Bartın University Journal of Faculty of Education
BUEFAD Volume 13, Issue 4

1062-1082
dergipark.org.tr/buefad
DOI: 10.14686/buefad.1404327

A Comparative Analysis of Questioning and Responding Strategies Used by Mothers of Gifted and Typically Developing Children

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Research Article
Received: 13.12.2023
Revised: 12.07.2024
Accepted: 24.07.2024

Abstract

This study compares the questioning and responding strategies used by mothers of gifted and typically developing children towards their children. For this purpose, a qualitative approach using semi-structured interviewing with 44 mothers – 19 mothers of gifted children and 25 mothers of typically developing children – was conducted. The findings show that mothers of gifted children mostly use hypothesis, interpretation and reflective question types while asking questions to their children, whereas mothers of typically developing children mostly use inference and interpretation question types. Regarding responding strategies, the study shows that mothers of gifted children mostly answered their children's questions with explanations based on cause-effect relationships and encouraged collaboration while answering, on the other hand, mothers of typically developing children mostly answered their children's questions by explaining them with examples. This study makes important contributions to the influence of question-answer communication in the mother-child relationship on shaping the child's cognitive developmental pathways and the ecological aspect of giftedness.

Keywords: Giftedness, questioning strategy, responding strategy, maternal interaction, interview, thematic analysis.

Özel Yetenekli ve Normal Gelişim Gösteren Çocukların Annelerinin Kullandıkları Soru Sorma ve Cevap Verme Stratejilerinin Karşılaştırmalı Bir Analizi

Öz

Bu çalışma özel yetenekli ve normal gelişim gösteren çocukların annelerinin çocuklarına yönelik kullandıkları soru sorma ve cevap verme stratejilerini karşılaştırmaktadır. Bu doğrultuda, 19 özel yetenekli çocuk annesi ve 25 normal gelişim gösteren çocuk annesi olmak üzere 44 anne ile yarı yapılandırılmış görüşmeler kullanılarak nitel bir yaklaşım yürütülmüştür. Bulgular, özel yetenekli çocukların annelerinin çocuklarına soru sorarken çoğunlukla hipotez, yorumlama ve yansıtıcı soru türlerini kullandıklarını, normal gelişim gösteren çocukların annelerinin ise çoğunlukla çıkarım ve yorumlama soru türlerini kullandıklarını göstermektedir. Cevap verme stratejileri açısından özel yetenekli çocukların annelerinin çocuklarının sorularını çoğunlukla neden-sonuç ilişkilerine dayalı açıklamalarla cevapladıklarını ve bu süreçte işbirliğini teşvik ettiklerini, normal gelişim gösteren çocukların annelerinin ise çocuklarının sorularını çoğunlukla örneklerle açıklayarak cevapladıklarını göstermektedir. Bu çalışma, anne-çocuk ilişkisinde soru-cevap iletişiminin, çocuğun bilişsel gelişim yollarını şekillendirmedeki etkisine ve özel yetenekliliğin ekolojik boyutuna önemli katkılarda bulunmaktadır.

Anahtar kelimeler: Özel yeteneklilik, soru sorma stratejisi, yanıt verme stratejisi, anne tarafından etkileşim, görüşme, tematik analiz.

To cite this article in APA Style:

Kırca Demirbaga, K. & Özcan, S. (2024). A Comparative Analysis of Questioning and Responding Strategies Used by Mothers of Gifted and Typically Developing Children. *Bartın University Journal of Faculty of Education, 13*(4), 1062-1082. https://doi.org/10.14686/buefad.1404327

INTRODUCTION

There has been a paradigm shift in giftedness studies, although genetic studies on intelligence continue (e.g., Barbey et al., 2014; Hill et al., 2014; Zhao et al., 2014). Multifaceted models considering broader individual characteristics and environmental influences are now being studied (e.g., Barab & Plucker, 2002; Gagne, 2005; Sternberg, 2017; Ziegler, 2005). This change highlights the physical and social features of the family environment as critical to developing giftedness. For example, to foster giftedness in the home environment, books (Stoeger et al., 2014), educational materials, and artistic and musical stimuli (Melhuish et al., 2008; Weissler & Landau, 1993), parents' socioeconomic status (Olszewski-Kubilius, 2000), as well as shared leisure activities (sports, cultural events, social visits) (Ferreira & Fleith, 2012), are all accepted as crucial factors.

Research emphasises the important role of parents in supporting the development of giftedness in children (e.g., Al-Shabatat et al., 2009; Aspesi & Fleith, 2006). Parental attributes, attitudes, values, expectations (Gross, 2004; Stoeger et al., 2014), and behaviours (Lee & Bowen, 2006; Stoeger et al., 2014) have been noted to impact children's gifted performance. Current studies in the relevant literature have predominantly focused on general parental attitudes on the cognitive development of children (e.g., Busch et al., 2018; Gauvain, 2001; Legare et al., 2017), the role of parent-child interaction in developing children's independent problem-solving and learning (e.g., Dieterich et al., 2006; Mermelshtine, 2017). However, the specific impact of parents' questioning and responding strategies on nurturing giftedness remains underexplored. Addressing this research gap, our study aims to investigate the questioning and responding strategies used by mothers of gifted and typically developing children, highlighting distinctions between the two groups. While it is crucial to examine the questioning behaviours of both parents (Rowe et al., 2017), this study specifically focuses on maternal questioning and responding strategies due to the predominance of mothers as primary caregivers. Guided by this focus, our research question is: "How do the questioning and responding strategies used by mothers of gifted children differ from those used by mothers of typically developing children?"

Role of Questioning in Higher Order Thinking Skills

Questioning and responding, fundamental teaching and learning components since Socrates' era, have enduring significance. While diverse perspectives exist on the definition of questioning (Watson, 2018), our emphasis lies in its educational context. Extensive research spanning problem-based learning, curiosity, and inquiry scaffolding, attests to the potency of questions as pedagogical tools (Schwartz et al., 2016). Profound questioning empowers educators to unravel the mystery of students' thinking (Costa & Kallick, 2015). A cost-effective and accessible means to cultivate critical and creative thinking is through adept questioning (Voss, 1987). Skillful questioning augments academic achievement (Von Secker, 2002), facilitates language acquisition (Blewitt et al., 2009), and bolsters content comprehension (Haden et al., 2015).

The nexus between questioning and learning is forged through thinking, a cognitive process that reshapes information in novel ways (Willingham, 2009). Learning is propelled by thinking, substantiated by studies (Alexander et al., 2022; Vermette, 2009). Without thought, learners cannot assimilate novel concepts into their existing mental frameworks (Schwartz et al., 2016). Learning stems from the stimulating nature of questions as students think and transition to learning (Lyman, 1987). This highlights the substantial metacognitive value inherent in questioning. In this perspective, effective questions yield cognitive development, fostering curiosity, motivation, attentiveness, and memory consolidation (Schwartz et al., 2016). Skillful questioning strategies engender meaningful learning and understanding by inciting students' internal thinking processes (Alexander et al., 2022).

Despite extensive research on teachers' questioning strategies for developing higher-order thinking skills in gifted education programs (e.g., Davis & Rimm, 2004; Feldhusen, 1994; Gallagher, 1985; VanTassel-Baska, 2006) and fostering an inquiry-based classroom climate (Gallagher, 1985; VanTassel-Baska, 2006), there has been limited focus on the questioning and responding strategies used by parents of gifted children within the early home environment. Notably, the influence of the early home environment on language, cognitive, and social development is well-established (White et al., 1979; Morrow, 1983), with parents serving as pivotal early educators (Davis & Rimm, 2004). Parent-child conversations significantly contribute to children's thinking and learning (Frazier et al., 2009), and questioning is a recurrent aspect of parental discourse from an early age (Kurkul & Corriveau, 2018).

