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# Analysis of primary school students' learning needs and learning styles through in-depth interviews using a design thinking approach

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**ABSTRACT**

Each student has unique learning needs and learning characteristics, making teachers' understanding of individual learner differences essential for designing meaningful and student-centered learning experiences. This study aims to analyze the learning needs and learning styles of Grade 6B primary school students through a *Design Thinking* approach, particularly the *Empathize* and *Define* stages. The study population consisted of all 32 students in Grade 6B, from which three students were purposively selected to represent high, moderate, and low levels of academic ability. Data were collected over the course of the study through in-depth interviews and classroom observations. The *Empathize* stage guided the interview and observation protocols to explore students' experiences, motivations, learning preferences, social interactions, and perceived challenges, whereas the *Define* stage was used to identify and formulate the main learning needs and problems emerging from the collected data. The data were subsequently analyzed thematically. The findings indicate that social factors, particularly the presence of peers, represent a primary motivation for students to attend school; disparities in parental support are associated with differences in academic ability; students demonstrate varied learning styles ranging from *concrete experience* to *reflective observation*; and teachers' practices of comparing students negatively affect their psychological comfort. These findings demonstrate that students' learning needs extend beyond academic performance and include social, family, psychological, and individual learning characteristics. The study confirms that an empathetic approach based on *Design Thinking* can serve as an effective instrument for teachers in identifying students' needs before designing instruction. Practically, the findings suggest that teachers should avoid comparative practices, strengthen supportive classroom interactions, and provide varied learning activities that accommodate differences in students' learning characteristics.



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## Introduction

Education is one of the fundamental aspects of developing human character and intellectual capacity (Saprudin et al., 2025; Solahudin et al., 2023). The success of the learning process is determined not only by the curriculum and teaching methods but also by the extent to which teachers understand the individual needs, feelings, and learning characteristics of each student (Ocsis et al., 2024). Developing an in-depth understanding of students'

learning experiences is therefore essential for educators and prospective teachers, particularly in creating learning environments that are effective, inclusive, and enjoyable.

The psychological and emotional conditions of primary school students are highly sensitive to the treatment they receive from their learning environment, both from teachers and peers. At this developmental stage, children are strongly influenced by social recognition and their sense of security within the school environment. Therefore, teachers' understanding of students' emotional and social needs is an essential prerequisite for designing effective instructional strategies. Inaccurate identification of these needs may create learning barriers that are not always immediately visible but can significantly affect students' motivation and learning outcomes over the long term.

Understanding students' learning needs and learning characteristics is also closely related to the government's efforts to promote differentiated instruction in primary schools, as reflected in curriculum policies emphasizing student-centered learning (Faizi et al., 2024; Hamid & Saprudin, 2020; Marinda et al., 2023). Differentiated instruction requires teachers to identify differences in students' readiness, interests, experiences, and learning characteristics before determining appropriate instructional strategies. Empirical studies have demonstrated that differentiated approaches can support more responsive learning when instructional decisions are based on students' individual characteristics and needs (Tomlinson & Moon, 2013; Marlina, 2020). Likewise, research on learning needs assessment has emphasized the importance of systematically identifying students' actual conditions as a foundation for determining appropriate learning strategies and instructional support (Efriyanti & Albina, 2025; Saputra, 2024). These findings indicate that the quality of differentiated and student-centered instruction depends substantially on the accuracy with which teachers understand their students before designing learning experiences.

Nevertheless, the implementation of differentiated instruction in practice often faces challenges due to the limited availability of accurate and contextualized data concerning individual students' needs profiles. Consequently, teachers may design instruction based on general assumptions, observable academic performance, or standardized classroom expectations without first conducting an in-depth exploration of students' subjective experiences. Although questionnaire-based and diagnostic approaches can provide an overview of students' characteristics, they may not always capture the emotional, social, and experiential factors that influence how students perceive and participate in learning. This condition highlights the importance of complementary qualitative methods, particularly in-depth interviews and classroom observations, to obtain more contextualized information about students' learning needs.

This phenomenon becomes increasingly relevant in light of evolving curriculum demands, which position students as active subjects in the learning process rather than merely passive recipients of information. This paradigm shift requires teachers to develop the ability to accurately identify and interpret students' needs because, without adequate understanding, efforts to create active and meaningful learning experiences are unlikely to be realized optimally. Thus, identifying students' needs should not be understood merely as an initial administrative activity but as an ongoing pedagogical process that informs instructional decision-making.

Every student possesses unique characteristics in terms of academic ability, family background, social experiences, and the ways in which they process information during learning. These differences require teachers to avoid standardizing instructional approaches and instead adapt them to students' actual needs. One approach that can be used to explore such needs authentically is *Design Thinking*, a human-centered methodology that seeks to understand users' needs empathetically before designing appropriate solutions.

