both groups of professionals felt somewhat competent in identifying giftedness. This study highlights the need for more research on giftedness in childcare and kindergarten, the training of professionals, and materials for identifying young gifted children.

KEYWORDS

childcare; early identification; kindergarten; self-efficacy; young gifted children

Inclusivity in education demands more and more global attention (Cerna et al., 2021). Inclusive education positively impacts children's academic and long-term sociological outcomes (Kefallinou et al., 2020). To systematically enhance inclusivity in education, effective practices—including those for gifted students—must be integrated into educational policies and professional development (De Vroey et al., 2023; Kefallinou et al., 2020).

Early identification of giftedness is crucial for gifted children to have equal opportunities and develop their full potential (e.g., Huang, 2008; Wright & Ford, 2017). Appropriate educational provisions can prevent their conformation to peers (Cross et al., 2019), psychosocial or emotional problems (e.g., Kroesbergen et al., 2016; Yalim-Yaman & Bugay Sökmez, 2020), boredom (e.g., Feuchter & Preckel, 2022; Little, 2012), underachievement (Alexopoulou et al., 2019), or dropping out of school (Landis & Reschly, 2013).

Childcare workers and kindergarten teachers are key in identifying young gifted children. They continuously observe the child and gather information from parents about possible advanced development (Hertzog et al., 2018). However, not every gifted child is identified in childcare or kindergarten (Hertzog et al., 2018), partly due to the difficulty in identifying characteristics of giftedness. Children's potential does not always show in their behavior or achievements, especially in young children (Bildiren, 2018). Additionally, many professionals lack the expertise to identify giftedness (e.g., Kettler et al., 2017; Ledoux et al., 2020; Smeets et al., 2023). A study involving 254 directors of preschool facilities demonstrated that professionals experienced obstacles in identifying gifted children, such as a lack of money, time, guidance, and adequate teacher training, and conflicting beliefs or misunderstandings about gifted education (Kettler et al., 2017). Expertise in giftedness is essential in identifying characteristics of giftedness in children and improving teachers' self-efficacy (Morrissey & Grant, 2017; Starko & Schack, 1989). Self-efficacy, the belief in one's own abilities to successfully execute a task (Bandura, 1989), shapes teachers' practices in identifying and supporting gifted children (Perren et al., 2017).

Despite the importance of the early identification of giftedness, little is known about how childcare workers and kindergarten teachers identify young gifted children (e.g., Sutherland, 2011; Walsh et al., 2010). The few existing studies on identifying gifted children aged 0 to 6 are often not replicable and have small sample sizes (Walsh et al., 2012). Additionally, to the authors' knowledge, few empirical studies address this topic in the Netherlands (e.g., Mathijssen et al., 2023). Moreover, the self-efficacy of childcare workers and kindergarten teachers in identifying young gifted children remains understudied despite its potential impact on professionals' identification practices (Perren et al., 2017).

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The present study aims to gain insights into current giftedness identification practices in childcare and kindergartens in the Netherlands. This study also explores the self-efficacy of childcare workers and kindergarten teachers in identifying giftedness. This study aims to contribute to decreasing the early identification knowledge gap (Walsh et al., 2012). Moreover, these insights can be used to improve childcare workers' and kindergarten teachers' giftedness identification practices. In this study, young children are defined as 3- to 5-year-olds. Kindergarten teachers and childcare workers at childcare centers for children up to 4 years old are referred to as professionals.

Issues in identifying young gifted children

Identifying giftedness in young children is challenging for multiple reasons explained here: there is no consensus on what should be identified (Worrell et al., 2019), professionals often lack knowledge (e.g., Wellisch, 2019), giftedness is not always visible (e.g., Bildiren, 2018), and standardized cognitive tests do not suffice (Hertzog et al., 2018).

Of all children, 2.5% to 10% are gifted, depending on the applied conception of giftedness (Pfeiffer et al., 2018). Various paradigms exist to help understand giftedness. A more comprehensive understanding emerges when these paradigms are considered collectively (Sternberg, 2023). They highlight different aspects of giftedness, leading to many different theories, conceptualizations, and definitions (Worrell et al., 2019), either implicit or explicit (Gagné et al., 1993; Shriner et al., 1993). Cultural values and beliefs also influence conceptions of giftedness (Sternberg, 2007). A shared characteristic across all conceptions is the recognition of high intellectual abilities (Worrell et al., 2019). Numerous studies report various other characteristics and skills of young gifted children, such as early verbal skills, abstract thinking, and creativity (e.g., Bildiren, 2018; Gagné, 2004; Hodge & Kemp, 2000; Murphy, 2007; Silverman et al., 1986; Walsh et al., 2017). Some characteristics, such as sensitivity, are debated (Mendaglio, 2002; Samsen-Bronsveld et al., 2024; Silverman et al., 1986). Characteristics associated with giftedness are not always observable in every young gifted child due to inherent individual differences or potential peer conformation, and children may not have reached their full potential yet (Bildiren, 2018).

