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# Gendered Recognition of Giftedness in Italian Primary Schools: A Mixed-Methods Study of Teachers' Perceptions

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**Abstract**

This mixed-methods study investigates Italian primary school teachers' perception-based attributions of giftedness, with specific attention to how gendered classroom recognition patterns may shape the visibility of girls in everyday educational practice. International research suggests that teachers' professional judgement can be shaped by cognitive biases and gendered classroom norms, while many girls perceived as gifted may appear less visible within classroom recognition processes because their behaviours are often interpreted as more closely aligned with school expectations. Against this backdrop, the study examines whether similar dynamics emerge in the Italian context, where early recognition often relies on teachers' classroom observation and educational decision-making. Quantitative data were collected through an online questionnaire administered to Italian primary school teachers in 2024. The survey explored teachers' reported experience with pupils perceived as gifted (not formally assessed), their estimates of how many such pupils are present in their class, and the gender distribution they attributed to these pupils. Qualitative data were collected in 2025 through three focus groups, designed to deepen understanding of the observational criteria teachers use and the instructional decisions associated with recognising giftedness. Focus group transcripts were analysed using thematic analysis. Across the Italian sample, teachers widely reported having taught pupils they considered gifted; however, within teachers' perception-based attributions, recognition was more frequently associated with boys than with girls. Focus group discussions corroborated this pattern and helped clarify its educational mechanisms: teachers frequently linked giftedness to behavioural salience and participation styles (e.g., visibility, assertiveness, and, at times, disruptiveness), whereas, within teachers' accounts, girls perceived as gifted were often represented as more compliant and discreet, which may make them less visible through informal recognition criteria centred on behavioural salience. Overall, the findings point to a visibility gap in early classroom recognition and underscore the need for teacher education and practical, gender-responsive observational tools that broaden conceptions of giftedness beyond overt performance and support more equitable differentiated instruction, reducing the risk of missed recognition of gifted girls in primary school.

**Keywords:** giftedness; gender bias; primary school; visibility gap; informal identification

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## 1. Introduction

In primary school, the early recognition of giftedness is a strategically important educational step, as it enables the implementation of differentiated teaching, enrichment, and

support aligned with pupils' learning needs (Brussino, 2021; Global Education Monitoring Report Team, 2020; Tomlinson, 2014). In the absence of systematic screening procedures or readily available specialist assessments, schools often rely on what is closest to everyday classroom life: teachers' professional observation. In this context, recognising giftedness does not mean making a diagnosis, but rather interpreting educationally meaningful indicators (e.g., rapid learning, quality of reasoning, creativity, advanced interests, and linguistic or logical-mathematical competence) and deciding whether and how to adapt instruction. Moreover, teachers' professional judgement also acts as a connecting step within identification processes, as it may trigger referrals to services, involve specialist professionals, and support school-family collaboration (National Association for Gifted Children, n.d.). For these reasons, the identification of possible giftedness can be understood as an educational practice of informal recognition and instructional decision-making, shaped by experience, training, and professional culture.

In the manuscript, "attribution" refers to teachers' perception-based categorisation of pupils as gifted, "informal recognition" refers to the classroom-based noticing and interpretation of potential, and "formal identification" refers to assessment or programme-related procedures beyond the scope of the present study.

From an educational equity perspective, a central issue concerns the role of gender in school-based recognition processes. Research indicates that gifted girls may be less visible in the initial stages of recognition and referral, not because they are less capable, but because the cues that lead teachers to notice potential may be filtered through gendered expectations and implicit models of what a "typical" gifted pupil looks like. An expanding body of literature has examined the influence of gender on the identification and development of gifted girls, showing how recognition mechanisms and expectations may contribute to their under-identification (Biber et al., 2021; Salas-Guadiana & Gallardo-Córdova, 2022).

Studies on referral and nomination further suggest that teachers can often unintentionally become a critical point in the pathway: for comparable levels of potential, girls may be referred less frequently or interpreted through different criteria than their male peers (Bianco et al., 2011; Siegle, 2001; Siegle & Reis, 1998). In parallel, quantitative syntheses on identification and participation in gifted programmes report gender differences sufficiently consistent to suggest that the issue is not merely individual, but also linked to procedures and school practices (Petersen, 2013). From an educational standpoint, this raises a concrete concern: if primary school is a key setting for the early recognition of needs and potential, gendered patterns in informal recognition may represent one possible factor contributing to unequal learning opportunities from the very first stages of schooling.

To support this perspective, descriptive models help explain how giftedness may take different forms and, in some cases, be less readily recognised in class. The notion of gifted profiles suggests that not all high-potential pupils express their competence in a uniform or consistently visible way; some trajectories may involve strategies of adaptation, concealment, or reduced visibility in order to fit in with peer-group dynamics (Betts & Neihart, 1988, 2010). In the case of girls, the literature has highlighted how social pressures and gender-role expectations may encourage more compliant and less demonstrative behaviour, with the risk that potential is interpreted mainly through indicators of "goodness" and diligence rather than as a need for cognitive challenge and enrichment (Reis, 1987; Siegle & Reis, 1998). From an educational perspective, the point is not to attribute psychological traits to girls, but to recognise that certain manifestations of potential may align less well with the informal criteria that typically guide teachers' attention in everyday practice.