Psychologically, sixth-grade primary school students are in the final stage of childhood and are beginning to transition toward early adolescence. At this stage, their thinking processes increasingly develop toward greater complexity, although their reliance on concrete experiences and emotional support from adults around them remains substantial (Zaenurrozikin et al., 2025). Children also begin to develop a more mature *self-concept*, in which evaluations from teachers and peers contribute significantly to how they perceive their own abilities (Lubis et al., 2025). Negative experiences, such as humiliating comparisons or insufficient personal attention from teachers, may have long-term effects on children's self-confidence and learning motivation, including in subsequent educational stages. Therefore, understanding students at this developmental stage requires attention not only to their academic performance but also to their psychological comfort, social relationships, and personal experiences in the classroom.

For prospective teachers and teachers undertaking professional education, the ability to understand students' needs empathetically represents an important pedagogical competence, in addition to mastery of subject matter and instructional methods (Rahman et al., 2017). Teacher professional education programs should ideally equip prospective teachers not only with teaching skills but also with sensitivity to diverse student needs, including non-academic needs such as a sense of safety, social acceptance, and emotional support. This study, conducted

within the context of field experience practice by students in a teacher professional education program, also serves as a training opportunity for prospective teachers to develop such sensitivity through direct experience in identifying and exploring students' needs in authentic educational settings.

*Design Thinking* is understood as a creative and iterative process aimed at developing innovative solutions by understanding users' actual needs and optimally utilizing available resources to create value (Karloopia & Agrawal, 2025; Saputra et al., 2023). In the educational context, this approach enables teachers and researchers to gain a deeper understanding of students' needs, feelings, and expectations as the primary users of the education system. The *Design Thinking* process consists of five main stages: *Empathize, Define, Ideate, Prototype,* and *Test*. This study focuses specifically on the first two stages, *Empathize* and *Define*, because these stages provide the foundation for systematically identifying and formulating authentic student learning needs before instructional solutions are developed.

Fundamentally, *Design Thinking* places humans—in this context, students—at the center of the entire solution-design process. This approach differs from conventional instructional planning that may begin primarily with teachers' assumptions or curriculum-based expectations without directly incorporating students' voices. Through the *Empathize* stage, researchers and teachers are required to move beyond an adult-centered perspective and seek to understand learning experiences from children's perspectives, including their feelings, concerns, motivations, challenges, and expectations regarding the learning process. In this study, the *Empathize* stage was operationalized through in-depth interviews and classroom observations to capture students' experiences within their natural learning environment. The information obtained subsequently provided the basis for the *Define* stage, in which recurring needs, learning barriers, and significant student experiences were identified and formulated into a clearer understanding of the problems that require pedagogical attention.

At the primary school level, the diversity of sixth-grade students' characteristics presents a particular challenge for teachers, given that students at this level are preparing to transition to secondary education. Increasing academic demands, combined with differences in family backgrounds and levels of support received at home, require teachers to develop a more personalized understanding of each student. Limited instructional time and large class sizes often constrain teachers' ability to engage personally and deeply with every student. Previous research has generally emphasized the outcomes or implementation of differentiated instruction, whereas studies examining how teachers can systematically explore students' subjective experiences and define their learning needs before instructional strategies are developed remain comparatively limited (Faizi et al., 2024; Hamid & Saprudin, 2020; Marinda et al., 2023; Efriyanti & Albina, 2025; Saputra, 2024). Moreover, existing needs assessment approaches frequently rely on surveys, diagnostic assessments, or broad categorizations of students, which may provide limited access to the personal, social, and emotional experiences underlying students' learning behavior.

This limitation constitutes an important research gap. While previous studies have provided evidence regarding the importance of differentiated instruction and systematic learning needs assessment, fewer studies have specifically explored how a *Design Thinking* framework—particularly the *Empathize* and *Define* stages—can be used to capture and interpret primary school students' learning needs through their own voices and experiences. There is also limited qualitative evidence explaining how differences in academic ability intersect with social motivation, parental support, psychological comfort, and individual learning characteristics. Consequently, a more in-depth and empathetic exploration is required to complement existing assessment approaches and provide a richer basis for designing student-centered instruction.

Based on this gap, this study aims to analyze the learning needs and learning characteristics of Grade 6B primary school students through a *Design Thinking* approach, with particular emphasis on the *Empathize* and *Define* stages. Specifically, the study seeks to: (1) explore students' experiences, motivations, social and family-related factors, and learning preferences through in-depth interviews and classroom observations; and (2) identify and define the key learning needs and classroom issues that emerge from the experiences of students representing high, moderate, and low academic ability levels. Through these objectives, the study positions *Design Thinking* not only as a conceptual framework but also as an approach for systematically understanding students before instructional solutions are designed.