Another issue is that available methods to identify young gifted children may not suffice. Standardized cognitive tests assessing intelligence are generally used to identify gifted children in elementary school, albeit they are administered only when specific problems occur. Moreover, these tests may not identify all young gifted children (Hertzog et al., 2018) due to a lack of representative norms (Gentry et al., 2021) or potential underachievement during the assessment (Hertzog et al., 2018). Some noncognitive instruments, such as rating scales or observation forms, can be used in preschool and kindergarten settings. An example is the Gifted Rating Scales-Preschool /Kindergarten Form (GRS-P), developed and assessed by Pfeiffer and Petscher (2008). However, the GRS-P appears to be highly correlated with intelligence tests, raising questions about its usefulness for measuring giftedness instead of intelligence (Benson & Kranzler, 2018). Human Figure Drawing is another noncognitive instrument still under development (Mathijssen et al., 2023). In addition to the instruments used to identify giftedness, teacher nominations often miss gifted children due to biases and stereotypes, leading to the underrepresentation of children from underprivileged environments (Golle et al., 2023; Marsili & Pellegrini, 2022).

Identifying young gifted children appears to be a global issue. For example, many professionals in Australian preschool settings do not find it necessary to identify and label young children as gifted and lack the knowledge to meet their needs (Walsh et al., 2010), also according to parents of gifted children (Wellisch, 2019). Furthermore, many Scottish childcare workers and teachers rely solely on observing children, which is problematic for young gifted children who do not show their potential (Sutherland, 2011).

How to identify young gifted children

There are various approaches to identifying young gifted children. Kuo et al. (2010) plead for using multiple methods, including both objective (checklists and intelligence tests) and subjective methods (parent interviews, portfolios collected by parents, and observations in different domains). Hertzog et al. (2018) recommend a continuous application of identification methods. Burns et al. (1990) suggest a staged process to save costs and time, starting with group and individual screenings using checklists, followed by formal assessments of potentially gifted children with multiple intelligence and academic skills-related instruments and resources to include contextual factors, such as parent interviews. Especially for young children, including their parents is crucial, because they know the most about their child (Almeida et al., 2016). However, some gifted children may not be identified in the initial screening and thus remain unidentified (Livesay & Mealor, 1984). Besides the identification methods,

professionals' self-efficacy impacts the effectiveness of identifying gifted children (Perren et al., 2017).

Self-efficacy in identifying young gifted children

Self-efficacy among professionals (e.g., Bandura, 1989) has different sources, such as previous experiences, role models, affirming words, and physiological arousal (Bandura, 1977, 1988). Mastery experiences, or successful past experiences that required perseverance, most strongly influence self-efficacy because they provide evidence of one's capability. Role models, especially relatable ones, provide vicarious experiences, impacting professionals' self-efficacy by comparing the capabilities of role models with their own (Watson & Marschall, 2019). Verbal affirmation, such as positive feedback from colleagues, can enhance the effort and the chance to succeed, enhancing self-efficacy. Lastly, managing physiological states, such as mood and stress, helps maintain high self-efficacy. In the context of identifying young gifted children, knowledge of and experience with gifted identification and education enhance teachers' self-efficacy (Morrissey & Grant, 2017; Starko & Schack, 1989), attitudes toward gifted education (Opoku et al., 2023), and effective teaching strategies (Machů, 2014).

Self-efficacy enhances teachers' practices in educational settings (e.g., Alibakhshi et al., 2020). This may also be true in the context of identifying young gifted children: higher self-efficacy may positively impact identification practices (Şahin & Çetinkaya, 2015). Furthermore, teachers with higher self-efficacy may be more willing to change their behavior (Alibakhshi et al., 2020; Bandura, 1978), potentially leading to the implementation of higher-quality practices in childcare and early education (Perren et al., 2017).

The present study

Early identification is important for the optimal development of every child (e.g., Huang, 2008). However, obstacles include a lack of expertise (e.g., Wellisch, 2019) and a lack of visible characteristics of giftedness for some children (e.g., Bildiren, 2018). Given the limited scientific knowledge of early identification practices and the influence of professionals' self-efficacy on these practices, the present study aims to gain insights into how professionals in childcare and kindergarten identify 3- to 5-year-old gifted children, how they act upon this identification, and how competent they feel toward this identification process. The present study addresses three research questions:

(1) How do professionals in childcare and kindergarten identify young gifted children?
(2) To what extent do professionals in childcare and kindergarten feel competent (self-efficacy) in identifying young gifted children?
(3) In what way did the identification of a selection of six young gifted children in childcare and kindergarten settings take place, and how have the involved childcare workers, kindergarten teachers, and parents responded to this identification?

Method

The present study is exploratory and uses a mixed-method design, using both quantitative (questionnaire) and qualitative methods (multiple case study). This design is considered appropriate because the information from the multiple case study can specify and broaden the insights gained from the quantitative methods (Guetterman & Fetters, 2018).

Context of the study

The present study took place in the Netherlands. In the Netherlands, various forms of preschool childcare are available, divided into two main categories: center-based (at a professional institute/organization) or childminder-provided childcare (Ministerie van Sociale Zaken en Werkgelegenheid, 2022). Childminder-provided childcare takes place in a small group at the childminder's home. Specific requirements to become a childminder in the Netherlands include a diploma, a registration for the specific sector, and knowledge of childcare policies (Netherlands Enterprise Agency, 2022). From the age of 4, more than 95% of Dutch children attend kindergarten, the first two grades of primary school (Velsink, 2012). Children must attend kindergarten from age 5 (Ministry of Education, Culture and Science, 2023).