Parent-child questioning interactions begin as early as 5 months of age and persist throughout childhood (Bornstein et al., 1992; Ervin-Tripp & Miller, 1977). Such rich engagements enhance language development, and

language skills are closely tied to cognitive abilities (Huttenlocher et al., 2002). Consistent, stimulating verbal exchanges correlate with improved cognitive outcomes in children (Weizman & Snow, 2001). Mothers who use diverse questioning approaches, offer positive responses and engage in extensive verbal dialogues help to advance their children's cognitive development (Berk, 2008; Huttenlocher et al., 2002). Hence, an essential inquiry arises: What is the distinct questioning and responding approaches experienced by gifted and non-gifted children within their early home environment?

Art of Questioning

Facilitating the creation of thought-provoking questions that stimulate critical thinking, deepen understanding, and foster intellectual development in students calls for integrating Bloom's Taxonomy (1956) as a foundational framework for educators' questioning strategies. Notably, scholars such as Gallagher (1985), Patterson (1973), Pollack (1988), and Wolf (1987) have underscored the significance of applying Bloom's taxonomy to structure questions across its levels, particularly emphasizing the higher-order domains of knowledge, comprehension, application, analysis, synthesis, and evaluation. This taxonomy, renowned for categorizing educational objectives, is pervasive in K-12 and higher education classrooms, contributing to teaching practices (Armstrong, 2010).

A group of cognitive psychologists, curriculum theorists, instructional researchers, and assessment specialists have revised and restructured Bloom's Taxonomy into six key categories, each designated with active verbs: (1) remembering (recalling and recognizing information), (2) understanding (comprehending and interpreting information), (3) applying (using knowledge, concepts, or principles to solve problems), (4) analysing (breaking down information and exploring relationships or structure), (5) evaluating (making judgments, assessments, or critiques based on criteria), and (6) creating (generating novel ideas or products by combining existing knowledge in innovative ways) (Anderson & Krathwohl, 2001). This updated taxonomy emphasizes higher-order skills such as analysis, assessment, and creativity, in contrast to the earlier version, emphasising lower-level cognitive processes like knowledge and comprehension.

The updated version acknowledges the need for students to acquire essential skills and competencies such as critical thinking, problem-solving, and creativity, vital for success in today's intricate and rapidly evolving world. Introducing the creating level as the pinnacle of cognitive complexity underscores generating new ideas, products, or viewpoints by synthesizing existing knowledge and concepts. The definitions of each level in the revised taxonomy aim to illustrate the incremental nature of learning and the escalating intricacy of thinking skills as one ascends the taxonomy. In essence, the updated Bloom's Taxonomy retains the foundational structure of the original version while enhancing it through a heightened emphasis on higher-order thinking, modernizing the vocabulary, and adjusting to current educational demands. In this study, we juxtaposed the questioning strategies used by mothers of gifted and typically developing children, adapting the classroom environment of teachers to the home setting of mothers, within the framework of Wolf's (1987) question types based on Bloom's Taxonomy, as depicted in Figure 1 below.

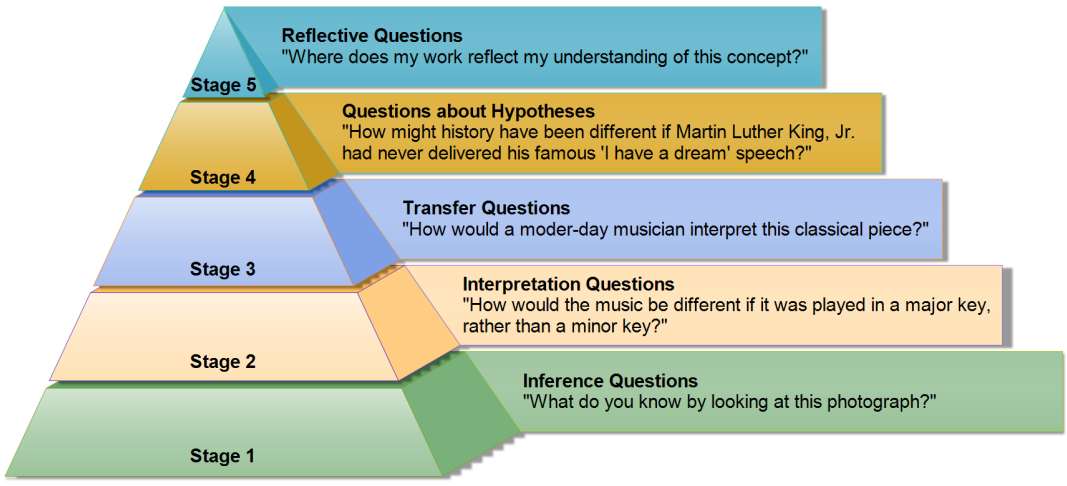

Figure 1. *Pyramid of the art of questioning (adapted from "The Art of Questioning," by D. P. Wolf (1987)).*

Inference questions encompass memory, knowledge, and comprehension, prompting students to surpass readily available information with a descriptive intent – inquiring about who, what, where, when, and how (Wolf, 1987). For example, consider this photograph's implications. Children are tasked with discerning content cues (where and when the photo was taken), technical aspects (where the photographer stood and where the light sources were located), and semantic nuances (how the photographer feels about the content of the photography). This approach encourages children to deduce, analyse, and deliberate over confirmed inferences, constituting fundamental inquiry that involves interpreting clues, predominantly featuring questions admitting a singular correct response.

Interpretive questions foster children's comprehension of information's consequences, prompting critical thinking instead of merely completing gaps or adjusting solutions, as seen in inference questions (Wolf, 1987). For example, an art teacher might challenge a student to assess a portrait, gauging the impact of removing a specific element. When presenting interpretive queries, one could ask how a young person's life might shift if they opt out of college or early marriage (Shaunessy, 2000). These queries follow an open-ended structure, allowing varied correct responses promoting divergent thinking (Pollack, 1988). While assessing such answers is challenging due to a lack of guidelines, they cultivate a learning environment esteeming the process of arriving at answers more than the answers themselves (Pollack, 1988).

While interpretive questions delve deeper, *transfer questions* prompt expansive thinking, pushing children to apply knowledge in novel contexts (Wolf, 1987). For example, how might Shakespeare have portrayed contemporary conflicts? How could a modern filmmaker interpret historical events? Transfer questions meld knowledge and interpretation for new situations. Predictive thinking, typically linked to sciences, is vital across hard disciplines. Nonetheless, predictive thinking, tied to *hypotheses,* holds significance across all domains. This question format centres on predictions beyond existing knowledge, interpretation, and transfer (Wolf, 1987). For example, how would the civil rights movement have evolved if Martin Luther King, Jr. had not given his iconic "I Have a Dream" speech? Based on current societal challenges, what do you predict will be the predominant themes and narratives explored in future movies, novels, and plays?

Reflective questions encourage children to reflect on their thought processes and evaluate their metacognitive strategies (Shaunessy, 2000). In discussions, meaningful exchanges arise through reflective thinking and questioning. In planning follow-up questions, the questioner should seek clarification on unclear ideas (Will, 1987). For example, how does this work mirror my beliefs? Where does it display my unique perspective? Children must comprehend their thought processes, rationale, and the factors shaping their conclusions. This approach directs learning toward probing their ideas, fostering extended discussions, and converting their statements into thought-provoking questions (Letzter, 1982). Research shows that answers are as important as questions in child development. For example, Maker and Nielson (1996) stress avoiding formulaic replies to nurture student engagement; responses like "Yes, I see, okay, fine" may devalue contributions. However, paying close attention to when and how a teacher reacts can convey to pupils that their thoughts are "worthwhile, significant, pertinent, or sincere"; for example, "Yes, I can understand that; I see what you mean, I hadn't thought of that before, and that makes a lot of sense" (Maker & Nielson, 1996, p.48).