The study is expected to contribute theoretically by expanding the understanding of learning needs assessment beyond academic performance and questionnaire-based identification toward a more empathetic and experience-based approach. Practically, the findings are expected to provide teachers and prospective teachers with concrete insights for designing more responsive classroom practices, such as avoiding harmful comparisons between students, strengthening supportive social interactions, recognizing differences in family support, and providing varied learning activities that accommodate students' diverse learning characteristics. Thus, the study contributes to the development of student-centered and differentiated instructional practices by demonstrating

the importance of listening to students' voices and systematically translating their experiences into clearly defined pedagogical needs.

The significance of this study also lies in its relevance to efforts to continuously improve the quality of primary education. A deeper understanding of students' learning needs and learning characteristics is beneficial not only for the classroom teachers directly involved but also as a reference for other teachers seeking to develop instructional approaches that are more responsive to student diversity. Thus, an in-depth case study of this nature retains transferability value, as the identified findings and patterns may serve as a basis for reflection and pedagogical consideration in other classroom or school contexts with relatively similar characteristics.

## Method

More specifically, this study was designed to address several research questions: how does the profile of students' daily activities and social motivation influence the participation of Grade 6B students in school learning; what variations in learning styles are demonstrated by students with different levels of academic ability; how do students' social interactions with teachers and peers influence their psychological comfort; and how does family support contribute to students' learning readiness? These four questions were formulated based on the interview framework, which covered aspects of daily activities, learning experiences, social interactions, psychological comfort, family support, and students' expectations of school.

This study employed a descriptive qualitative approach using in-depth interviews (IDI) combined with classroom observations, following the *Design Thinking* framework at the *Empathize* and *Define* stages. This method was selected because it enables researchers to explore participants' perspectives, feelings, and experiences more richly than survey- or questionnaire-based methods.

The selection of a descriptive qualitative approach was based on the consideration that students' learning needs and learning styles are complex phenomena characterized by subjective meanings and therefore cannot be reduced solely to numerical values or scores. Through this approach, the researchers sought to understand the phenomenon from the participants' own perspectives while taking into account the social and cultural contexts in which students learn. In-depth interviews were selected as the primary method because they allow researchers to explore information flexibly, including following up on students' responses with additional questions to obtain a more comprehensive understanding of their learning experiences.

**Research Time and Setting**

This study was conducted during the 2025/2026 academic year at a public primary school that served as the field experience practice site for students in the Teacher Professional Education and Primary School Teacher Education programs at Khairun University, Ternate. The research site was selected based on the researchers' accessibility to the participants and the availability of supporting data concerning students' academic profiles maintained by the school. These conditions enabled the purposive sampling process to be conducted more accurately.

The population consisted of all 32 students in Grade 6B at the selected public primary school. Given that the purpose of the study was to explore data in depth rather than statistically test hypotheses, participants were selected through purposive sampling, namely the selection of participants based on specific considerations relevant to the research objectives. From the population, three students were selected to represent three different levels of academic ability: high, moderate, and low.

The selection of three students representing high, moderate, and low academic ability categories was based on the consideration that differences in academic ability may be associated with differences in students' learning needs, learning styles, and psychological experiences at school. By representing these three categories, the study sought to obtain a more varied and representative description of the learning needs of Grade 6B students, despite the relatively small sample size. Academic ability categories were determined based on students' previous learning assessment results maintained by the classroom teacher, allowing participant selection to be conducted objectively and in accordance with the research objectives.

Although the sample size was relatively small compared with the total population, qualitative research does not require large samples in the same manner as quantitative research. Instead, it emphasizes the depth and richness of information obtained from each participant. The principle of data saturation was also considered, whereby additional participants would no longer provide significant new information once the emerging response patterns had demonstrated consistent tendencies across the academic ability categories examined.

The three students selected as research participants were chosen while considering gender balance and variations in family characteristics. This consideration was intended to ensure that the data reflected not only

differences in academic ability but also, to the extent possible, variations in the socioeconomic conditions of families among Grade 6B students. Nevertheless, the researchers acknowledge that a sample of only three participants limits the range of characteristics that can be represented. Therefore, the findings should be interpreted proportionally and in accordance with the context and objectives of this qualitative study.