Participants

Questionnaire

A total of 139 participants took part in this study. Among them, 133 participants fully completed the questionnaire. The responses of the six participants who did not fully complete the questionnaire were included only in the analyses of the sections they did complete. Of the participants, 133 were female, 4 were male, and 2 were identified as other/unknown. The participants were between 23 and 64 years old ($M = 42.40$, $SD = 11.15$). The sample consisted of 42 childcare workers working

at childcare centers with children ranging from birth to 4 years old (30%) and 97 kindergarten teachers (70%). On average, childcare workers had 14.01 years (SD = 8.65) of experience, and teachers 19.56 years (SD = 11.59). Seven childcare workers (17%) and 68 teachers (70%) had received some training or courses about giftedness or young gifted children.

Case studies

A total of six 4- and 5-year-old (potentially) gifted children participated in the case studies, including a set of twins, counted as one case. School teams suggested the children as possible subjects for the case studies. All children had received childcare until they went to kindergarten, starting aged 3 months to 14 months. The children's parent(s), their latest childcare worker, and current kindergarten teacher participated in a semistructured interview. Three childcare workers worked at the involved childcare centers and had 3.5, 14, and 15 years of experience in childcare, respectively. The other two childcare workers were childminders with 8 years and 17 years of childminding experience, respectively. None of the childcare workers had received any training or courses on giftedness. The teachers had between 3.5 years and 28 years of teaching experience. All teachers had received some form of training on giftedness, either from a specialist colleague or through training within or outside the school.

Materials

Questionnaire

A 45-item questionnaire was designed for this study based on scientific literature. The questionnaire with reference list is available in Dutch upon request from the first author. The first nine questions relate to the participant's background (e.g., age and work experience). The second part of the questionnaire assesses two concepts: (a) identification and (b) self-efficacy.

Identification. An open question about the characteristics of young gifted children was included to assess the professionals' approaches to identifying gifted children: "Which characteristics would you name to describe a young gifted child? Name a maximum of three." Additionally, nine questions were asked about the use of a protocol (a step-by-step plan that can contain a screening and instruments and other steps during and after identification), a screening, and an instrument to identify young gifted children alongside individuals involved in the identification process. These questions included both open and multiple choice questions with the option to select multiple answers. Examples of multiple choice questions were "Does your school or childcare center use a protocol (step-by-step plan, policy) to identify giftedness?" and "Who at your school or childcare center is involved in identifying giftedness?" Examples of open questions are "Which protocol(s) does your school or childcare center use to identify a young gifted child?" and "What do you look for to identify a young gifted child?"

Subsequently, the questionnaire presented 21 statements about what characteristics young gifted children may or may not possess. Respondents rated these statements on a 5-point Likert scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). All statements are available upon request. An exploratory factorial analysis was performed on the statements and identified four factors: cognitive/mature (11 items; $\alpha = .89$), creative/aware (5 items; $\alpha = .83$), perfectionist/inventive (3 items; $\alpha = .69$), and other items: motor skills and sense of justice (2 items; $\alpha = -.57$). A table depicting the results of the factor analysis is available upon request. The internal consistency of the factors was respectively good, good, questionable, and poor. Based on the poor internal consistency of the factor "other," these two items were excluded from further analyses. The total internal consistency of these 19 statements was excellent ($\alpha = .91$).

Self-efficacy. Five statements were formulated based on Bandura's self-efficacy theory (Bandura, 1977) to measure the professionals' self-efficacy in identifying young gifted children, for example: "I am able to distinguish characteristics of giftedness from personal characteristics." Participants rated the statements on a 5-point Likert scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). After recoding the negatively formulated items, the internal consistency for those five items had a Cronbach's α of .59.

Interviews case studies

Two semistructured interview protocols were designed for the case studies: one for childcare workers and teachers and one for parents (available in Dutch upon request). Questions were formulated about the identification of the child as gifted and the used identification methods, for example: "Is there a screening for or other attention to giftedness at the start of childcare/school?" After this, the actions professionals took after the identification, categorized into the following five categories based on scientific literature (Brighton et al., 2015; Coates et al., 2009; Kaplan & Hertzog, 2016; Trawick-Smith & Dziurgot, 2011; VanTassel-Baska & Brown, 2007; Walsh et al., 2017) were questioned (a) interaction/instruction, (b) play-based education and play guidance, (c) adapted curriculum, (d) learning

environment, and (e) homogeneous grouping. An example question is: "What actions did you take after identifying a young gifted child concerning instruction and interaction?" At the end of the interviews, participants could add information they might not have shared or had overlooked earlier.

Procedure

Questionnaire

The research proposal for this study was approved by the ethics committee of Fontys University. The digital questionnaire was distributed to nine primary schools through an information letter. The schools were connected to an educational research lab where teachers and researchers cooperate in practice-oriented research on giftedness. Additionally, the questionnaire was shared on the research lab's LinkedIn page and via the researchers' professional networks. Respondents gave active, informed consent to participate. Responses were processed anonymously. The questionnaire took approximately 10 min to 15 min to complete.

Case studies

For the case studies, kindergarten teachers from schools associated with the research lab who had a young gifted child in the first year were asked to inform the parents about the study and ask them to contact the former childcare worker with the same information. If all three parties were willing to participate, they received an email with an additional information letter about the study and an invitation for an online interview. In three cases, the childcare worker and teacher were interviewed together. This was not possible in the other two cases due to scheduling issues. Parents were interviewed separately. At the start of the interview, participants actively gave informed consent to participate. The interviews lasted about 45 min and were conducted by the first author of this study.