Context of the Study: Türkiye

In Türkiye, the Ministry of National Education has employed specially talented term since 2013 to designate gifted individuals (Gucyeter et al., 2017). This paper uses gifted term to provide international intelligibility. The Turkish Ministry of National Education Special Education Services Regulation defines a specially talented individual as "one who is quick in learning in comparison with his/her peers, is advanced in the capacity of creativity, art, leadership, possesses the special academic ability, understands abstract ideas, loves to act independently in his/her interests and performs at a high level" (MoNE, 2016, p. 450). This definition underscores giftedness as multifaceted. Nevertheless, identifying gifted children remains largely reliant on individual intelligence tests.

In Türkiye, the General Directorate of Special Education and Guidance Services annually actualises the identification of gifted children in primary and secondary schools through three stages: (1) teacher-recorded observation forms, (2) group tablet-based testing, and (3) individual IQ (intelligence quotient) assessments (MoNE, 2017-2018). Upon successful completion of these stages, the child is identified as gifted and shows the potential to be able to access a variety of educational options such as special schools, special classes and after-school programmes. Special schools encompass science high schools, social science high schools, conservatories, fine arts, and sports high schools. Special classes host resource rooms, fostering individual curriculum adjustments

for specially talented students. After-school programs involve Science and Art Centers (SACs) and child universities (Gucyeter et al., 2017). SACs serve gifted students in painting, music, and general intellectual ability, nurturing abilities without interrupting their formal education (MoNE, 2017-2018).

METHOD

Research Design

A qualitative approach was chosen due to its capacity for deep exploration of intricate social dynamics (Creswell & Poth, 2018). This method facilitated comprehensive insights into maternal beliefs, attitudes, and behaviours concerning their children's interactions with them, accounting for cultural and environmental influences (Denzin & Lincoln, 2018). The interviews were conducted to gather detailed self-reported data to address the research question in-depth and comprehensively. Ten semi-structured interview questions were prepared (see Appendix A). These questions were informed by examining the relevant literature to discuss key issues (Hennink, 2007). The questions used in this study were arranged by taking expert opinions. Necessary revisions were made in line with the feedback from experts. Before the main study, three pilot interviews ensured mutual comprehension. Interviews were actualised in person and audio-recorded to ensure accurate data collection and participant representation.

Participants and Data Collection

Given the underrepresentation of economically disadvantaged students in gifted programs (Plucker et al., 2010), this group was chosen to contribute to inclusive identification and support policies and interventions for all socioeconomic backgrounds. With 19 primary schools in the district, the school with the largest number of students was selected to ensure an adequate participant pool. The school's headteacher was interviewed after university ethical approval and sample group determination. The school's student body comprises predominantly Turkish and Muslim families of low socioeconomic status. Following communication with the headteacher, information sheets and consent forms were provided to mothers of gifted and typically developing children. Interview appointments were arranged with volunteer mothers. All interviews were conducted in person and audio-recorded for accuracy and participant integrity. In total, 44 mothers were interviewed; 19 participants were mothers of children identified as gifted and receiving education in SACs in addition to formal education. The remaining 25 participants were mothers of children who had not been involved in the identification tests, demonstrated typical development, did not require special education, and were engaged solely in formal education. The demographic details of the participants are presented in Table 1 below.

Table 1. Demographic Characteristics of the Mother Sample of Gifted and Typically Developing Children

Characteristics	Mother sample of typically developing children	Mother sample of gifted children
Gender		
Female	25	19
Age group of mothers		
30-39	18	13
40-49	7	5
50-59	-	1
Graduation degree of mothers		
Primary school graduate	15	2
Secondary school graduate	3	4
High school graduate	6	6
Bachelor's degree	1	6
Postgraduate degree	-	1
Gender of children		
Male	13	9
Female	12	10
Age group of children		
8-9	7	9
10-11	18	10
School year of children		
Year 1	-	3
Year 2	7	6
Year 3	14	7
Year 4	3	3

The distribution of participating mothers in both groups aligns. For example, within the 30-39 age range, 18 mothers with children identified as gifted and 13 mothers with typically developing children. Likewise, the 40-

49 range includes 7 mothers with children identified as gifted and 5 mothers with typically developing. Only one mother with a child identified as gifted is over 50, which is not expected to impact study results. The broad participant age range within each group (30-49 for the mothers of typically developing children, 30-59 for the mothers of gifted children) is notable. Given the similarity in responses within each group, the extensive age range is unlikely to affect study outcomes significantly. Similarly, the age distribution of children in both groups is aligned, all primary school students. Thus, this age alignment is not anticipated to yield divergent research findings.

Differences in maternal education levels between the groups, outlined in the conclusion, represent a study limitation. However, these variations are not likely to heavily influence outcomes. Our aim wasn't to assess how maternal education impacted giftedness or gifted performance. Rather, we focused on examining the differences in questioning and responding strategies used by mothers of gifted and typically developing children. Examining underlying factors driving these differences might fuel future research, creating new investigative paths. Within this framework, maternal education discrepancies, while limitations, don't overshadow findings and may incite novel research avenues.

Data Analysis

Considering the study's purpose and research question, we employed thematic analysis, which provides rich and detailed results and reports participants' experiences, meanings and reality (Braun & Clarke, 2006). We aimed to uncover meaning patterns and offer explanatory insights rather than formulating new theories. Initially, interview notes were translated from Turkish to English, ensuring fidelity. The first author, proficient in both languages, conducted the direct translation, which was subsequently reviewed for consistency and adherence to the original meaning by two bilingual researchers. No discrepancies or ambiguities emerged.

Following Braun and Clarke's guidelines (2006), we undertook a systematic process; closely reading each transcript, generating initial codes, deriving potential themes based on code semantics, reviewing and structuring themes into a map, and ultimately describing these themes. All data were manually and thematically coded through a data-driven inductive approach, with all codes deemed significant. The first author conducted coding, which the second author verified. Subsequently, a third independent reviewer joined the coding process, bolstering the results' credibility and the findings' robustness. Post-coding, responses underwent a comprehensive review to ensure intra- and inter-participant consistency. A total of 109 codes and 5 themes were generated in the study: (1) the importance of asking children questions from mothers' perspectives, encompassing 31 codes; (2) question structuring styles of mothers for their children, with 15 codes; (3) responding styles of mothers for their children, featuring 22 codes; (4) mothers' approach to their children's questions, comprising 34 codes; and (5) mothers' approach to their children's responses, with 7 codes. Appendix B contains the code list.

Research Ethics

Before the data was collected, a strict methodology was followed in accordance with the 2011 Ethical Guidelines published by the British Educational Research Association (BERA). Through extensive verbal and written disclosure, each participant received a thorough explanation of the goals and methods of the study. Participants had to sign a consent form indicating their explicit approval before participating. Participants are reassured of the rigorous ethical standards controlling the study by the clear promise to maintain confidentiality and guarantee anonymity.

FINDINGS

This section is organized based on the five themes, with each theme presenting its respective findings under a dedicated heading.

Theme 1: Importance of Asking Children Questions from Mothers' Perspectives

The initial theme delves into how mothers of gifted and typically developing children assess the importance of asking questions for their children and for what purpose they ask them. Mothers of typically developing children prioritize imparting and enhancing their children's knowledge, teaching unfamiliar concepts, and ensuring enduring comprehension through their questioning. They view questioning as facilitating their children's further and permanent learning. For example:

"Asking questions is vital for the child's development because the child learns by asking questions, and the answers we give to the questions they ask are more permanent in their minds."