**Table 1.** Research Participants

| Student Name (Initials) | Ability Category | Class |
|---|---|---|
| Akila Salsabila Yusran | High | VI B |
| Danu | Moderate | VI B |
| Salman Al Farizi Junus | Low | VI B |

*Source: Primary data from interviews, 2026.*

The interview instrument also considered the sequence in which questions were presented. The interview began with light and non-threatening topics, such as students' daily activities, and gradually progressed toward more personal topics, including students' feelings regarding teachers' treatment and family circumstances. This sequence was deliberately designed to allow students sufficient time to establish a sense of comfort before responding to more sensitive questions, thereby helping to maintain the quality and authenticity of the responses.

The instrument consisted of a structured interview guide divided into eight sections: (A) opening and rapport building, (B) daily activities at school, (C) learning experiences, (D) social interactions with peers and teachers, (E) feelings and comfort at school, (F) parental and environmental support, (G) children's hopes and aspirations, and (H) closing. Data collection involved several stages, including preparation of the interview guide, an opening session to establish rapport with students, individual interviews, systematic recording of responses, and thematic analysis to identify patterns and comparisons across participants. The data obtained were subsequently analyzed descriptively and thematically and cross-checked against the results of direct classroom observations.

The data collection process was conducted gradually and carefully to avoid creating psychological pressure on the students. Before the interviews began, the researchers first established rapport through informal conversations about students' daily activities so that they felt comfortable and did not perceive the interaction as an interrogation. Interviews were conducted individually in a quiet setting to allow students to respond freely without being influenced by the presence of their peers. Classroom observations were conducted on different days to observe students' behavior naturally within the context of their everyday learning activities.

**Data Analysis Technique**

Data obtained from the interviews and classroom observations were analyzed using thematic analysis. The analysis involved several stages: transcribing the interview data, repeatedly reading the transcripts to develop an overall understanding, coding relevant units of information, grouping codes into broader themes, and interpreting the themes in relation to the *Design Thinking* framework, particularly the *Empathize* and *Define* stages. The analysis was conducted iteratively to ensure that the resulting themes genuinely represented the empirical data rather than merely reflecting the researchers' initial assumptions.

**Data Trustworthiness**

To maintain the validity and credibility of the findings, the study employed method triangulation by comparing and cross-checking interview findings with classroom observation results obtained within a closely related period. The researchers also conducted informal follow-up confirmations regarding selected student responses to ensure that their interpretations were consistent with the meanings intended by the students. These procedures were implemented to minimize interpretive bias and enhance confidence in the research findings.

**Ethical Considerations**

This study carefully considered ethical aspects associated with research involving children as participants. The researchers obtained permission from the school and classroom teacher before conducting the interviews, explained the research objectives to the students using age-appropriate language, and protected students' identities by using initials when reporting the findings. The interviews were conducted in a relaxed and non-threatening environment so that students could provide honest and comfortable responses without feeling that they were being evaluated.

## Results and Discussions

**Students' Activity Profiles and Social Motivation**

In addition, the entire interview process was documented through written field notes, as audio recording required additional parental consent that could not be fully obtained at the time of the study. Field notes were prepared as soon as possible after each interview to minimize information loss due to limitations in the

researcher's memory. The notes were also supplemented with reflective observations concerning the researcher's impressions and observations of students' non-verbal responses during the interview process.

The three sampled students generally arrived at school between 6:30 and 7:00 a.m., with daily activity patterns reflecting the respective social conditions of their families. The high-ability student followed a more structured routine, including waking up early, bathing, going to school, studying, and playing, whereas the low-ability student also helped parents with household activities between study and play time. A notable finding was that all three students preferred studying inside the classroom rather than playing outside, primarily because they could be closer to their friends. This finding indicates that social factors represent a major motivation for students' school attendance, rather than academic motivation alone.

Differences in daily activity patterns across academic ability categories also reflect differences in the responsibilities students undertake outside the academic context. The low-ability student, who helped with household chores, consequently had more limited opportunities for independent study than the high-ability student, whose daily routine was more structured around learning activities. This condition indicates that students' academic ability cannot be separated from their family socioeconomic context. Therefore, teachers need to understand these backgrounds as part of a holistic effort to identify students' learning needs.

Classroom observations conducted to complement the interview data also confirmed the activity patterns reported by the students. The high-ability student was observed to prepare stationery and textbooks more frequently before the lesson began, whereas the low-ability student was more often observed preparing learning materials only after the teacher had entered the classroom. Although such differences may appear minor, they reflect variations in students' levels of learning readiness, which may accumulate into differences in learning achievement over the long term if not addressed by teachers.

These findings are consistent with previous research indicating that students' intrinsic motivation is influenced by the social environment at school, including relationships with teachers and peers. Teacher support and positive peer interactions have been shown to enhance students' learning motivation (Irawan, 2025).