Data analyses

Questionnaire

To answer the quantitative research questions, the questionnaire's responses were analyzed using IBM SPSS Statistics 25. To investigate how professionals identify young gifted children, the items relating to identification methods were presented in frequencies and compared between childcare workers and teachers using Chi-square tests of independence. The responses to the open question about what characteristics participants would name to describe a young gifted child often contained multiple characteristics. Therefore, these were separated and categorized into distinct characteristics. Characteristics mentioned at least three times were included in the table.

A mean score of all items was calculated for the statements about giftedness characteristics. A higher score indicated a greater understanding of the characteristics of young gifted children. These mean scores and the scores on the factors identified through the factorial analysis were compared for childcare workers and teachers using *t*-tests.

The second part of the questionnaire was analyzed to investigate how competent professionals in childcare and kindergarten feel in identifying young gifted children. A mean score of all items about self-efficacy was calculated after recoding negatively formulated items. These scores were compared for childcare workers and teachers using a *t*-test.

Case studies

The transcripts of the interviews were coded inductively and thematically to investigate how the identification of six young gifted children took place at childcare and kindergarten and what actions were taken. Relevant fragments were identified, labeled by theme, and subdivided into subthemes. Deductive coding was used based on the five categories mentioned above for the questions about the actions taken by professionals after identification. The coding process resulted in an overall summary per theme.

Results

Identification

Table 1 presents the characteristics of young gifted children reported by childcare workers and kindergarten teachers (a complete overview is available upon request). Overall, the reported characteristics were quite similar. Both mentioned cognitive development and personal characteristics most often, such as being sensitive and eager to learn.

More specifically many participants reported looking for specific characteristics when identifying giftedness. Some participants mentioned using the views/input of parents, childcare workers, and (expert) colleagues or outcomes of a protocol or instrument. The following characteristics were most frequently mentioned by childcare workers and kindergarten teachers when asked where to look for when identifying young gifted children: cognitive development (27% and 40%), personal characteristics (17% and 29%), behavior (16% and 10%), children's development (16% and 10%), socio-emotional development (13% and 9%), motor

Table 1. Categories of characteristics of young gifted children as mentioned by childcare workers and kindergarten teachers

	Childcare workers (n = 42)	Kindergarten teachers (n = 97)
Cognitive development	37 (35%)	98 (38%)
Advanced language skills	21 (20%)	39 (15%)
Thinking skills	8 (7%)	32 (13%)
Reasoning skills	2 (2%)	19 (7%)
Cognitive skills	6 (6%)	8 (3%)
Personal characteristics	34 (32%)	78 (30%)
Eager to learn	22 (21%)	44 (17%)
Sensitive	5 (5%)	22 (9%)
Perfectionistic	0 (0%)	7 (3%)
Active	3 (3%)	4 (2%)
Intelligent	4 (4%)	1 (0%)
Difficulties (e.g., frustrated, easily bored)	18 (17%)	8 (3%)
Interests and knowledge	5 (5%)	32 (13%)
Creative and drawing skills	5 (5%)	31 (12%)
(Advanced) socioemotional development	4 (4%)	7 (3%)
Advanced motor skills	4 (4%)	2 (1%)

All participants could mention three characteristics, so the percentages are based on the total amount of characteristics per group.

development (7% and 1%), and no answer (4% and 1%). A complete overview is available upon request.

Participants' knowledge of the characteristics of young gifted children was further investigated using 19 statements, each ranked on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). The mean total score regarding knowledge of giftedness characteristics was 2.82 (SD = 0.58) for childcare workers and 3.05 (SD = 0.44) for kindergarten teachers. These scores differed significantly $t(131) = 2.53$, $p = .013$: teachers rated the 19 characteristics of giftedness as more true for young gifted children than childcare workers did. There were significant score differences between childcare workers and teachers regarding "cognitive/mature" and "creative/aware" characteristics. Kindergarten teachers more strongly associated the characteristics with giftedness than childcare workers did. Table 2 presents the t-test outcomes per factor of the giftedness characteristics with the mean scores.

Table 3 presents the frequencies of participants' use of protocols (which can contain screenings and instruments), screenings, and instruments in childcare and kindergarten for early identification of giftedness. Most teachers reported using protocols and instruments but did not separately mention screening. Most childcare workers did not use any of them. Table 3 also shows that some participants did not know about the use of protocols, instruments, or screening for characteristics of giftedness. Chi-square tests of independence showed significant differences between childcare workers and teachers in the utilization of protocols ($\chi^2(2) = 22.14$, $p < .001$), screening ($\chi^2(2) = 16.47$, $p < .001$), and instruments ($\chi^2(2) = 11.41$, $p = .003$), indicating that childcare workers and teachers differed significantly in their use of protocols, screenings, and instruments when identifying giftedness.