"It is crucial in terms of gaining awareness about learning consciously."

Five mothers of typically developing children emphasize the significance of asking questions for nurturing social skills. They recognize questions as instrumental in promoting self-expression, gaining self-confidence, supporting language development, enhancing speaking skills, and facilitating communication. For example:

"I see it as important in terms of being able to express himself/herself more easily and contributing to his/her social skills."

"…asking questions to children is essential as it develops their speaking skills."

Among mothers of typically developing children, five highlight the importance of questioning to alleviate uncertainty and satiate curiosity, while three focus on fostering cognitive and thinking abilities, enabling problem-solving, and encouraging detailed thought. Two mothers view questioning as a means to understand their children better. In contrast, three mothers consider asking questions less pertinent to their children's development. Analysing responses from mothers of gifted children, a prevalent perspective is the emphasis on nurturing the child's cognitive and thinking skills. According to seven mothers, asking questions proves to be an effective strategy for stimulating thought processes, engaging in mind exercises, and developing problem-solving skills. For example:

"It's important. I think it does mind exercise while thinking about the answer."

"Asking questions encourages the child to think, and in this way, the development of both cognitive development and thinking skills is supported."

Parallel to the responses from mothers of typically developing children, five mothers of gifted children emphasize the significance of asking questions in contributing to the child's social skills. According to these mothers, asking questions facilitates self-expression and supports the child's self-confidence. For example:

"It is important to ask children questions as they enable them to express themselves better in a social environment."

Resembling the responses from mothers of typically developing children, four mothers of gifted children perceive asking questions as vital for enhancing their child's learning process. They regard asking questions as a tool to accelerate learning, support knowledge accumulation and make connections. Furthermore, three mothers highlight asking questions' role in nurturing their child's curiosity. While both mother groups value the development of cognitive, thinking, learning, and social skills through asking questions, the mothers of gifted children tend to emphasize cognitive and thinking abilities, such as problem-solving and critical thinking, deeming these crucial for intellectual development. Conversely, mothers of typically developing children primarily emphasized learning skills encompassing academic knowledge, study techniques, and information retention. While learning skills and cognitive and thinking skills are interconnected in education and psychology, distinctions exist between them.

Theme 2: Question Structuring Styles of Mothers for Their Children

The second theme explores how mothers of gifted and typically developing children design their questions and the question types used. Over half of the mothers of typically developing children use descriptive question structures (e.g., who, what, where). Their questions comprise straightforward knowledge inquiries, closed-ended questions, and questions targeting learning from mistakes to avoid recurrence. For example:

"During the day, I ask about everything about the school, at home and outside, such as who, what, and where."

"In general, my questions are constructive; that is, the aim is to ensure that the child learns from his mistakes and does not repeat the same mistakes."

This question type mirrors Wolf's (1987) inference questions in structure and intended response. Over half of the mothers of typically developing children use inference questions, targeting memory, knowledge, and comprehension domains. This type, deemed basic, predominantly features single-answer questions (Wolf, 1987). Nearly half of the mothers of typically developing children use interpretive questions featuring directives (e.g., if you do this, what will happen?) and questions focusing on the how aspect. For example:

"I mostly use the question of how and try to ask it by using directive phrases such as what will happen if you do so? This requires the child to make a comment."

"I ask critical questions; that is, since I am curious about his interpretation, I try to ask questions that require his interpretation."

This shows that approximately half of the mothers of typically developing children use interpretive questions in the second stage of Wolf's (1987) question framework. This question type aims to deepen children's

comprehension and stimulate critical thinking. The findings imply these mothers promote a learning process conducive to cognitive advancement and creative problem-solving. They use open-ended questions, inviting multiple valid answers fostering divergent thinking (Pollack, 1988; Wolf, 1987). In contrast to the mothers of typically developing children, approximately half of the mothers of gifted children use questions concerning outcomes, predictions, cause-and-effect dynamics, and reasoning (e.g., why it happens and/or how it is composed) for their children. For example:

"I don't know. I never thought of that. But I always focus on cause-and-effect relationships in my questions. Therefore, the child can develop a prediction or reach a result by focusing on this relationship."

The applied question types align with Wolf's (1987) fourth-stage hypothesis questions that foster predictive thinking skills. These questions encourage children to predict beyond their current knowledge, interpretation, and transfer. Among mothers of gifted children, three utilize questions promoting critical thinking, creativity, self-awareness, and purposeful inference (e.g., reasoning). For example:

"I try to ask questions that will enable my child to think critically and improve his questioning awareness. Questions for which there is not always one answer, so I try to ask questions that will make him think by focusing on why he thinks so and questions about many answers."

"The child's questions are independent of the patterns, much more creative and much more meaningful."

"That's why I care about asking questions that will develop my child's creativity and reach his new ideas with his own self."

These question types used by mothers align with Wolf's (1987) fifth-stage reflective questions, designed to prompt children to contemplate their thinking processes and assess their metacognitive strategies (Shaunessy, 2000). This approach facilitates meaningful idea exchange through reflective thought and questioning (Will, 1987), encouraging deeper thinking (Letzter, 1982). Among mothers of gifted children, four use interpretation questions (e.g., explanation-based: what will happen/what do you think?), while four utilize inference questions (e.g., descriptive: what/where?) for their children. Notably, both mother groups use inference and interpretation questions, not transaction questions. The findings reveal that while mothers of typically developing children predominantly use 1st and 2nd stage questions (inference and interpretation), over half of mothers of gifted children use 4th and 5th stage questions (hypotheses and reflective).

Theme 3: Responding Styles of Mothers for Their Children

The third theme examines how mothers of gifted and typically developing children address their children's questions. Except for three mothers, all mothers of typically developing children consider it important to address their children's questions. Among them, eight mothers emphasize the importance of responding to satisfy their child's curiosity, two prioritize showing interest in their child, and one mother considers the potential impact of her answers on her child's decisions. However, eleven mothers did not provide specific details regarding their viewpoint. For example:

"If a child asks a question, he/she is asking because he/she is curious. I answer to satisfy my child's curiosity. That's why I think it is crucial to answer to satisfy the child's curiosity."

"It is important to answer the child, not to keep the child wondering."

"It is necessary to answer the child's questions because our answers affect the child's decisions."

Analysing how mothers of typically developing children respond to their children's questions reveals several patterns; nine mothers tend to provide explanations and examples, three mothers simplify their explanations based on the child's age, three mothers use yes or no responses, three mothers focus on making the child's question more meaningful and understandable, two mothers respond positively to avoid upsetting the child, one mother instructs the child on what to do, and four mothers did not specify their responding approaches. For example:

"First, I explain the concepts in the question he asks and then give examples about it."

"I use expressions like yes or no. Sometimes these may require me to make a short explanation."

"I first inquire about the question he asks to see whether it is meaningful and understandable. I answer after I fix his question."

Reviewing responses from the mothers of gifted children, it becomes evident that all mothers consider responding to their children's questions important. Four mothers emphasize contributing to their child's cognitive development, two focus on supporting understanding, learning, and knowledge transfer, one aims to address the

child's uncertainties, and one expresses interest in the child. However, eleven mothers did not elaborate on the specific aspects of importance. For example:

"I must answer my child's questions because his questions will contribute to his cognitive development. The answers we give will also contribute to his cognitive development."

"Answering the child is as important as asking questions because providing understanding, learning, and transferring of the child requires a question-and-answer circulation."