In recent years, studies on teachers' and pre-service teachers' beliefs have also shown that stereotypes can operate in combination: not only gender stereotypes, but also stereotypes about what a gifted student should be like. When these two frames overlap, they may

shape educational expectations, behavioural interpretations, and ultimately the likelihood that a pupil is recognised as needing differentiated provision (Matheis et al., 2020). This is particularly relevant in primary school, where educational decisions are often based on observation and where specific preparation in gifted education is not always an integral part of professional training.

Within the international literature, research on teachers' perceptions of high ability has found that professional training and prior experience are closely related to how teachers define, recognise, and interpret giftedness in the classroom (García Barrera et al., 2021). At the same time, recent contributions have drawn attention to the invisibility of gifted girls at school, suggesting that gender factors and dimensions such as self-concept may interact with school dynamics and the educational recognition of potential (Sormani et al., 2025). Together, these findings support the need to investigate in primary school not only how many pupils are perceived as gifted, but also how such perceptions may be gendered and associated with conditions that make some girls less visible in informal recognition processes.

Despite the breadth of discussion on gender bias in gifted education, empirical gaps remain in everyday primary school contexts, particularly when the aim is to describe recognition patterns from teachers' perspectives. In Italy, recent contributions have explored gifted education in primary school mainly in relation to teachers' perceptions and training needs, without focusing specifically on gender attributions within informal recognition (Torello et al., 2024, 2025). This issue is particularly relevant in the Italian context because systematic screening procedures, dedicated gifted education programmes, and nationally standardised referral pathways are not uniformly available in primary schools. Consequently, the first recognition of potential often depends on teachers' classroom observation, professional judgement, and school-level decision-making. This makes teachers' perception-based attributions especially important as an early educational filter through which pupils may, or may not, become visible as requiring differentiated provision.

Although the survey dataset and focus-group corpus have been used in previous publications, the present study addresses a distinct research question and offers a new analytical contribution. The earlier survey-based publication focused primarily on Italian primary teachers' training needs and general perceptions of gifted education, while the qualitative publication examined teachers' broader understandings, challenges, and support needs regarding giftedness. By contrast, the present manuscript re-analyses both sources through a gender-focused lens, examining how teachers' perception-based attributions of giftedness are distributed across boys, girls, and mixed groups, and how qualitative accounts help interpret possible gendered visibility patterns in informal classroom recognition. In particular, the gender-related themes emerging from the focus-group discussions—especially those concerning behavioural salience, classroom visibility, and the differential recognition of boys and girls—had not been specifically analysed in previous publications and are examined here in relation to the quantitative gender-attribution pattern. The originality of the study therefore lies not in the production of a new dataset but in the integration and re-interpretation of existing empirical materials to address the underexplored issue of gendered recognition of giftedness in Italian primary schools.

In many systems, research concentrates on already-identified students or structured programmes; less common are studies that quantify how primary teachers estimate the presence of particularly able pupils in class and what gender they attribute to such profiles. From an educational standpoint, such information does not measure the true prevalence of high potential; rather, it captures the first link in the chain—what teachers notice, name, and consider worthy of differentiated provision.

The present study, conducted in the Italian context, uses a quantitative survey of primary school teachers and aims to describe and analyse patterns of educational recognition

of giftedness and possible gender asymmetries in teachers' attributions. Accordingly, the study does not examine giftedness as a psychometrically assessed pupil characteristic, but as a teacher-attributed category emerging from professional perception, classroom observation, and informal educational judgement. In the context examined, the recognition of giftedness in primary school is often entrusted to observational–didactic practices and teachers' professional decision-making, within procedures that are not always uniform. Analysing teachers' attributions therefore provides an informative indicator of potential biases that may operate in the early stages of recognition.

The study objectives are to: (1) estimate the frequency with which teachers report having taught pupils who, because of perceived superior abilities, would require differentiated instruction; (2) describe how many "particularly able" pupils teachers believe they currently have in their class; (3) analyse how teachers distribute these attributions by gender (boys, girls, mixed groups), assessing whether there is a possible imbalance disadvantaging girls; and (4) explore the association between specific training on the topic and more or less balanced perception patterns.

In line with these objectives, the study was guided by the following research questions:

RQ1. How frequently do Italian primary school teachers report encountering pupils perceived as gifted or as requiring differentiated instruction because of higher-than-average abilities?

RQ2. How are pupils perceived as gifted distributed across teachers' gender attributions—boys only, girls only, and mixed groups—and what asymmetries emerge from these attribution patterns?

RQ3. Is giftedness-specific teacher training associated with less gender-skewed attribution patterns?

RQ4. How do teachers describe the behavioural cues, classroom norms, and participation styles that make giftedness more or less visible in everyday practice?

From an applied perspective, the findings may offer concrete guidance for teacher education and the development of more equitable school practices: more explicit observational criteria, greater attention to less "noisy" and less overt profiles, and identification tools consistent with inclusive pedagogy and differentiated provision in primary school. In this sense, the focus of the study is not on pupils' psychological characteristics, but on the educational conditions that facilitate, or at times hinder, the timely recognition of potential, particularly in girls.

## 2. Materials and Methods

The study adopts a mixed-methods design, shown in Figure 1, centred on primary school teachers' professional practices and their role in the informal, school-based recognition of giftedness. The quantitative component, based on the survey, addressed RQ1–RQ3 by describing teachers' perception-based estimates, gender attributions, and the association with topic-specific training. The qualitative component, based on focus groups, addressed RQ4 by exploring the observational criteria, interpretative frameworks, classroom norms, and behavioural cues through which perceived giftedness becomes more or less visible in everyday practice, with particular attention to the visibility of girls.