When childcare workers reported using a protocol or instrument for monitoring the development of young children, a Dutch general development monitoring instrument (KIJK!) was mentioned most frequently (protocol 14%; instrument 26%). For kindergarten teachers, a Dutch digital protocol for giftedness (DHH) was mentioned most frequently (protocol 35%; instrument 29%; screening 8%). Most childcare workers mentioned observing children and documenting or discussing characteristics with coaches or experts as steps undertaken based on the protocol. However, these steps are general practices in childcare and do not focus on gifted children. A childcare worker answered: "Through the KIJK! registration, we keep track of the development of all children. When children are developmentally ahead,

Table 2. Results of t-tests comparing childcare workers' and kindergarten teachers' knowledge of factors representing giftedness characteristics

	Childcare workers (n = 42)		Kindergarten teachers (n = 97)				
	M	SD	M	SD	t	df	p
Cognitive/mature	2.86	0.63	3.14	0.47	2.91	131	.004
Creative/aware	2.83	0.62	3.08	0.58	2.20	131	.030
Perfectionist/inventive	2.67	0.66	2.69	0.72	0.11	131	.915

Table 3. The use of protocols, screenings, and instruments in childcare and kindergarten according to childcare workers and kindergarten teachers

		Childcare workers (n = 42)	Kindergarten teachers (n = 97)
Protocol	Yes	7 (17%)	58 (60%)
	No	18 (43%)	18 (19%)
	Unknown	17 (40%)	21 (22%)
Screening	Yes	0 (0%)	26 (27%)
	No	37 (88%)	68 (70%)
	Unknown	5 (12%)	3 (3%)
Instrument	Yes	13 (31%)	57 (59%)
	No	24 (57%)	27 (28%)
	Unknown	5 (12%)	13 (13%)

Table 4. Parties involved in giving input regarding giftedness characteristics according to childcare workers and kindergarten teachers

	Childcare workers (n = 42)	Kindergarten teachers (n = 97)
Parents/caregivers	33 (79%)	83 (86%)
Teacher	5 (12%)	93 (96%)
Childcare workers	31 (74%)	10 (10%)
Childcare center manager	3 (7%)	0 (0%)
Experts	20 (48%)	96 (99%)
Special needs coordinator	14 (33%)	93 (96%)
(Internal) giftedness expert	0 (0%)	43 (44%)
External expert	2 (5%)	9 (9%)
Child health clinic	1 (2%)	0 (0%)
Remedial educationalist	2 (5%)	0 (0%)
Pedagogical coach	5 (12%)	0 (0%)
No one or no answer	5 (12%)	0 (0%)
Do not know	3 (7%)	1 (1%)

this will become clear from this observation/registration." Teachers mentioned a wider range of protocol steps, predominantly derived from the DHH: a quick scan, an extensive screening, teacher and parent questionnaires, and action toward educational provisions and guidance. However, many teachers and all childcare workers indicated that they did not use screening, as shown in Table 3.

Table 4 presents various parties involved in offering input relating to possible characteristics of giftedness, as mentioned by childcare workers and teachers. Parents/caregivers were almost always involved (79% – 86%). Furthermore, most childcare workers (74%) and teachers (96%) reported themselves as involved parties. Almost half of the childcare workers and all teachers mentioned the involvement of an expert colleague, such as a special needs coordinator, giftedness expert, or pedagogical coach.

Self-efficacy

The mean total score of self-efficacy, ranging from 0 to 4, was 2.46 (SD = 0.45) for childcare workers and 2.61 (SD = 0.49) for teachers. There was no significant difference in self-efficacy in identifying young gifted children between the professions, $t(131) = 1.65$, $p = .101$.

Case studies

This section captures the most notable and relevant findings from the five case studies. Table 5 presents a comprehensive overview of the identified themes in the cases concerning identification and actions that are presented with examples of quotes, categorized into four themes: (a) discovery of the child's giftedness, (b) identification methods, (c) transition from childcare to kindergarten, and (d) actions taken. For the quotes, participants in the case studies have been numbered per case. The children are referred to as NN for anonymity.

In the five case studies, most teachers used a protocol and an instrument and observed their pupils to identify gifted children in general. Teacher 3 illustrated her observations: "We were doing something with a map, when a child that just turned 4 years old reads a map, or you name it, but something like that, NN understands those kinds of things immediately."

The childminders and childcare workers had not used protocols or instruments, and the childcare workers did not notice or label the six children as gifted. The childminders did not label at all: "I can't, don't want to, and am not allowed to label" (Childminder 2). Childcare workers had used monitoring instruments, such as KIJK!, and in hindsight, most of them could see signs of giftedness, as they reported in the interview: "We were not intentionally working on this at the childcare center. Looking back, when this research came up, we thought, yes, indeed, some things might have stood out about NN" (Childcare worker 4).

Most parents only found out about their child being labeled as "potentially gifted" after being approached for the present study. Parent 5 said: "Now, because of this study, I think, yeah, it is serious, or yes, there is really, visibly something."

Different experts, such as a pedagogical coach or giftedness expert, could have been involved in the identification process at childcare centers and kindergarten, but this happened only in one case. The transition procedure from childcare to kindergarten, through which information about the development and characteristics of children may be shared, depended on the childcare facility's procedures. Teacher 2 discussed the transition: "Occasionally, we know [about the child being potentially gifted]. Then, the childcare center communicated that they observed that this child could already do more."