The finding that proximity to friends was the primary reason students preferred studying in the classroom highlights the importance of the social dimension in the learning experiences of primary school children. For students at this developmental stage, school is not merely a place for acquiring academic knowledge but also a social space in which they develop friendships and a sense of belonging. Consequently, teachers need to design learning activities that are not solely oriented toward academic achievement but also provide opportunities for positive social interaction among students, for example through collaborative learning and group discussions.

Weather conditions and the distance between students' homes and the school were also mentioned by some students as considerations affecting their morning departure routines, although these factors were not the primary determinants of their motivation to attend school. This finding suggests that logistical factors, such as distance and transportation, should nevertheless receive attention from schools, particularly when designing policies that support students' consistent attendance. However, social factors remain the primary drivers of students' motivation to attend school.

**Variations in Learning Experiences and Learning Styles**

The strong social motivation observed among the three students can also be understood from the perspective of children's social development. During the later stages of primary school, peer groups begin to play an increasingly important role in children's lives, sometimes even surpassing the influence of family in certain aspects, such as the development of behavioral norms and self-acceptance. Teachers who understand this dynamic can positively utilize the strength of peer groups, for example, by forming heterogeneous learning groups that enable students to support one another and learn from each other. The data revealed significant differences in students' perceptions of school subjects, as presented in Table 2.

The patterns of students' preferences regarding easy and difficult subjects, as presented in Table 2, also indicate that perceptions of learning difficulty are not always directly correlated with students' overall academic ability. For example, the high-ability student experienced difficulty in Arts and Culture because of limited dancing skills rather than difficulties in cognitively oriented academic subjects. This finding confirms that learning difficulties are multidimensional and specific to each individual. Therefore, generalizing students' abilities solely on the basis of academic performance in particular subjects may overlook their potential as well as their difficulties in other areas of learning.

**Interview Characteristics and Student Responses**

The duration of the interviews with each student ranged from 20 to 30 minutes, depending on the students' level of comfort and willingness to respond to the questions. In general, the high- and medium-ability students demonstrated greater enthusiasm in answering the interview questions, as indicated by longer responses

accompanied by concrete examples from their experiences. In contrast, the low-ability student tended to provide shorter responses and required additional probing questions from the researcher to elaborate on their experiences in greater detail. These differences in response patterns were also considered by the researcher when interpreting the data proportionally.

The identified patterns of learning difficulties also indicated a relationship between students' perceptions of a particular subject and their previous experiences of success or failure in that subject. Students who had previously experienced success in a particular subject tended to develop more positive perceptions and greater self-confidence toward that subject. Conversely, repeated experiences of failure without adequate support could lead to persistent negative perceptions, potentially lasting for a considerable period and even becoming psychological barriers at subsequent levels of education.

**Table 2.** Students' Perceptions of Subject Difficulty

| Student Category | Easiest Subject | Most Difficult Subject |
|---|---|---|
| **High** | Mathematics | Arts and Culture (difficulty with dancing) |
| **Medium** | Science, Indonesian Language, Religious Education | Mathematics (difficulty with formulas) |
| **Low** | Indonesian Language | Mathematics (boredom with calculations) |

*Source: Primary data from interviews, 2026.*

The differences in preferences for Indonesian Language and Mathematics identified in this study can also be associated with the characteristics of the two subjects. Indonesian Language, which is more narrative and contextual in nature, tends to be more accessible to students with varying levels of ability. Mathematics, by contrast, requires an understanding of abstract and procedural concepts in a sequential manner and is therefore more likely to cause difficulties when students have not mastered the foundational concepts from previous stages. This finding highlights the importance of conducting diagnostic assessments at the beginning of mathematics instruction to ensure that all students possess an adequate conceptual foundation before progressing to more complex material.

Students' responses to learning difficulties also revealed different patterns: the high-ability student tended to actively ask peers for help, the medium-ability student directly asked the teacher, whereas the low-ability student tended to remain silent. These patterns reflect differences in confidence and learning styles. Referring to Kolb's experiential learning theory, which encompasses the diverger, assimilator, converger, and accommodator types (Septyana et al., 2024; Teapon et al., 2023), variations in learning styles were identified among the three students. The high-ability student tended toward a pattern of *reflective observation* through discussion and active questioning; the medium-ability student was responsive to *active experimentation* in accordance with the teacher's instructional approach; while the low-ability student appeared to understand the material more easily through *concrete experience* or concrete examples.