Quantitative data were collected in 2024 through an online questionnaire administered via Google Forms to primary school teachers in Italy.

The questionnaire was developed by the research team after reviewing the literature on gifted education, teacher perceptions and training needs. It consisted of 31 items, including closed-ended questions, multiple-choice items and open-ended questions. The sections covered: teachers' demographic and professional background, prior knowledge of giftedness, previous training experiences, perceived presence of pupils requiring differ-

entiated instruction because of higher-than-average abilities, estimated number of pupils perceived as gifted in the current class, gender attribution of pupils perceived as gifted, perceived difficulties in recognition and classroom management and training needs. Before administration, the questionnaire was reviewed by a small pilot group of 6 primary school teachers to check clarity, comprehensibility, and feasibility. Minor wording adjustments were made before the final version was distributed through school administrative offices.

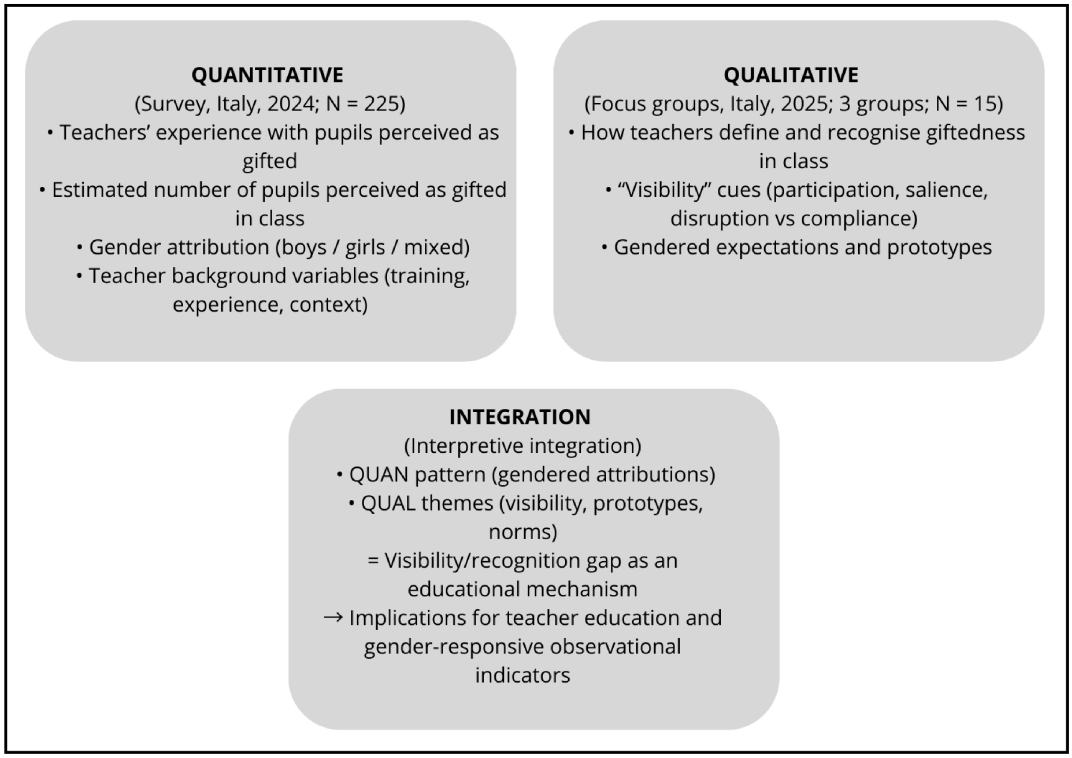



**Figure 1.** Methodological framework adopted.

The survey yielded 225 responses from teachers working across all Italian regions. The survey relied on a non-probabilistic convenience sample. The questionnaire link was distributed through school administrative offices, after obtaining the necessary school-level authorisations, and participation was voluntary. Therefore, although responses were obtained from primary school teachers across all Italian regions, the results should not be interpreted as statistically representative of all Italian primary school teachers, but as describing perception-based attribution patterns within the participating sample.

For the purposes of the present analysis, the key questionnaire items concerned teachers' reported experience with pupils perceived as gifted, estimates of how many such pupils are present in the class, and gender attribution for pupils perceived as gifted (boys/girls/mixed), as well as background variables (age, years of service, school context, topic-specific training). In this study, gender was operationalised through teachers' perception-based attribution of pupils perceived as gifted to one of three categories: boys only, girls only, or mixed groups. This operationalisation is binary and teacher-reported; therefore, it does not capture pupils' self-identified gender, nor does it allow conclusions about the actual gender distribution of giftedness in the classroom. Quantitative analyses included descriptive statistics and the examination of associations between gender attributions and professional variables using tests for categorical data and effect sizes (e.g., Cramer's V/$\varphi$), and, where appropriate, odds ratio estimates. For the $2 \times 2$ analysis involving training and "boys only" attribution, the standard chi-square test was reported

as the primary analysis, while Yates' correction was provided as a conservative sensitivity check.

For interpretative comparison with the international literature, a synthetic boys-only/girls-only indicator was calculated using only exclusive gender attributions. The "mixed" category was excluded from this calculation because it does not specify the relative number of boys and girls within each teacher's attribution and therefore cannot be used to compute a directional gender ratio. Accordingly, this indicator is discussed only as a constructed and partial measure of asymmetry within exclusive perception-based attributions, not as a measure of the overall gender distribution of perceived giftedness or of true prevalence. For each analysis, the valid N was reported. The survey dataset was also used in a previous publication with different aims; in the present study, it is re-analysed with a specific focus on gender bias in teachers' attributions (Torello et al., 2024).