Table 5. Themes identified in the five case studies concerning identification and subsequent actions with example quotes

Theme with subthemes	Example quotes
Parents' discovery of the child being gifted	"That they indicated at the child health clinic when NN had to draw a circle, like, normal people, children of this age can't actually do that yet and then I thought yes, NN can." (Parent 4)
Through authorities	
Through being approached for the present study	"I'll probably say that, that the first time the childcare worker or teacher speak up was when we were approached for this interview." (Parent 3a)
Through comparison with peers, but without labeling	"All parents think their kids are smart and cute." (Parent 3b) "I have always seen that NN behaves differently from other children." (Parent 2)
Discovery of the child being gifted in childcare	"At [childcare center], at the moments when these [challenging] things passed by, when the youngest children are sleeping and there is some more time to provide the three-and-older-activities, extra activities, NN1 and NN2 were usually napping. They were until almost, until they were 4 years old, they were still in bed between one and half past three. So I think that that also contributed to the fact that they might have been able to show things at those moments that we missed as a result [of their naps]." (Childcare worker 3)
No discovery of giftedness	
No labeling of giftedness	"I don't know whether or not I really thought NN was gifted. Or, yes, about the fact that NN might have an advantage and that NN is really smart." (Childcare worker 1)
In hindsight through signals	"When [expert teacher] came to us, and asked 'do you want to participate in the study,' I have also discussed it with colleagues who saw NN1 and NN2 more often, and they also thought something like, yes, no, then you do have a few examples indeed." (Childcare worker 3)
Discovery of the child being gifted in kindergarten	"Things that stood out with us is that NN has an extensive vocabulary. NN's coming up with solutions for problems or explaining strategies is great. Also, NN quickly understands the materials NN chooses and how things work." (Teacher 4)
Through (early) observations in the classroom	
Identification methods in childcare	"Yes, then we do an intake meeting and [parents] tell us, they can simply tell us about the child, what the child is like and what we should take into account for example, whether there are specific characteristics that we should know about." (Childcare worker 1)
Intake meeting	
Monitoring tool for development	"We do have a monitoring tool called Looqin. This basically looks at the well-being and the involvement of children. But besides that, there is also a part to look at the development, then they look at the language, at the logical expert thinking, at the large and the small motor skills. And that way you can get a view on children, do they go with the majority or do they stay back or do they stand out?" (Childcare worker 3)
Involved people	"We also have a remedial educationalist who can always take a look if we notice a child needs more challenge or a child needs extra attention and guidance in certain areas." (Childcare worker 3) "Of course we also have conversations with parents, shorter or longer, if we really see things that are, mainly about things that are not going well." (Childminder 5)
Identification methods in kindergarten	"We have an intake meeting with the parents. And in response, or well, prior to the intake meeting we always ask parents to fill in an intake form. And in it, there are questions, what do you think of the vocabulary of the child, what do you think, can NN, well I'll just name something, dress and undress independently, like that a number of questions are formulated. And based on that form, we will discuss it and try to outline somewhat of an initial situation." (Teacher 4)
Intake meeting	
Instruments or protocols	"At around 6 weeks, we will fill in the DHH." (Teacher 4)
No instruments or protocols	"But we don't really have a fixed protocol yet in which we can see: okay, that is a developmental advantage, yes or no." (Teacher 2)
Identification through stimulating with challenging materials	"We really do that with children of whom we suspect that they, they are a bit more reserved and have more in them than, than they show. Or in small groups or during circle time activities we also try to offer activities in such a way that it can be offered differentiated, and that you can ask specific questions to certain children at another level, so that you experience whether children are already busy at higher levels." (Teacher 3)
Involved people	"Often it is, if you identify things that you will meet with parents and then you possibly call in a special needs coordinator and possibly an external." (Teacher 1)
Transition from childcare to kindergarten	"We do not have a direct transition, we do have KIJK! they can look into. I haven't had a meeting with the teacher or anything like that." (Childcare worker 1)
Depending on the procedure of the childcare facility	
Actions taken in childcare	"Since NN could already tell so much theirself, you go along with it, and I think you also ask your questions slightly differently than you might ask to another child." (Childcare worker 4)
Interaction adapted to gifted child	"Difficult words also pass by and when I know they don't understand them, I explain them. But I didn't communicate differently with NN." (Childminder 2)
Interaction not adapted to gifted child	"No, with us that is always very free. Of course we have play areas where they play and that in principle they often play freely. We don't guide in that a lot, no." (Childcare worker 4)
No play guidance	"What did I offer, yes, mainly difficult games, more difficult puzzles, in terms of reading and stories." (Childminder 1)
Challenging materials or activities (when child showed interest)	"We try our play areas, we also have an early education-group, we try to organize our play areas in such a way that everyone can actually get what they want out of it, so also for the children who are actually not yet at the point in language skills or another area, that there is enough to discover for all levels or to do, that they all can just get on with it at their own level." (Childcare worker 3)
Learning environment: Available materials and challenging play areas	"No, for the very simple fact that my childcare is my living room. And so, and that is the most important, the main purpose of this space is that it is my living room. And that is also the strength of childminder care, childcare in a homely environment. So no, in the environment nothing gets changed." (Childminder 2)
Learning environment: No adaptations for gifted children	"If that had been possible, if I really had children of the same age who were indeed at the same level, but that is almost never the case in childminding childcare. Yes, so there is, if I'm lucky, there is a difference of a few months between them and then, then I group them as a group based on age." (Childminder 5)
No grouping possible	

(*Continued*)

Table 5. (Continued).