The differences in students' responses to learning difficulties—from asking peers, directly asking the teacher, to choosing to remain silent demonstrate that each student's strategy for dealing with learning difficulties is strongly influenced by their level of confidence and previous experiences of learning success. Students who tend to remain silent when experiencing difficulties are at risk of accumulating learning gaps if they do not receive particular attention from teachers, because difficulties that are not expressed are less likely to be identified and appropriately addressed. Therefore, teachers need to create a classroom climate that encourages students to feel safe expressing their learning difficulties without fear of being judged or compared with other students.

The variations in learning styles identified among the three students also illustrate how the process of *experiential learning* occurs differently for each individual. The high-ability student, who tended toward *reflective observation*, demonstrated a tendency to observe and reflect on a problem before taking action, as reflected in the student's habit of actively discussing and asking questions of peers. The medium-ability student, who was responsive to *active experimentation*, demonstrated a preference for learning through direct practice and the application of concepts, suggesting that the teacher's participatory teaching approach also influenced the student's learning success. Meanwhile, the low-ability student, who appeared to understand the material more easily through *concrete experience*, highlights the importance of using concrete and contextual examples in instruction rather than relying solely on abstract explanations.

**Social Interaction and Perceptions of Teachers**

**Learning Patterns Based on Academic Ability Categories**

When examined across categories, the findings indicate that the three students essentially possess comparable learning potential, although this potential is expressed through different channels according to their respective learning styles. The high-ability student demonstrated strengths in verbal and reflective abilities, the medium-ability student demonstrated strengths in practical application, whereas the low-ability student showed greater potential when materials were presented through concrete and visual experiences. These differences suggest that the labels of high, medium, and low ability commonly used in schools may, in practice, reflect the degree of alignment between teachers' instructional styles and students' learning styles rather than fundamental differences in cognitive potential.

The three students each had close friends at school, with interaction patterns ranging from chatting to playing soccer and badminton. The conflicts they had experienced followed a similar pattern, namely teasing among peers. Regarding their perceptions of the teacher, all three students agreed that their teacher was kind and friendly. However, an important concern emerged: the teacher sometimes compared students with one another, which was identified as a source of emotional discomfort, particularly for the high-ability student.

The difficulties experienced by the medium- and low-ability students in Mathematics, although arising for different reasons difficulty understanding formulas and boredom with calculations, respectively indicate that this subject requires more varied and engaging instructional approaches. Teachers may consider using concrete learning media, educational games, or contextual approaches that connect mathematical concepts with students' everyday lives so that Mathematics is no longer perceived as a boring or intimidating subject.

Differences in students' strategies for responding to learning difficulties may also be understood as reflections of parenting patterns and communication habits developed within their respective families. Students who are accustomed to communicating openly with their parents at home tend to be more confident in expressing their difficulties to teachers or peers, whereas students who are less accustomed to open communication tend to keep their difficulties to themselves. This finding indicates that family communication patterns also contribute indirectly to students' engagement in classroom learning.

The practice of comparing students during instruction may negatively affect self-confidence and learning motivation, as students who are frequently compared with others tend to experience reduced self-confidence and less development of a growth mindset (Mubarok et al., 2025). Similarly, teacher expectations influence students' motivation and learning outcomes, with positive expectations fostering students' confidence, whereas low expectations negatively affecting academic performance (Prianti & Efendi, 2025).

The tendency of the high-ability student to experience greater psychological effects from such comparisons is particularly noteworthy, given that academically, this student is relatively advantaged. This finding suggests that pressure to consistently perform at a high level may create a psychological burden of its own, as indicated by studies examining the negative effects of academic comparison culture on students' self-beliefs (Civics, 2025). Thus, comparing students with one another has the potential to negatively affect students across all ability levels, whether they are academically lower- or higher-performing, although the psychological effects may manifest differently.

**Psychological Well-Being and Family Support**

The finding concerning the discomfort experienced by the high-ability student as a result of comparison practices also needs to be examined from the perspective of social expectations associated with high-achieving students. Students who are accustomed to being praised or used as examples by teachers may experience pressure to maintain their performance consistently. Consequently, when they are negatively compared with other students, the psychological impact may be more pronounced than for students who are not accustomed to being the focus of attention. This condition highlights the need for teachers to exercise caution when giving praise or criticism in front of the class, as both may potentially create psychological pressure when delivered excessively or in a comparative manner.

In general, all three students stated that they enjoyed attending school because they could meet their friends, participate in learning activities, receive pocket money, and attend their favorite subjects. Nevertheless, two of the three students reported that they had experienced fear or sadness because the teacher compared them with other students, whereas one student reported never experiencing such treatment.