Examining the responses of the mothers of gifted children to their children's questions reveals that twelve mothers explain answers in terms of cause-and-effect relationships and propose collaborative research. Four mothers employ a simplified explanation approach tailored to their child's age, akin to the responses of the mothers of typically developing children. Two mothers encouraged self-reliant responses from the child, while one mother did not specify her approach to responding. For example:

"I'm trying to give him the answer by explaining it in detail, and I offer to research it together. I usually explain these answers to him with cause-and-effect relationships."

"I try to listen carefully until my child's question finishes, and I try to explain in as much detail as possible, and then I suggest we research together more."

Among the mothers of gifted children, emphasizing cognitive development, understanding, and learning is the prevalent response concerning the significance of addressing children's questions. Mothers of gifted children predominantly explain answers in cause-and-effect terms and encourage joint research in their responses to children's questions.

Theme 4: Mothers' Approach to Their Children's Questions

Within the context of the theme, we transition from discussing mothers' questions to their children's questions. This section encapsulates mothers' perspectives on the significance of their children's questions and their actions to foster a culture of questioning. Among the mothers of typically developing children, nine acknowledge the importance of children's questions in comprehending their world and understanding them better. Additionally, six mothers emphasize the role of questions in promoting the child's learning, while four highlight their function in satisfying the child's curiosity. One mother notes their potential to increase the child's curiosity, one sees them as a means to prevent mistakes, and five mothers abstain from expressing their viewpoints. For example:

"If the child asks a question, they want to learn something. We must also respond to the child's desire to learn. We support the child's learning with their questions."

"The child's questions give us an idea about the child's world. It allows us to get to know our children."

Regarding the strategies used by mothers of typically developing children to foster their children's inclination to ask questions, fifteen mothers disclosed that they do not enact deliberate measures for encouragement. Conversely, three mothers motivate their children to pose questions by fostering an environment where the child feels at ease asking and communicating. An additional two mothers guide their children to discuss personal experiences, while another two prompt discussions through the presentation of cause-and-effect examples. Similarly, two mothers stimulate their children's curiosity by suggesting reading material, and one mother advises her child to consult teachers when in doubt. For example:

"I constantly tell my child that he should not be ashamed of asking questions, and I ensure that he communicates with others as much as possible."

"I want my child to talk about an event he experienced, I ask questions about him, and then I have him ask."

Conversely, in the perspective of mothers of gifted children, eight mothers emphasize the significance of children's questions as a means to cultivate their skill in inquiry, while seven mothers highlight their role in fostering the child's cognitive development. For two mothers, the importance lies in comprehending the child's mind world, and one mother sees questioning as a way to enhance the parent-child bond. Additionally, another mother perceives questions as a means to satisfy the child's curiosity. For example:

"The questions we ask may contain judgment, but there is no judgment in the questions asked by the child, and the child may approach the events in a different way. We have a pattern, and since we look at life from these patterns, the questions we ask are within the framework of these patterns. But the questions the child asks can be much more creative and much more meaningful regardless of the patterns. Therefore, it is precious for my child to ask questions so that he can learn to question independently of the patterns."

"The questions she asks reflect her mind world and will contribute to her cognitive development, so of course, it is important."

Analysing the strategies used by mothers of gifted children to stimulate their children's questioning, it is evident that eight mothers foster curiosity through engaging activities. Three mothers approach intriguing the child's mind to encourage independent investigation, while one mother employs games for encouragement. Additionally, a mother promotes questioning through family discussions on specific topics, and another engages her child with complex problems that demand comprehension, inquiry, and solution-finding. In contrast, three mothers don't undertake any explicit action to encourage their children's questions. For example:

"I usually keep it up when he asks me a question. For example, I do not directly answer the question he asks. I confuse his mind more, and I ask him to investigate. In this way, he researches more and asks more questions."

"I consciously tell him something that will arouse his curiosity, and he starts asking questions."

The findings highlight that mothers of typically developing children primarily view their children's questions as pivotal for comprehending their world and enhancing their learning. They perceive children's questions as windows into their children's perspectives and cognitive processes. Similarly, although a few mothers of gifted children also value the insight gained through their children's questions, most emphasize the role of questioning in nurturing their children's inquiry skills and cognitive development.

Theme 5: Mothers' Approach to Their Children's Responses

The final theme outlines how mothers of gifted and typically developing children engage with their children's responses and guide their interactions. Among the mothers of typically developing children, fifteen intervene in their children's responses to steer them towards what they believe to be accurate or truthful information, and two mothers intervene to enhance their children's understanding through illustrative examples. In contrast, five mothers refrained from directing their children's responses to preserve their imaginative realms, while three did not provide their perspectives. For example:

"I want my child to know the correct answer if the answer is wrong. Then I try to impose the truth on him based on my thoughts. I don't know how accurate that is."

"Yes, I usually intervene to teach the truth. Of course, these truths also include my thoughts."

Analysing the responses of the mothers of gifted children reveals that most of them refrain from intervening in their children's answers, thereby avoiding influencing their children's self-expression or identity. For example:

"I usually do not direct my child's answers in line with my thoughts, but such situations rarely occur without realizing it. The child can look at life more creatively and uniquely, so it would be wrong behaviour for me to restrict him. If I do not limit my child, he can find his identity or self. He will be able to have a more meaningful personality and express himself. Otherwise, he will turn into a person I create."

Similarly, five mothers, consistent with most mothers of typically developing children, guide their children's responses to accurate answers to prevent misconceptions. For example:

"When I am worried that my child is doing something wrong, I intervene in her answers and direct her by imposing my truths."

The findings show that mothers of typically developing children often shape answers according to their beliefs, aiming to convey their truth, on the other hand, most mothers of gifted children avoid interference, valuing their children's independent expressions.

DISCUSSION & CONCLUSION

This study reveals the similarities and differences between the questioning and responding strategies used by mothers of gifted and typically developing children towards their children. It first shows how mothers of gifted and typically developing children perceive the importance of asking questions and the purposes behind their questions. Most mothers of typically developing children attach importance to questioning to enhance their children's knowledge, teach unfamiliar concepts, and ensure lasting comprehension; mothers see questioning as important for developing social skills, self-expression, confidence, and communication for their children. On the other hand, most mothers of gifted children emphasize the importance of questioning in nurturing cognitive and thinking abilities, particularly problem-solving and critical thinking. Both groups acknowledge the importance of skill development, yet differences arise; mothers of gifted children prioritize cognitive abilities, whereas those with typically developing children place greater emphasis on learning skills. Cognitive and thinking skills

encompass essential mental processes for critical reasoning, higher-order thinking, and problem-solving (Ackerman, 2018; Anderson & Krathwohl, 2001; Facione, 2015), including knowledge analysis, synthesis, evaluation, and application. In contrast, learning skills (Weinstein et al., 2000; Zimmerman, 1990) focus on acquiring and applying knowledge, involving retention, study habits, and academic achievement. While distinguishing these aspects aids understanding, they often interact to support learning. Findings highlight the impact of cognitive emphasis among mothers of gifted children. Prioritizing these skills through questions may foster an environment where gifted children engage in advanced cognitive processes, integrating novel ideas. This early stimulation supports the learning journey of gifted children (Alexander et al., 2022; Schwartz et al., 2016; Vermette, 2009).

Notably, curiosity distinguishes the two mother groups despite both acknowledging the question's importance. For mothers of gifted children, encouraging curiosity is paramount in shaping their strategies. This aligns with existing research linking curiosity to giftedness (Colangelo, 2003; Clark, 2008). On the other hand, mothers of typically developing children see questions as satisfying existing curiosity, not cultivating it. Mothers of gifted children strive to enhance curiosity, fostering deeper interest. Conversely, mothers of typically developing children satisfy curiosity, quenching interest. Curiosity flourishes in children within a social context molded by those around them (Engel, 2011). Maternal questioning strategies at home, potentially fostering early-stage nurturing of gifted children's curiosity. Fostering a child's curiosity can profoundly influence their learning trajectory (Engel, 2011). Nonetheless, a thorough inquiry is required, prompting future studies to explore the influence of parental questioning strategies on shaping children's curiosity.