Theme with subthemes	Example quotes
Grouping based on age	"Sometimes we split up in groups of 8 and sometimes that is at random because then they can learn from each other and other times that is with the oldest together and the youngest together, so that the activity can be switched up and you can make it challenging enough for everyone." (Childcare worker 4)
Actions taken in kindergarten	
Interaction adapted to gifted child	"Also, especially with more open assignments, then I often only have to look from a distance and ask a specific question and then I see that they, that they already are adding something extra to their work." (Teacher 3)
Interaction not adapted to gifted child	"We then give an instruction and it is usually short and concise and if you just, we are available when you have any questions in between, so if NN has any questions, NN can always come to us then, so in terms of instruction, we did not change anything." (Teacher 2)
No adapted play guidance	"No, I don't have much to do there. At most, I have to ask a few questions." (Teacher 4)
Challenging materials or activities (when child showed interest)	"We will not expect NN to also develop reading, only if NN shows interest in it, well, then we really want to go along with it and then we can grab and provide materials for that." (Teacher 2) "We include NN in [. . .] the language and mathematics curricular activities of second grade." (Teacher 4)
Learning environment: challenging play areas and freely available challenging materials	"In any case, we have a cabinet here that contains materials at all levels and it does indeed contain the smart games. Those we recently added because we noticed that there was a greater need for them from other children as well. We also have, yes, of course we have more materials and there is a cabinet here in the hall which they sometimes look into themselves, or we just go and walk into second or third grade, and then I let them take a look in the cabinet, or well, what do you like, and then, yes, of course that is often something new and then that is also challenging and then that gets taken into the classroom here." (Teacher 1)
Grouping with like-minded peer(s)	"We also have another child with NN in first grade, with whom NN also does gymnastics together with that child in grade 2/3, so then NN says, then they say, we are 'approximately' second grade. I once said that, I said first grade or, second grade and then I say, NN and that other child, they can join and they say, oh, yes, because we are 'approximately' second grade. So yes, also a real buddy with whom NN can spend a lot of time, which makes NN no exception." (Teacher 5)

Even though none of the six children had been identified as gifted in childcare, enrichment materials and activities were provided for them in childcare and kindergarten, sometimes from higher grades. In most cases, enrichment materials and play areas were either freely available or offered at specific times for the six children studied. Teacher 4 said: "We have materials for the first and second graders. And we send NN to second grade." In some cases, professionals interacted more maturely with the children or explained less, for example:

> What I'm normally kind of used to, that you make it a bit easier for children, that you don't have to make it easy for NN, but just use the texts that you also use with adults, so to speak, and indeed, any questions NN had or when NN said, but what about this, or what about that, then I just answer because NN could just handle that. (Childminder 5)

In four cases, the young gifted children were grouped with older or like-minded peers in kindergarten. Teacher 4 said: "Actually, we often make a small group, so right now, I have eight students in second grade, so I only have a small second-grade section, so NN can easily join, and we let NN participate." Childcare workers had not grouped the children based on their (cognitive) development. In the guidance of play, all childcare workers, childminders, and some teachers mentioned that the child had not needed any guidance and was already quite autonomous. For example, childcare worker 1 said: "NN knew what they wanted to do and NN played their own play." Other teachers, however, did guide the roleplay by joining or directing their play. However, teacher 2 noted: "I don't do anything different with NN than with other children."

Discussion

This study aimed to gain insights into the current practices and self-efficacy of Dutch childcare workers and kindergarten teachers in identifying gifted 3- and 4-year-old children. Furthermore, we investigated the identification process of six young gifted children and the actions taken to meet their developmental needs in childcare and educational settings.

Identification

The first research question addressed professionals' identification practices. Both the quantitative and qualitative results indicate that most teachers used protocols (with an instrument) to identify young gifted children, but many childcare workers did not.

The reported non-utilization of protocols and instruments by childcare workers may stem from the lack of science-based protocols and instruments or the absence of policies on giftedness in Dutch childcare (Velsink, 2018). Childcare workers mentioned using the Dutch instrument KIJK! However, this instrument is a general

observation tool for young children and is not specifically designed to identify giftedness (Bazaltgroep, 2023). Consequently, this tool may not aid in identifying giftedness. The two childminders and most childcare workers in the case studies were not concerned with giftedness and did not follow any identification procedures. This may be because childcare is part of the healthcare sector rather than the educational sector (Central Bureau of Statistics Netherlands [CBS], 2023), leading to less emphasis on identifying children's potential and cognitive needs. Moreover, the childminders (not the childcare workers) in the case studies did not feel qualified or competent to identify giftedness.

Most teachers described an identification process comparable to the one proposed by Burns et al. (1990): from group and individual screening to formal assessments, such as intelligence tests and parent interviews. The screening process reduces the need for formal evaluations (Burns et al., 1990). Observation played a key role in giftedness identification for both professions, which was underscored by the case studies. This aligned with a Scottish study that found observation to be the most common informal method for teachers to identify giftedness (Sutherland, 2011). Notably, no standardized tests were mentioned in the present study, unlike internationally, where they are the most common screening method (Hertzog et al., 2018). However, Hertzog et al. focused on children aged 3 to 8, suggesting their findings may apply more to children older than the 3- to 5-year-olds in the present study.

Participants indicated that, besides themselves, parents were almost always involved in the identification process. Parental involvement in identifying young gifted children is crucial as parents are the primary individuals to identify potential characteristics of giftedness in their child (Almeida et al., 2016; Bildiren, 2018). Remarkably, most parents in the case studies only became aware of their child's potential giftedness through participation in the present study, although they all had knowingly or unknowingly observed characteristics of giftedness well before the start of kindergarten.

Finally, our study showed that teachers had more knowledge of and were more alert to characteristics of giftedness than childcare workers. Despite the lack of specific attention for giftedness in childcare policies (Velsink, 2018), childcare aims to promote personal qualities, including challenging children and teaching them skills (Ministerie van Sociale Zaken en Werkgelegenheid, 2021).