The qualitative component is based on three focus groups conducted with 15 primary school teachers (five per group) from different Italian regions. Participants were selected from the 225 teachers who had completed the survey and who voluntarily expressed their willingness to take part in the focus groups. A purposive sampling strategy was used to ensure variation in geographical and professional contexts. The focus-group participants were primary school teachers aged approximately 35–55, all with classroom teaching experience and permanent teaching contracts, working in both urban and rural school contexts. They represented different Italian regional contexts and did not know each other prior to the study. Their selection aimed to ensure heterogeneity in geographical origin and professional context rather than statistical representativeness.

Sessions (approximately 90 min) were moderated using a semi-structured guide and audio-recorded with informed consent; discussions were fully transcribed and anonymised. Transcripts were analysed using thematic analysis (Braun & Clarke, 2006), with coding oriented towards identifying teachers' implicit prototypes of giftedness, the observational indicators used for recognition, references to gender differences in the expression/visibility of potential, and related educational and training implications. The analytic process followed the main phases of thematic analysis: repeated familiarisation with the transcripts, initial coding of meaning units, grouping of codes into candidate themes, review and refinement of themes, and interpretative synthesis in relation to the research questions. Coding was conducted collaboratively by the research team through comparison and discussion of emerging categories. Reflexive notes were used to monitor how the researchers' prior knowledge of gifted education and teacher training could shape interpretation. Disagreements were discussed until consensus was reached, in order to strengthen the coherence and credibility of the thematic interpretation.

Integration between the two components was conducted at the interpretative level: focus-group findings were used to explain and contextualise the quantitative patterns by clarifying how teachers describe giftedness in everyday practice, which cues make potential more or less visible in the classroom, and how gendered expectations and norms may shape these processes. The focus-group corpus was also analysed in a previous publication with a different focus; here it is used exclusively to support the interpretation of the quantitative findings on gender bias (Torello et al., 2025).

Participation in both the survey and the focus groups was voluntary and based on informed consent. Data were handled in anonymised form (or pseudonymised, where applicable), preventing the identification of individual teachers or schools.

## 3. Results

### 3.1. Quantitative Results

The quantitative component is based on 225 primary school teachers in Italy. The sample composition is consistent with the typical demographic and professional profile of the primary teaching workforce, characterised by substantial teaching experience and a predominance of middle-aged and older teachers. In particular, the age distribution shows a sizeable proportion of respondents aged over 50 (45.3%), followed by the 40–50 age group (36.0%), 30–40 (13.3%), and under 30 (5.3%). Similarly, years of service indicate a prevalence of teachers with more than ten years' experience (70.2%), whereas 16.9% reported 1–5 years and 12.9% reported 6–10 years. Most respondents held a permanent contract (83.1%) and worked in settings differing in territorial size (village/town 53.3%, small city 31.1%, large city 15.6%). Regarding declared familiarity with the construct, most teachers reported knowing what giftedness is (91.1%). However, training-related data suggest that specific pathways are less common: only a minority reported having studied giftedness within their formal teacher education (18.7%) or having attended a dedicated course (21.3%).

A first indicator concerns teachers' reported experience of teaching pupils perceived as gifted or, in educational terms, pupils considered "particularly able" and in need of differentiated teaching/enrichment. Overall, 146 teachers out of 225 (64.9%) reported having had pupils with these characteristics in their classes, whereas 79 (35.1%) did not report such experience. The estimate remains consistent when considering a 95% confidence interval: 64.9% (95% CI: 58.4–70.8%). This result indicates that, in teachers' professional perceptions, giftedness, understood here as a perceived need for differentiation linked to higher-than-average abilities, is commonly encountered in classroom practice.

When asked to estimate how many "particularly able" pupils are currently present in their class (a current, perception-based estimate), responses clustered clearly around one or a few pupils. The most frequent category was "one" (94/225; 41.8%), followed by "two to three" (85/225; 37.8%). Smaller proportions reported "none" (27/225; 12.0%), "four to five" (11/225; 4.9%), and "more than five" (8/225; 3.6%). Here too, confidence intervals indicate adequate precision for the main categories: "one" 41.8% (95% CI: 35.5–48.3%) and "two to three" 37.8% (95% CI: 31.7–44.3%), while "none" was 12.0% (95% CI: 8.4–16.9%). Overall, teachers tend to locate perceived giftedness within a limited range (typically one or two to three pupils per class), consistent with a selective representation of the phenomenon.

The most quantitatively relevant result for the aims of this study is presented in Figure 2 and concerns the gender distribution attributed to pupils perceived as gifted. For this variable, the valid N was 224 (one missing response). Most teachers indicated mixed-gender groups (117/224; 52.2%; 95% CI: 45.7–58.7%), but a substantial proportion attributed recognition to boys only (86/224; 38.4%; 95% CI: 32.3–44.9%), whereas a markedly smaller proportion indicated girls only (21/224; 9.4%; 95% CI: 6.2–13.9%).