Peer conflicts involving teasing, although seemingly a normal form of social interaction among children, still require teachers' attention to prevent them from developing into more serious forms of bullying. Teachers need to actively cultivate values of mutual respect among students and model polite communication, considering that students tend to imitate interaction patterns demonstrated by teachers as authority figures in the classroom.

Regarding family support, a substantial disparity was identified. The high-ability student received active daily learning assistance from parents accompanied by a high level of emotional involvement; the medium-ability student received support, but not on a regular basis; whereas the low-ability student studied independently without parental assistance at home. This pattern is consistent with findings that students who receive strong family support tend to have higher learning motivation (Alkhumeini, 2025), and that the family environment, as part of the microsystem, significantly influences children's cognitive development and academic achievement (Rifka Alkhilyatul Ma'rifat et al., 2024). Active parental involvement, both in learning assistance and school activities, has also been shown to positively affect students' motivation and learning outcomes (Maulia Rahmawati & Vika Nurul Mufidah, 2025).

The disparity in family support identified in this study illustrates that factors outside school also play an important role in shaping students' learning readiness. Students who do not receive learning assistance at home tend to face learning difficulties independently without adequate support. Consequently, the role of schools becomes increasingly important in addressing this gap, for example through additional tutoring programs or peer learning groups that can serve as alternative sources of support for students who receive limited assistance from their families.

**Students' Hopes and Aspirations**

Differences in parental involvement identified in this study are also consistent with the concepts of social capital and cultural capital in education. Families with greater resources, whether in terms of time, knowledge, or economic capacity, tend to be better positioned to provide optimal learning support for their children. If such disparities are left unaddressed by schools, they may widen achievement gaps among students over time. Therefore, the role of schools as a mechanism for balancing these disparities becomes increasingly crucial.

The aspirations of the three students reflected their unique backgrounds and personal goals: becoming a pediatrician, a member of the Indonesian National Armed Forces (TNI), and a fisherman. Despite these differences, all three students shared similar expectations of their school environment: a safe and comfortable setting, opportunities to interact and play with friends, and teachers who do not compare students with one another. From the perspective of Maslow's hierarchy of needs, students' desire for a safe school environment with opportunities for social interaction reflects their safety needs and belongingness needs, which need to be fulfilled before students can fully concentrate on academic achievement.

The similarity in the three students' expectations for a safe school environment free from comparison indicates that these basic psychological needs are universal and do not depend on students' academic ability levels. This finding reinforces the importance of creating an inclusive classroom climate in which every student feels valued for their effort and learning process rather than being evaluated solely on the basis of academic outcomes.

The preference for learning through concrete examples demonstrated by the low-ability student is also consistent with the cognitive developmental characteristics of primary school children, who generally remain within the concrete operational stage, in which children understand concepts more easily through real objects and experiences than through abstract explanations. Teachers who recognize this characteristic can enrich their instructional methods through teaching aids, visual illustrations, and hands-on activities, particularly when teaching abstract topics such as advanced mathematical concepts.

**Analysis within the *Design Thinking* Framework**

The consistency of the students' expectations regarding teachers who do not compare students with one another, which emerged across all three students with different academic ability backgrounds, can serve as an important indicator for schools when designing teacher pedagogical competency development programs. Teacher training on positive communication and constructive feedback should be prioritized, given that teachers' communication practices have a significant influence on students' psychological well-being and overall learning motivation.

Differences in how students respond to peer conflicts some choosing to avoid the conflict while others attempting to resolve it directly also reflect differences in social skills and emotional regulation among students. Teachers can use such minor conflicts as opportunities for social-emotional learning, for example by facilitating post-conflict reflective discussions that teach students how to express their feelings and resolve problems constructively, rather than merely punishing or ignoring the conflicts that occur.

The in-depth interviews conducted with three participants from a total population of 32 students fully implemented the *Empathize* stage of *Design Thinking*, namely the effort to understand students' worlds from their own perspectives. *Design Thinking* involves more than superficial understanding; it requires the ability to deeply position oneself within the user's perspective in order to identify their needs, experiences, and challenges (Liu et al., 2024). Through this approach, it was identified that the primary barriers experienced by the low-ability

student were not solely cognitive limitations but also boredom with instructional methods and a lack of learning assistance at home.

The finding that the barriers experienced by the low-ability student were more strongly associated with boredom with instructional methods and limited support at home than with cognitive limitations alone emphasizes the importance of teachers not prematurely labeling students as slow learners without first investigating the underlying causes. The *Empathize* stage of *Design Thinking* provides teachers with an opportunity to refrain from making premature judgments and instead seek to understand students' experiences holistically before formulating instructional interventions.