Overall, the findings in this study reflect the absence of a Dutch national policy on identifying gifted children in childcare and kindergarten, comparable to the situation in the United States (Kettler et al., 2017). Identification practices vary per school and childcare facility.

Self-efficacy

The second research question addressed professionals' self-efficacy in identifying young gifted children. While teachers had more knowledge of and were more alert to characteristics of giftedness than childcare workers, both groups felt somewhat competent in identifying young gifted children, with no significant differences between them. This is noteworthy because childcare workers used fewer protocols and instruments and had less knowledge about the characteristics of giftedness than teachers. Typically, more knowledge is associated with increased self-efficacy (Morrissey & Grant, 2017; Starko & Schack, 1989) because knowledge provides more mastery experiences, contributing to self-efficacy (Bandura, 1988).

The level of self-efficacy of professionals in identifying young gifted children observed in this study was higher than expected compared to other studies, which found that a lack of knowledge, training, and expertise (Kettler et al., 2017; Walsh et al., 2010) has a negative or at least no positive impact on professionals' self-efficacy (Morrissey & Grant, 2017; Starko & Schack, 1989). A possible explanation is that most childcare workers may have had limited knowledge, sometimes associated with higher self-efficacy (Velthuis et al., 2014). Velthuis et al. found that preservice teachers' self-efficacy grew with increased knowledge and limited teaching experience. However, as they gained more experience and applied their knowledge more often, self-efficacy did not continue to grow due to experienced difficulties. Mastery experiences, in which professionals succeed in identifying young gifted children, can boost self-efficacy (Bandura, 1988), but the experience of failing to identify them might negatively impact professionals' self-efficacy. This may also apply to the present study: the childcare workers had less knowledge of and experience with giftedness than the teachers, so their self-efficacy remained unchanged due to the absence of difficulties. At the same time, teachers faced challenges that may have hindered their self-efficacy growth.

Actions taken

Regarding the six young gifted children, all professionals provided enrichment materials and activities, and some interacted more maturely with them than with other children. Most kindergarten teachers, but

not childcare workers, grouped the gifted child with like-minded or older peers.

The finding that all professionals provided enrichment materials, activities, or interactions indicates that the lack of materials and programs for gifted children, as Ledoux et al. (2020) noted, does not necessarily prevent appropriate provisions for young gifted children. The teachers in the case studies used higher-grade materials and grouped children with older peers within the classroom, effectively providing enrichment with the available resources. Most childcare centers also provided after-school care for older children, making enrichment materials for older children freely accessible for all children.

Limitations and future research

Some limitations of this study need to be considered. First, only 30% of the questionnaire participants were childcare workers ($n = 42$). While this study provided valuable insights, a follow-up study focusing solely on childcare workers might provide more in-depth information about this underrepresented group. Second, the internal consistency of the items of self-efficacy was relatively low, leading to somewhat less reliable results. Future research should evaluate and improve the instrument for studying self-efficacy in identifying young gifted children. Third, there may have been a self-selection bias: professionals more interested in giftedness or research may have been more likely to participate (Stone et al., 2023). Consequently, the participating professionals might have above-average knowledge of and experience with gifted education and more positive attitudes toward it, potentially increasing their self-efficacy (Morrissey & Grant, 2017; Opoku et al., 2023; Starko & Schack, 1989). Future studies could randomly select and invite participants to avoid this bias. Fourth, the cases were recruited from schools affiliated with the educational research lab, so the selected teachers may have been more aware of the needs and characteristics of young gifted children. The six children were nominated by the school team, potentially leading to the overrepresentation of "successful gifted children" who perform well academically (Siegle et al., 2010). Underachievers were likely not included, a common issue in studies on gifted children (e.g., Mathijssen & Hoogeveen, 2016). Finally, most parents in the case studies became aware of their child's potential giftedness through participation in this study. This unintended outcome posed an ethical dilemma in telling the parents why they had been invited for this study.

Implications

This mixed methods study, including qualitative case studies, provides more in-depth information (Guetterman & Fetters, 2018) and addresses the gap in the scientific knowledge of childcare workers about giftedness (Walsh et al., 2012). Training professionals in kindergarten and especially childcare to enhance their knowledge about young gifted children, particularly (early) identification, would be beneficial. Increased knowledge can lead to more efficient identification and teaching practices (Machů, 2014; Perren et al., 2017; Şahin & Çetinkaya, 2015; Starko & Schack, 1989), resulting in more mastery experiences (Bandura, 1988) and, in turn, higher experienced self-efficacy (Morrissey & Grant, 2017; Starko & Schack, 1989). Training should include vicarious experiences and encouragement to impact professionals' self-efficacy (Bandura, 1988), for example, through professional learning communities where professionals can exchange best practices and receive feedback from others with similar knowledge and experiences (Admiraal et al., 2021). Higher self-efficacy also may foster a willingness to change identification practices (Alibakhshi et al., 2020; Bandura, 1978).

Finally, gifted children should not be overlooked and need appropriate activities and education for personal growth during childcare and kindergarten, as required by the Dutch government (Ministerie van Onderwijs, Cultuur en Wetenschap, 2021; Ministerie van Sociale Zaken en Werkgelegenheid, 2021). Failing to identify young gifted children prevents professionals from offering activities and education that meet their needs from an early age (Kuo et al., 2010). Early identification is crucial for providing appropriate education and personal growth for all gifted children. This study serves as a starting point for further research on giftedness in childcare and kindergarten to benefit early identification.

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