The study reveals that mothers of typically developing children primarily employ inference and interpretation question types in Wolf's (1987) question framework towards their children, whereas most mothers of gifted children prefer hypotheses and reflective question types. Mothers of gifted children use strategic questioning to cultivate an environment fostering advanced thinking skills. Utilizing targeted question types such as predictive, critical, reflective, and inquiry-based, these strategies offer early experiences that enhance cognitive abilities. While genetics influence cognitive development, parental interactions significantly shape it, especially questioning and responding, as discussed in the literature review at the beginning of the paper. These strategies challenge problem-solving, encourage critical thinking, and prompt higher-order cognitive engagement. Open-ended queries stimulate critical consideration of diverse viewpoints (Berk, 2008). Mothers of gifted children facilitate deep comprehension that transcends surface understanding by encouraging profound thought, enabling versatile knowledge interpretation and application.

Using Bronfenbrenner's (1986) eco-psychological model to analyse mothers' questioning techniques highlights the importance of mothers in children's development within the microsystem, which includes immediate interaction contexts. Children's cognitive abilities, such as critical thinking and problem-solving, are shaped by their mothers' queries, and their mothers' response techniques impact their communication skills. The mesosystem emphasises the mother's relationships with other influential figures, such as teachers and extended family, highlighting the linkages between diverse microsystems. Maternal strategies and messages impact cross-system communication, affecting child development. A mother's social networks and work environment might influence a mother's parenting methods within the ecosystem, including indirect factors. Positive work environments and support networks can enhance a mother's ability to interact effectively with her child. The macrosystem considers broader societal perspectives and cultural norms that may influence the questions and responses. The chronosystem highlights changes in development across time. As children grow, mothers modify their questions and ways they respond to meet their changing children's needs and abilities. These strategies may also be influenced by changes in family dynamics, like divorce, relocation, or resource availability. The microsystem, mesosystem, exosystem, macrosystem, and chronosystem are examined to show how these factors influence mothers' questioning and responding strategies, which in turn affects how their children develop. Based on Bronfenbrenner's (1986) framework, this ecological viewpoint emphasises the significance of a holistic family-oriented approach to child development. Additionally, Vygotsky's approach supports this perspective by acknowledging the social environment as a primary source of a child's development and emphasising the significance of interactions between the primary social environment and related external environments in fostering cognitive and psychological growth (Kirca Demirbaga, 2018).

According to the study, mothers of gifted and typically developing children show significant differences in their responding strategies. Mothers of typically developing children, on the other hand, mostly respond through examples. Mothers of gifted children respond by using cause-and-effect links and encourage their children to collaborate on responding. In other words, mothers of gifted children prioritise collaborative exploration and

causal knowledge. This interaction-based strategy may improve knowledge integration at home, which encourages analytical and critical thinking. The purposeful integration of knowledge and the effective use of informative answers contribute to children's cognitive development (Chouinard, 2007). These responding strategies, which mothers of gifted children use, may promote early cognitive development by fostering analytical reasoning, critical thinking, and coherent information integration. On the other hand, mothers of typically developing children mostly respond to their children's questions by providing examples and explanations. While some of these mothers have a tendency to stop their children's questions or respond succinctly "yes" or "no", mothers of gifted children do not exhibit these strategies. This demonstrates that the mothers of typically developing children prioritize direct, clear explanations and tangible examples to facilitate their children's understanding of concepts quickly.

According to the study, the mothers of typically developing children believe that their children's questions are crucial to understanding their world and fostering learning. They see these questions as windows into their children's thoughts and viewpoints. However, most mothers of gifted children stress the value of questioning in fostering inquiry skills and cognitive development, even though some mothers emphasize the importance of children's questions in terms of understanding their children's world. Recognizing and acknowledging children's thoughts, feelings, and inquiries are integral to responsive strategies (Bornstein, 2015). Mothers stimulate further inquiry and learning by validating their children's cognitive endeavours and offering meaningful responses. Active and responsive dialogues with children contribute to language development, which is closely connected to cognitive abilities (Huttenlocher et al., 2002). Children exposed to rich verbal interactions with caregivers generally exhibit enhanced cognitive outcomes (Weizman & Snow, 2001). Mothers who frequently pose diverse questions, respond supportively, and engage in substantial verbal exchanges with their children aid their cognitive growth (Berk, 2008; Huttenlocher et al., 2002). From an ecological perspective on giftedness, it's feasible that gifted children gain from an enriched home environment influenced by skilled maternal questioning and responding. This early nurturing can stimulate cognitive development and learning, laying a strong groundwork for gifted individuals.

For children's questions to optimally contribute to cognitive development, they must be geared toward seeking information and driven by intrinsic curiosity rather than attention-seeking (Chouinard, 2007). The relevance of their inquiries should directly pertain to cognitive development processes and content. In essence, children should acquire the ability to extract information and generate predictions that propel the meaningful progression of foundational conceptual frameworks (Chouinard, 2007). This highlights an interactive relationship between children's questions and maternal responding styles. The findings emphasize the pivotal role of parental encouragement in nurturing children's questioning skills. Findings reveal diverse maternal motivations and approaches for encouraging children's questions. Remarkably, most mothers of typically developing children mentioned no specific efforts, suggesting a potential opportunity for cultivating curiosity and learning. Interventions or strategies to promote a questioning culture could be valuable. On the other hand, most mothers of gifted children prioritize nurturing curiosity, with a few exceptions.

The study reveals both similarities and differences in the responses of the two groups of mothers regarding their involvement in their children's answers. Despite differing motivations, some mothers in both groups tend to intervene based on their perception of truth. While a few mothers of gifted children intervene to prevent inaccuracies or mistakes, most mothers of typically developing children acknowledge intervening to guide their children towards what they consider the truth. The results also underscore a clear distinction in the approaches of mothers in each group. Mothers of typically developing children often shape responses based on their beliefs to convey their own perspectives. Maternal truth may impede autonomy and self-worth, potentially inhibiting the development of independent responses (Maker & Nielson, 1996). On the other hand, most mothers of gifted children avoid interference, prioritizing the cultivation of their children's independent expressions. Most mothers of gifted children acknowledge the significance of each child's response as a unique perspective, enriching their relationships. By abstaining from imposing their beliefs and intervening in responses, these mothers can cultivate an environment that respects individuality, facilitates response development (Maker & Nielson, 1996), and nurtures self-assured expression of thoughts (Grolnick et al., 1991; Maker & Nielson, 1996). This aligns with nurturing cognitive and creative abilities in gifted children, validating their viewpoints and bolstering intellectual development (Silverman, 1993). Enabling gifted children to express themselves autonomously fosters critical thinking, articulate expression, and meaningful engagement (Walker, 2002). However, comprehensive research is needed to explore the potential impact of mothers' response approaches on children's development.

In conclusion, this study unravels distinctive patterns in questioning and responding strategies used by mothers of gifted and typically developing children. The study contributes to the ecological aspect of giftedness

studies, considering the influence of various systems on maternal strategies and, consequently, on children's development. The findings underscore the significance of maternal influences on children's cognitive development and encourage further exploration of the intricate dynamics between parental strategies and children's development. This research contributes insights to the broader understanding of nurturing cognitive skills, curiosity, and individual expression within the family context, opening avenues for future investigations into the nuanced interplay between maternal strategies and children's developmental trajectories.