This distribution shown in Figure 3 is informative in two complementary ways. First, the majority of teachers selected the "mixed" category, suggesting that many respondents perceived giftedness as present among both boys and girls. Second, among the exclusive gender attributions, "boys only" responses were substantially more frequent than "girls only" responses. To describe this specific asymmetry, we calculated a synthetic boys-only/girls-only ratio, while explicitly excluding the "mixed" category. Within this restricted subset, the ratio was $86/21 \approx 4.10$, that is, approximately four "boys only" attributions for every "girls only" attribution. This indicator should therefore be understood as a constructed and partial measure of asymmetry within exclusive attributions, not as a direct measure of the overall gender distribution of perceived giftedness, and not as evidence of the true prevalence of giftedness by gender. Its value lies in highlighting a possible

imbalance in the most gender-specific attribution patterns, while the predominance of "mixed" responses requires a cautious and balanced interpretation.

| Outcome | Category | n | % | Valid N |
|---|---|---|---|---|
| Experience with pupils perceived as gifted (need for differentiated provision) | Yes | 146 | 64.9 | 225 |
| | No | 79 | 35.1 | 225 |
| Number of "particularly able" pupils in the class (current estimate) | None | 27 | 12.0 | 225 |
| | One | 94 | 41.8 | 225 |
| | 2–3 | 85 | 37.8 | 225 |
| | 4–5 | 11 | 4.9 | 225 |
| | >5 | 8 | 3.6 | 225 |
| Gender attributed to pupils perceived as gifted | Mixed | 117 | 52.2 | 224 |
| | Boys | 86 | 38.4 | 224 |
| | Girls | 21 | 9.4 | 224 |

**Figure 2.** Main outcomes on teachers' perceptions of giftedness.

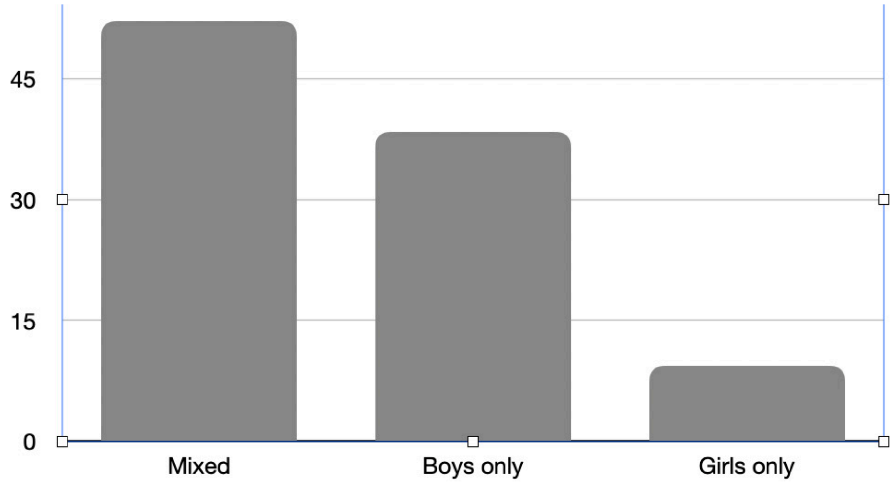



**Figure 3.** Teachers' gender attribution for pupils perceived as gifted (boys only, girls only, mixed). Percentages are calculated on valid responses ($N$ = 224); values above bars indicate % and $n/N$.

Taken together, the quantitative findings depict a pattern in which: (1) many teachers report encountering pupils perceived as gifted over the course of their professional experience; (2) estimated numbers tend to cluster around one or a few pupils per class; and (3) gender attribution shows a substantial asymmetry in favour of boys when giftedness is attributed exclusively ("boys only" vs. "girls only"). Because the measures used reflect professional perceptions rather than formal identifications, these results do not allow inferences about the true prevalence of giftedness by gender; however, they provide useful quantitative evidence for examining how informal recognition may display gendered patterns in Italian primary schools.

In addition, we explored the association between participation in a giftedness-specific course (yes/no) and selecting "boys only" in the gender-attribution variable for pupils perceived as gifted. As can be seen in Table 1, among teachers who had not attended a course, 73 out of 176 selected "boys only" (41.5%), whereas among those who had attended a course, the same response was reported by 13 out of 48 teachers (27.1%).

**Table 1.** Percentage of teachers attributing giftedness to boys only ("Maschi") by participation in a giftedness-specific course (Yes/No). Percentages computed on valid responses ($N$ = 224).

| Giftedness Specific Course | "Boys Only" ($n$) | Valid Total ($N$) | "Boys Only" Percentage |
|---|---|---|---|
| No | 73 | 176 | 41.5% |
| Yes | 13 | 48 | 27.1% |

The association was small in magnitude and close to conventional thresholds of statistical significance, $\chi^2(1) = 3.30$, $p = 0.069$ (Yates' correction: $\chi^2(1) = 2.72$, $p = 0.099$), with $\varphi = 0.12$. In terms of odds, the odds ratio for selecting "boys only" was OR = 1.91 (95% CI [0.94, 3.86]) in favour of the no-course group compared with the course group. Because the $p$ values exceeded the conventional alpha level of 0.05 and the confidence interval for the odds ratio included 1, this result should be interpreted as a non-significant directional pattern rather than evidence of a statistically significant association.