The three students' desire for a comfortable school environment with rich social interaction can also be interpreted as a need to feel a sense of belonging to the classroom community as a whole. Teachers who are able to foster a sense of togetherness among students, for example through group activities involving all students regardless of their academic ability levels, have the potential to create a more inclusive and supportive classroom climate for every student's social and emotional development.

At the *Define* stage, these findings can be formulated into the following problem statement: students need a classroom environment that values individual uniqueness, in which teachers provide constructive feedback without demeaning comparisons, as well as learning support programs at home for students who receive limited family support. The data also indicate the dominance of extrinsic motivation among the three students, including attending school because of friends, being motivated by pocket money, and responding to parental expectations, as explained by Self-Determination Theory, which distinguishes between intrinsic and extrinsic motivation in determining students' learning engagement (Marberliantina et al., 2025). This finding provides an important basis for teachers to design pedagogical interventions capable of shifting students' motivation from extrinsic toward intrinsic motivation through more meaningful learning experiences.

The dominance of extrinsic motivation identified among the three students such as attending school because of friends, pocket money, and parental expectations should be viewed by teachers as a starting point for encouraging a transition toward intrinsic motivation. Self-Determination Theory explains that intrinsic motivation develops optimally when three basic psychological needs autonomy, competence, and relatedness are fulfilled within students' learning environments (Marberliantina et al., 2025). Teachers can facilitate autonomy by providing students with opportunities to choose learning approaches that correspond to their preferences, facilitate competence by providing learning challenges appropriate to students' abilities, and facilitate relatedness through positive and supportive social interactions in the classroom. These three dimensions are consistent with Maslow's hierarchy of needs, in which safety and social needs need to be fulfilled before students can progress toward self-actualization through optimal academic achievement.

**Implications for Learning Practices in Primary Schools**

The findings of this study have several practical implications for teachers in designing more student-centered learning. First, teachers need to integrate collaborative learning activities to accommodate students' social motivation, given that the presence of friends was found to be a primary motivational factor. Second, teachers need to adapt instructional methods to students' diverse learning styles, for example by providing concrete examples for students who require *concrete experience* while also providing opportunities for discussion for students who tend toward *reflective observation*. Third, teachers should avoid openly comparing students with one another and instead provide individualized and constructive feedback. Fourth, schools should consider providing additional learning support programs for students who do not receive adequate assistance from their families as an effort to reduce learning achievement gaps arising from factors outside the school environment.

## Conclusions

This study concludes that the learning needs and experiences of Grade 6B elementary school students are shaped by a complex interaction of social, familial, psychological, and individual learning factors. Based on in-depth interviews and classroom observations involving three students representing high, moderate, and low academic achievement from a population of 32 students, peer relationships emerged as an important source of motivation and psychological comfort at school. At the same time, differences in family support were associated with variations in students' academic experiences and learning readiness. These findings indicate that students' academic achievement cannot be understood independently of the social and emotional contexts in which learning takes place. The study also demonstrates considerable variation in students' learning styles and responses to learning difficulties. Students with higher academic achievement tended to engage in reflective observation and actively seek assistance from peers, whereas students with moderate achievement responded more positively to teacher guidance and active experimentation. Students with lower achievement showed a stronger need for concrete experiences and were more likely to remain silent when experiencing learning

difficulties. These findings highlight the importance of adaptive and student-centered instruction that accommodates individual differences rather than applying uniform instructional strategies to all learners. From a theoretical perspective, the findings strengthen the relevance of *Design Thinking* as a human-centered framework for understanding students' learning needs beyond conventional academic assessment. The *Empathize* and *Define* stages enable teachers to identify students' experiences, emotions, social relationships, learning preferences, and expectations that may remain invisible through academic evaluations alone. Thus, integrating an empathetic perspective into instructional planning can broaden the understanding of student needs and support the development of more contextually responsive learning designs. Practically, the findings imply that teachers need to strengthen their capacity to conduct systematic and empathetic identification of students' learning needs, avoid comparative practices that may negatively affect students' psychological well-being, and provide varied learning experiences that accommodate differences in learning preferences. Schools should also strengthen parental involvement, provide adequate learning support, and periodically evaluate the psychological and social climate of classrooms. Such efforts are essential for creating a safe, inclusive, and supportive learning environment in which students can participate without fear of judgment or comparison. Given the limited number of participants, the findings should be interpreted within the specific context of the study and should not be generalized statistically to broader populations. Future research should involve a larger and more diverse range of participants and extend the *Design Thinking* process to the *Ideate, Prototype,* and *Test* stages. Such research would enable the development and empirical evaluation of instructional designs grounded in students' actual needs and experiences, thereby strengthening the practical contribution of *Design Thinking* to student-centered and differentiated learning in elementary education.

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