Limitations of the Study and Future Research

While offering valuable insights into maternal questioning and responding strategies, the study acknowledges certain limitations that warrant consideration. The reliance on interviews as the sole data collection method, though providing in-depth perspectives, may limit the breadth of the data. Future research endeavours might benefit from employing diverse data collection methods to offer a more comprehensive understanding. The study also recognizes the need for a broader and more diverse participant pool to enhance the representativeness of results. It is essential to note the cultural homogeneity of the study, focused exclusively on Turkish participants, highlighting the importance of conducting similar research across diverse cultural backgrounds to enhance the generalizability of findings.

The aim of this study was to compare the questioning and responding strategies of mothers of gifted and typically developing children, rather than to investigate the origin of the differences in the strategies of both groups of mothers. Thus, this limitation doesn't diminish the findings and might foster new research. The study acknowledges variations in education levels among mothers and emphasizes the need for future studies to explicitly explore the correlation between parental educational backgrounds and questioning practices. This could involve examining how education impacts question types, discussion depth, and cognitive stimulation. Further inquiry is needed to grasp the mutual impact of mothers' responses and children's encouragement to pose specific questions. Despite these limitations, the study provides valuable findings on the differences in the questioning and responding strategies of mothers of gifted and typically developing children. The results may inspire future research by contributing to a more comprehensive understanding of the effects of these strategies of mothers on children's cognitive development.

Statements of Publication Ethics

Ethical permission of the research was approved by Yıldız Technical University Social and Human Sciences Research Ethics Committee's decision dated 02/05/2022. The ethics committee document number is 2022.05.

Researchers' Contribution Rate

Authors	Literature review	Method	Data Collection	Data Analysis	Results	Conclusion
Author 1	☒	☒	☐	☒	☒	☒
Author 2	☒	☐	☒	☒	☐	☐

Conflict of Interest

There are no conflicts of interest in this study.

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APPENDIX A

Interview Questions

1. What is the importance of asking questions for your child's development?

2. For what purpose(s) do you ask your child questions?

3. How do you structure the questions you ask your child? Or what kind of questions do you use when asking your child a question? Could you explain with examples?

4. When your child asks you a question, how do you respond to him/her?

5. What do you do when you don't know the answer to your child's questions?

6. What is the importance of responding to your child's questions?

7. Would you encourage your child to ask questions? If so, how do you do this, can you explain with examples?

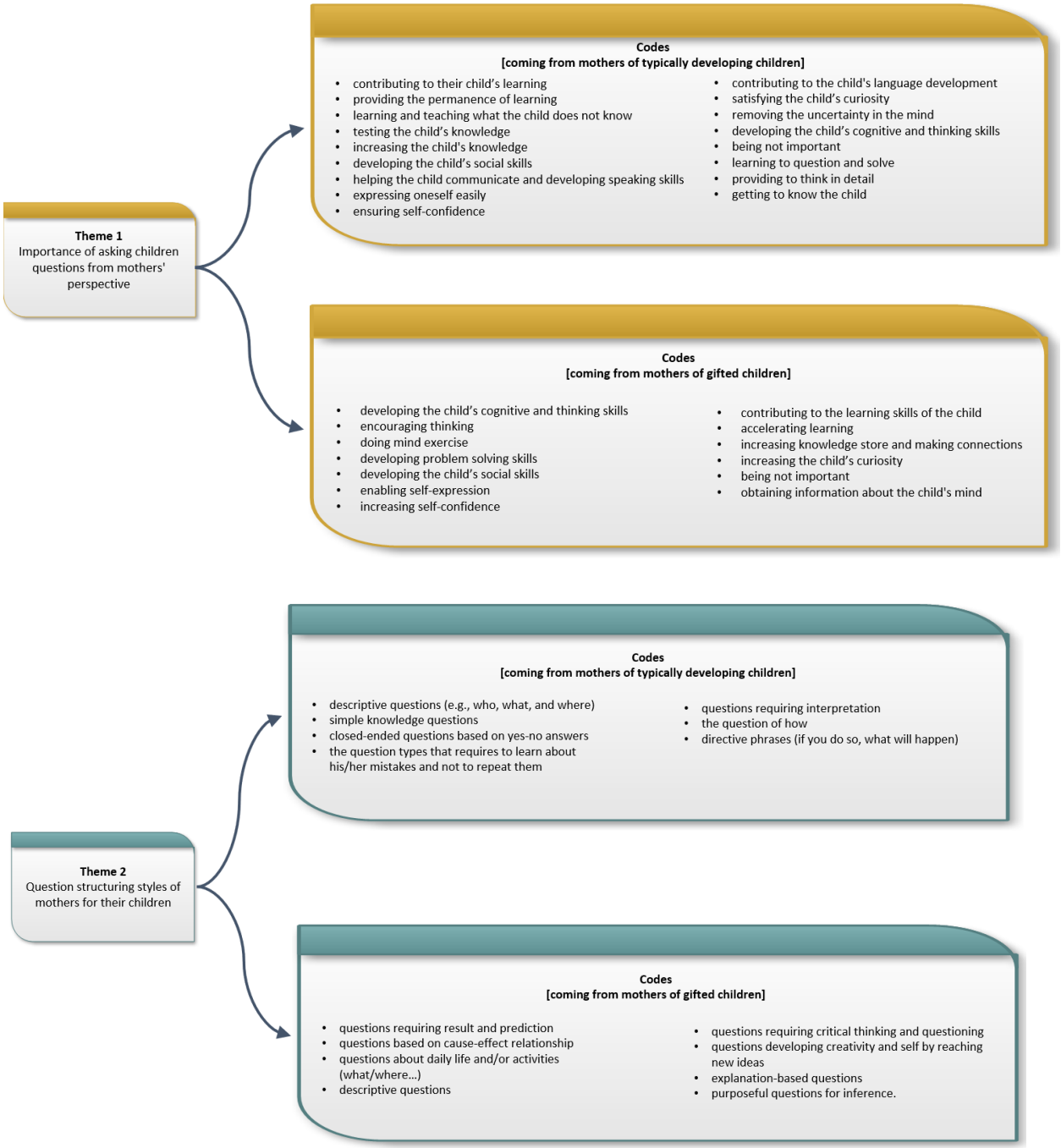
8. Why your child's questions are important or not?