### 3.2. Qualitative Results

Across the focus groups, a coherent picture emerged of how teachers' accounts represented giftedness as less visible in girls, not as an inherent gender characteristic, but as a perception shaped by behavioural salience, classroom norms, and socio-cultural expectations. Teachers reported encountering pupils perceived as potentially gifted predominantly among boys. In their accounts, this impression was not attributed to a true difference in ability, but to the perception that girls more often conformed to expected classroom behaviours and were therefore less noticeable. One teacher stated that "girls are generally more suited to the school context, but they do not stand out particularly", and another remarked that "they are always more well-mannered, and this makes them less noticeable". In multiple accounts, teachers represented girls as generally "good", compliant, and oriented towards doing what is required, noting that "they adapt to the context, they do not disturb, they do everything they are asked to do", whereas the most visible forms of excellence were more often associated with boys characterised by greater exposure and, at times, oppositional or rebellious behaviour, which makes them more salient and easier to name as "gifted". When referring to boys, teachers described "some very rebellious pupils", who "tend to take over the scene, even by slightly overpowering others", and who "stand out more".

A particularly informative passage concerned teachers' cultural interpretation of the phenomenon: some explicitly framed the observed difference as culturally shaped, noting that girls tend to invest in order, careful completion of tasks and turn-taking, whereas boys continue to intervene and "express their thinking", increasing the likelihood that their potential will be noticed in discussion and oral participation. Overall, these qualitative findings suggest that, in everyday practice, giftedness is often recognised through a prototype centred on visibility, assertiveness and "bursts" of excellence, and that such a prototype may contribute to a perceptual flattening of gifted girls, with implications for teacher education and the adoption of observational indicators that are more sensitive to less overt profiles among girls perceived as gifted.

These descriptions should therefore be interpreted as teachers' socially situated perceptions of gendered classroom behaviour, rather than as evidence of inherent differences between boys and girls.

### 3.3. Integration of Quantitative and Qualitative Findings

Overall, integrating the survey and focus-group findings reveals a clear convergence. Quantitative results indicate that, despite a prevalence of "mixed" responses, "boys only" attributions are substantially more frequent than "girls only" attributions among exclusive

gender attributions: this pattern points to a possible visibility gap in informal classroom recognition of giftedness, while the predominance of "mixed" responses requires cautious interpretation.

The qualitative findings help to explain how this gap may arise in everyday school practice: teachers represented girls as generally more adapted to the school context and less likely to stand out, and therefore less noticeable through salient cues, whereas boys were associated with greater communicative exposure and, at times, a more dominant or oppositional presence that makes them easier to name as "excellent". From this perspective, the observed imbalance should not be interpreted as a difference in true prevalence, but rather as the outcome of an interaction between implicit prototypes of giftedness (centred on visibility and participation) and behaviour styles that are socially expected and reinforced in the classroom, with the risk that high-potential female profiles remain under the radar and are identified less often.

An additional element emerging from the quantitative data suggests that topic-specific training may attenuate this perceptual gap, at least to some extent: among teachers who reported having attended a giftedness-specific course, the proportion of "boys only" attributions was lower than among those who had not (27.1% vs. 41.5%), suggesting a non-significant directional pattern that may be consistent with greater sensitivity to less salient profiles, but that requires confirmation in larger samples. This pattern aligns with focus-group accounts, where recognition often appeared to be guided by "noisy" cues and visibility-oriented prototypes of excellence: teacher education may therefore represent a promising hypothesis for future investigation.

## 4. Discussion

The present study, conducted in Italian primary schools and based on a mixed-methods design, examined how teachers perceive and recognise giftedness in everyday classroom practice, with a specific focus on the possible presence of gender patterns in perception-based attributions. A central finding from the survey is the coexistence of two patterns: the majority of teachers selected the "mixed" category, indicating that perceived giftedness was often attributed to both boys and girls, while, among exclusive gender attributions, "boys only" responses were substantially more frequent than "girls only" responses. The resulting boys-only/girls-only ratio of approximately 4:1 should therefore be interpreted as a constructed and partial indicator of asymmetry within exclusive attributions, rather than as a direct measure of the overall gender distribution of perceived giftedness or of the true prevalence of giftedness by gender. This interpretation is particularly important because the "mixed" category, which represents the largest share of responses, does not specify the relative number of boys and girls within each teacher's attribution. Consequently, it does not allow assessment of within-class gender balance among pupils perceived as gifted. The boys-only/girls-only ratio is therefore informative only as an indicator of asymmetry in the most gender-specific attribution patterns, and its meaning must be considered alongside the full distribution of responses.

Considered together with the focus-group evidence, the quantitative pattern is consistent with the hypothesis that gendered differences in later formal identification and programme participation may be preceded, at least in part, by asymmetries in informal classroom recognition. However, the present study does not test a causal pathway. Rather, it highlights a perception-based pattern that deserves further investigation through larger samples and designs capable of linking teacher attributions with formal identification processes.

A defining feature of the present work is the assumption that informal recognition of giftedness in primary school is, first and foremost, an educational practice: teachers do not diagnose, but observe cues, interpret them, and decide whether to activate differentiated

provision, enrichment, appropriately challenging tasks, cognitively demanding responsibilities, or strategies for extending the curriculum. This practical level is crucial because it may shape opportunities, expectations and school trajectories long before any formal assessment might occur. Research on referral and nomination has shown that teachers can represent a critical point in the identification process: small judgement biases may translate into systematic differences in access to opportunities (Bianco et al., 2011; Siegle & Powell, 2004). The specific contribution of our study is to show that, even without entering the domain of gifted programmes, this critical point is already observable as a perceptual pattern in primary teachers' discourse and attributions.