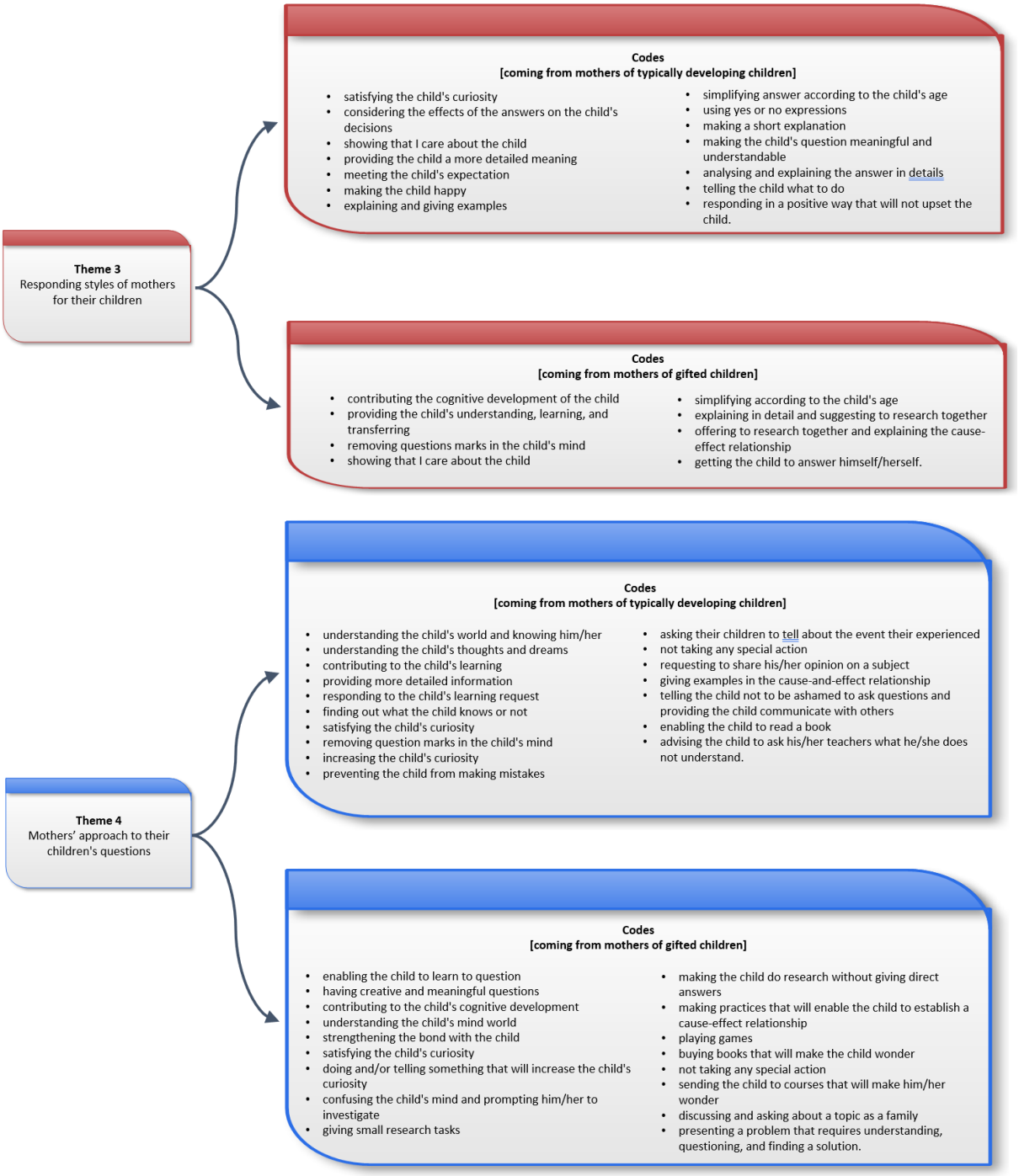
9. Do you interfere with your children's responds? If so, how do you do that?

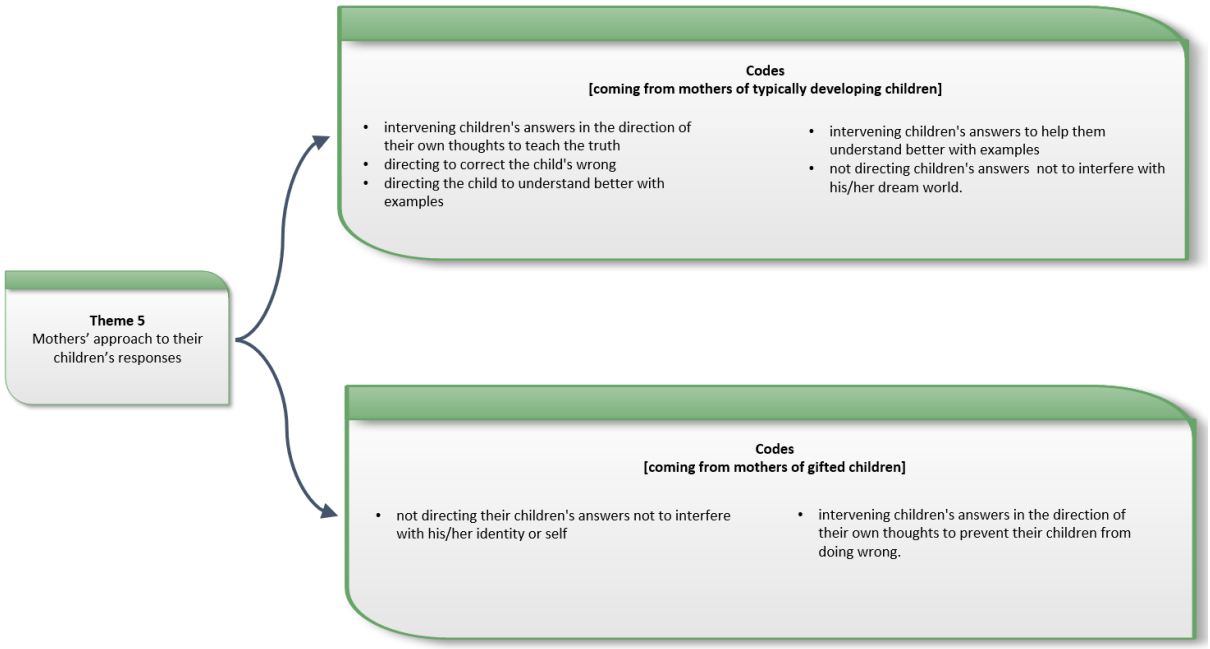
10. Is there anything you would like to add to this topic?

APPENDIX B

Thematic Map of the Codes




Theme 3
Responding styles of mothers for their children
Codes
[coming from mothers of typically developing children]
satisfying the child's curiosity
considering the effects of the answers on the child's decisions
showing that I care about the child
providing the child a more detailed meaning
meeting the child's expectation
making the child happy
explaining and giving examples
simplifying answer according to the child's age
using yes or no expressions
making a short explanation
making the child's question meaningful and understandable
analysing and explaining the answer in details
telling the child what to do
responding in a positive way that will not upset the child.
Codes
[coming from mothers of gifted children]
contributing the cognitive development of the child
providing the child's understanding, learning, and transferring
removing questions marks in the child's mind
showing that I care about the child
simplifying according to the child's age
explaining in detail and suggesting to research together
offering to research together and explaining the cause-effect relationship
getting the child to answer himself/herself.
Theme 4
Mothers' approach to their children's questions
Codes
[coming from mothers of typically developing children]
understanding the child's world and knowing him/her
understanding the child's thoughts and dreams
contributing to the child's learning
providing more detailed information
responding to the child's learning request
finding out what the child knows or not
satisfying the child's curiosity
removing question marks in the child's mind
increasing the child's curiosity
preventing the child from making mistakes
asking their children to tell about the event their experienced
not taking any special action
requesting to share his/her opinion on a subject
giving examples in the cause-and-effect relationship
telling the child not to be ashamed to ask questions and providing the child communicate with others
enabling the child to read a book
advising the child to ask his/her teachers what he/she does not understand.
Codes
[coming from mothers of gifted children]
enabling the child to learn to question
having creative and meaningful questions
contributing to the child's cognitive development
understanding the child's mind world
strengthening the bond with the child
satisfying the child's curiosity
doing and/or telling something that will increase the child's curiosity
confusing the child's mind and prompting him/her to investigate
giving small research tasks
making the child do research without giving direct answers
making practices that will enable the child to establish a cause-effect relationship
playing games
buying books that will make the child wonder
not taking any special action
sending the child to courses that will make him/her wonder
discussing and asking about a topic as a family
presenting a problem that requires understanding, questioning, and finding a solution.


Theme 5
Mothers' approach to their children's responses
Codes
[coming from mothers of typically developing children]
intervening children's answers in the direction of their own thoughts to teach the truth
directing to correct the child's wrong
directing the child to understand better with examples
intervening children's answers to help them understand better with examples
not directing children's answers not to interfere with his/her dream world.
Codes
[coming from mothers of gifted children]
not directing their children's answers not to interfere with his/her identity or self
intervening children's answers in the direction of their own thoughts to prevent their children from doing wrong.