The comparison with Petersen's (2013) meta-analysis should therefore be read as heuristic rather than directly evidentiary. Petersen reports a boys/girls ratio of approximately 1.19 in identification and participation in gifted programmes, whereas the present study captures teachers' perception-based attributions, not programme access or assessed giftedness. The contrast is nevertheless theoretically relevant because it suggests that informal recognition practices may be one context in which gendered asymmetries begin to take shape. This possibility remains an interpretative hypothesis, not a demonstrated causal mechanism.

The qualitative findings help to clarify how such a visibility gap may operate in everyday classroom practice. Teachers often associated giftedness with salient indicators such as oral participation, initiative, assertiveness, the ability to "take over the scene", and, at times, oppositional or disruptive behaviour. Such cues attract attention and tend to be remembered, making them more likely to be interpreted as signs of excellence. By contrast, within teachers' accounts, girls perceived as gifted were often represented as more compliant, discreet, and adaptive. These accounts should not be read as descriptions of inherent gender traits, but as socially mediated teacher perceptions shaped by classroom expectations, behavioural norms, and socio-cultural gendered patterns. This interpretation is consistent with studies suggesting that participation styles and self-presentation may influence the classroom visibility of potential (Lee, 2002; Reis & Callahan, 1996).

From a theoretical perspective, these findings align with the "Underground" profile described by Betts and Neihart (1988), which refers to gifted pupils who reduce the visibility of their talent for relational and adaptive reasons. Although this is a descriptive model rather than a causal test, it provides a useful frame for interpreting why some girls perceived as gifted may not be recognised through highly visible cues. Reis (1987) similarly highlighted that gifted girls may face specific pressures linked to social and school expectations, with a risk of underachievement or invisibility. While the present study does not directly measure underachievement, it points to a plausible educational antecedent: a lower likelihood of being recognised as gifted within teachers' discourse. Complementary evidence also suggests that gender differences in psycho-educational variables, such as self-esteem, may indirectly contribute to different self-presentation styles, with implications for the visibility of potential in the classroom (García Perales et al., 2019). In this light, the literature on gifted females has also described internal barriers and personal decisions that may reduce the visibility of girls' talent, particularly in contexts that reinforce compliance and the ethic of caring (Reis, n.d.).

A further key issue, with direct relevance for teacher education and classroom practice, concerns implicit prototypes: what counts as giftedness for a teacher? The literature shows that stereotypes about giftedness, for example, the idea of "brilliance" associated with certain outward manifestations, may interact with gender stereotypes, shaping educational expectations and the interpretation of behaviour (Matheis et al., 2020; Siegle et al., 2010). When this occurs, teachers may evaluate similar behaviours differently or attribute female excellence more to effort and diligence than to ability. This aligns with classic findings on

gender differences in teacher and student perceptions of gifted pupils' ability and effort, whereby girls are more often associated with higher effort (Siegle & Reis, 1998). From an educational standpoint, the risk is twofold: on the one hand, gifted girls may be recognised primarily as "good" and meticulous; on the other, they may receive fewer opportunities for cognitive challenge because their excellence is interpreted as conformity rather than as a need for enrichment.

The qualitative material similarly suggests that giftedness is often identified through a prototype centred on performance and visibility. When this prototype is narrow, some profiles remain at the margins, with the risk that pupils perceived as quiet, compliant, or less exposed receive fewer opportunities for enrichment, authentic tasks, partial acceleration, or curriculum compacting. Research with pre-service teachers also shows that representations of gifted pupils may include non-cognitive and stereotyped dimensions, contributing to profiles that guide attention and interpretation (Ferrándiz et al., 2025).

A further element consistent with a visibility/referral-bias interpretation concerns the role of topic-specific training. In the sample, teachers who had not attended a giftedness-specific course were more likely to attribute giftedness exclusively to boys than those who had attended a course (41.5% vs. 27.1%; OR = 1.91, 95% CI [0.94, 3.86]). The association was small in magnitude and close to conventional thresholds of statistical significance ($\chi^2(1) = 3.30$, $p = 0.069$; Yates' correction $p = 0.099$; $\varphi = 0.12$).

Therefore, this result should be interpreted as a non-significant directional pattern, consistent with the qualitative evidence but requiring confirmation in larger samples. It may suggest that training could help broaden teachers' implicit prototypes of giftedness and make less salient profiles more recognisable, but the present data do not demonstrate a statistically significant training effect. The educational implications should therefore be framed cautiously. Teacher education may represent a promising avenue for reducing gendered visibility gaps, but further research is needed to determine whether specific training programmes actually modify teachers' attribution patterns.

This implication aligns with the Italian experience of LabTalento (University of Pavia), which emphasises the importance of preparing teachers and equipping them with instructional tools and observational criteria to recognise heterogeneous high-potential profiles, including those that are less "noisy" (Zanetti, 2017; Zanetti & Tamburnotti, 2020). More broadly, teacher education should not be limited to general definitions of giftedness; it should include differentiated observational indicators, heterogeneous profiles, case-based reflection, and guided analysis of implicit bias, as also suggested by work on pre-service teachers' beliefs (Matheis et al., 2020). In this perspective, attenuating visibility/referral bias requires systematically designed training interventions—clear objectives, content, instructional strategies, and impact evaluation—consistent with models for planning and developing teacher education programmes described in the teacher education literature (Medina Rivilla et al., 2014). The training goal should be to broaden the prototype of giftedness by recognising less overt cues as well, such as the quality of pupils' questions, conceptual connections, originality in solutions, rapid generalisation, and metacognitive capacities.

The findings allow implications to be articulated at three levels. At the teacher level, there is a need to strengthen systematic observation competencies for recognising giftedness, distinguishing between good conduct/accuracy and a genuine need for cognitive challenge; this is particularly important for girls, who may be valued as "good" without any substantive differentiated provision being activated. At the classroom level, if visibility shapes recognition, teaching can be designed to offer multiple channels for the expression of potential: not only competitive oral participation, but also authentic tasks, creative products, small-group problem-solving, metacognitive journals, and structured discussions with equitable turn-taking, so that potential does not depend solely on the ability to "take centre

stage". At the organisational level, brief observational protocols and periodic rubrics can be introduced to ensure that a wider range of indicators is considered; from this perspective, teacher nomination should not be the only entry route, as the literature on nomination bias suggests (Siegle & Powell, 2004).

The results may also be interpreted in light of work that views the under-representation of girls in gifted pathways as the cumulative outcome of educational practices and selection processes that reproduce inequalities (dos Reis & Gomes, 2011). In this view, small differences in visibility or participation styles can be amplified by gendered educational practices—such as expectations, encouragement, opportunities and pathways—contributing over time to more pronounced differences in recognition and talent development trajectories (Kerr et al., 2012). It is therefore pertinent to situate our findings within a broader system-level pattern consistent with referral/visibility bias. In the Italian context, LabTalento at the University of Pavia represents one of the main national reference centres for research, assessment, teacher training, and support related to giftedness and high potential. Service-access data disseminated by LabTalento report a marked gender imbalance among children who reach assessment (e.g., 2010–2015: 187 cases assessed, 170 boys and 17 girls). These sources do not estimate population prevalence and should be understood as contextual and illustrative rather than evidentiary (LabTalento, 2016a, 2016b; Istituto di Ortofonologia, 2014). Read cautiously alongside the present findings, this contextual information supports the need to investigate whether what is noticed and named in the classroom may influence whether subsequent steps, such as referral and assessment, are activated. This leads to operational implications consistent with an inclusive approach to fostering potential in primary school: making observational criteria more explicit, broadening prototypes of giftedness beyond overt visibility, and designing gender-responsive teacher education and practical identification tools that can capture less salient profiles.

Finally, it is essential to reiterate that our study measures teachers' attributions and estimates, not true prevalence or formal identification. In particular, the category "pupils perceived as gifted" was based entirely on teachers' professional judgement and was not verified through standardised assessment criteria; therefore, responses may reflect teachers' labelling tendencies as much as underlying pupil characteristics.

Moreover, gender was operationalised as a binary, teacher-reported attribution rather than as an individual pupil-level variable. The data therefore cannot capture pupils' self-identified gender or the actual gender composition of pupils with formally assessed giftedness. The sample is non-probabilistic and based on voluntary participation; moreover, the "girls only" category is small, limiting the precision of some estimates. The focus groups are interpretative in nature: thematic analysis (Braun & Clarke, 2006) does not aim to "validate" statistically, but to understand meaning-making frameworks and educational criteria. That said, convergence between quantitative and qualitative evidence strengthens the argument: a quantitative pattern of imbalance is accompanied by coherent qualitative explanations in terms of visibility, behavioural norms, and implicit prototypes.

## 5. Conclusions

This mixed-methods study examined Italian primary school teachers' perception-based attributions of giftedness, with particular attention to gendered patterns in informal classroom recognition. The findings suggest that early recognition depends to a large extent on teachers' day-to-day practices of observation and interpretation, and that gendered recognition patterns may emerge precisely at this initial, informal stage.

The findings show that most teachers selected the "mixed" category, indicating that perceived giftedness was frequently attributed to both boys and girls. At the same time,

among exclusive gender attributions, "boys only" responses were much more frequent than "girls only" responses. This boys-only/girls-only ratio should be interpreted cautiously as a partial indicator of asymmetry in gender-specific attribution patterns, not as a direct measure of the overall distribution of perceived giftedness or of the true prevalence of giftedness by gender.

The qualitative findings suggest that this asymmetry may be linked to a visibility issue. Within teachers' accounts, giftedness was often associated with salient classroom behaviours, such as oral participation, assertiveness, initiative, and, at times, disruptive or oppositional conduct. Girls perceived as gifted were more often represented as compliant, rule-adherent, and less exposed; however, this should be understood as a socially situated perception shaped by classroom norms and gendered expectations, not as an inherent gender characteristic. These findings point to the need to broaden teachers' observational criteria beyond overt behavioural salience.

The exploratory result concerning training should also be interpreted cautiously. Although teachers who had attended a giftedness-specific course showed a lower proportion of "boys only" attributions, the association was not statistically significant. Therefore, training should be considered a promising hypothesis for future investigation rather than a demonstrated effect in the present dataset. Nevertheless, the qualitative evidence supports the pedagogical relevance of teacher education focused on heterogeneous gifted profiles, implicit bias, and gender-responsive observational tools.

Overall, the study suggests that informal classroom recognition is a crucial educational space in which gendered patterns may emerge. In contexts such as Italy, where systematic screening procedures are not uniformly available, supporting teachers with clearer observational criteria and practical tools may contribute to more equitable recognition of pupils perceived as gifted. Future research should examine these patterns using larger and more representative samples, more detailed measures of gender attribution, and designs that triangulate teacher perceptions with structured observations, formal identification data, and educational outcomes.

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**Informed Consent Statement:** Informed consent was obtained from all participants involved in this study. In accordance with the GDPR, all information was processed in an aggregated form, without including any personal or sensitive data.

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