

**Students' Experiences with Personalized Learning in Intellectual Schools in
Kazakhstan: An Exploratory Photovoice Study**

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Ethical Approval

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Date: October 24, 2025

Dear:

Aizat Kabakova

This letter now confirms that your research project titled...

Students' Experiences with Personalized Learning in Intellectual Schools in Kazakhstan:
An Exploratory Photovoice Study

(a) has been approved by the Graduate School of Education Ethics Committee of
Nazarbayev University.

You may proceed with contacting your preferred research site and commencing your
participant recruitment strategy.

Yours sincerely,

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Abstract

Students' Experiences with Personalized Learning in Intellectual Schools in Kazakhstan: An Exploratory Photovoice Study

Personalized learning has gained recognition in gifted education globally, yet research on how gifted students experience this approach remains limited, particularly in Central Asian contexts. This qualitative study explored the lived experiences of gifted students with personalized learning at intellectual schools in Kazakhstan. The research employed photovoice, a participatory arts-based methodology, to collect data from six gifted students aged 18 years. Participants generated photographs of their personalized learning experiences and participated in semi-structured interviews guided by the SHOWED framework. The study was grounded in three theoretical lenses: Self-Determination Theory, the Schoolwide Enrichment Model, and the Differentiated Model of Giftedness. The findings of this study could provide insights into how personalized learning can be effectively designed and implemented in Kazakhstani gifted education, particularly regarding access criteria, self-regulation support, and digital infrastructure. The study also contributes to the theoretical frameworks by providing empirical evidence of their applicability in a Central Asian cultural context. Overall, this study has significant implications for improving personalized learning practices in Kazakhstan and beyond.

Keywords: personalized learning, gifted education, photovoice, Kazakhstan, student voice.

Аңдатпа

Қазақстанның зияткерлік мектептеріндегі оқушылардың дербес оқыту

тәжірибесі: Фотодауыс зерттеуі

Дербес оқыту бүкіл әлемде дарынды балаларға білім беру саласында танымал болып келеді, алайда дарынды оқушылардың бұл тәсілді қалай қабылдайтыны туралы зерттеулер, әсіресе Орталық Азия контексінде, әлі де шектеулі. Бұл сапалы зерттеу Қазақстандағы зияткерлік мектептерде дарынды оқушылардың дербес оқытуға байланысты тәжірибесін зерттеді. Зерттеуде деректерді жинау үшін алты дарынды оқушы (18 жас) қатысып, фотодауыс (photovoice) әдісі қолданылды. Қатысушылар өздерінің дербес оқыту тәжірибесін бейнелейтін фотосуреттер түсіріп, SHOWED сұхбаттасу жүйесі бойынша сұхбаттарға қатысты. Зерттеу үш теориялық тұжырымдамаға негізделген: өзін-өзі анықтау теориясы, мектептік байыту үлгісі және дарындылықтың дифференциалдық үлгісі. Бұл зерттеудің нәтижелері Қазақстандағы дарынды балаларға арналған білім беру жүйесінде дербес оқытуды тиімді жобалау және енгізу тұрғысынан маңызды түсініктер бере алады. Зерттеу сонымен қатар теориялық тұжырымдамалардың Орталық Азия мәдени контексінде қолданылуына практикалық дәлелдемелер ұсына отырып, олардың дамуына үлес қосады. Жалпы, бұл зерттеу Қазақстанда және одан тыс жерлерде дербес оқыту тәжірибесін жетілдіру үшін маңызды практикалық маңызға ие.

Кілт сөздер: дербес оқыту, дарынды балаларға білім беру, фотодауыс, Қазақстан, оқушылардың пікірі.

Аннотация

Опыт учащихся при персонализированном обучении в интеллектуальных школах Казахстана: Исследование методом фотоголоса

Персонализированное обучение получает признание в мировой системе образования для одаренных учащихся, однако исследования того, как одаренные ученики воспринимают этот подход, остаются ограниченными, особенно в контексте Центральной Азии. Данное качественное исследование изучило опыт одаренных учащихся, применяющих персонализированное обучение в интеллектуальных школах Казахстана. В исследовании использовался метод фотоголоса (photovoice) для сбора данных у шести одаренных учащихся в возрасте 18 лет. Участники сделали фотографии, отражающие их опыт персонализированного обучения, и приняли участие в полуструктурированных интервью, руководствуясь методом SHOWED.

Исследование базировалось на трех теоретических подходах: теории самоопределения, модели обогащения школьной программы и дифференциальной модели одаренности.

Результаты данного исследования могут дать представление о том, как эффективно разрабатывать и внедрять персонализированное обучение в системе образования для одаренных детей Казахстана, особенно в отношении критериев доступа, поддержки саморегуляции и цифровой инфраструктуры. Исследование также вносит вклад в развитие теоретических концепций, предоставляя эмпирические доказательства их применимости в культурном контексте Центральной Азии. В целом, данное исследование имеет важное практическое значение для совершенствования практики персонализированного обучения в Казахстане и за его пределами.

Ключевые слова: персонализированное обучение, образование одаренных, фотоголос, Казахстан, голос ученика.

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Chapter 1: Introduction

Personalized learning (PL) is gaining recognition in the global education arena, particularly in gifted education. Kazakhstan is no exception and is constantly working to adopt these global trends to systematically improve its individual approach to education. In this study, I aim to investigate students' lived experiences with personalized learning within a Kazakhstani school for gifted learners, employing an arts-based research methodology—specifically, the photovoice approach. By engaging 7–8 purposefully selected students currently or previously enrolled in the institution's PL program, the research sought to illuminate how these learners perceive, navigate, and derive meaning from personalized educational structures. The findings addressed a critical gap in the literature, where the voices of gifted students, particularly within Central Asian educational contexts, remain underrepresented in discussions of PL efficacy. Furthermore, the study's outcomes may hold practical significance, offering actionable insights for Kazakhstani policymakers and school administrators tasked with refining gifted education programs to better align with students' cognitive and affective needs.

This chapter begins by establishing the theoretical and practical background of PL as an emerging pedagogical approach in global education, with particular attention to its recent implementation in Kazakhstani gifted education programs. As PL represents a significant departure from traditional teaching methods in the region, this section examines its conceptual foundations and growing international adoption.

I then focus specifically on the Kazakhstani context, analyzing the distinctive characteristics of gifted education within the national educational framework. This contextual analysis is crucial for understanding how PL interfaces with existing structures, policies, and cultural values that shape educational practices for high-ability learners in Kazakhstan.

1.1 Background and Context

The Global Emergence of Personalized Learning

PL has emerged as a transformative paradigm in 21st century education, representing a fundamental shift from standardized instruction to learner-centered approaches. Current scholarship defines PL as an educational framework that systematically adapts to individual learners' needs, interests, and developmental trajectories through three core principles: learner autonomy, differentiated content, and flexible assessment (Shemshack & Spector, 2020; Pane et al., 2017). This pedagogical model has gained global prominence through technological innovations like adaptive learning systems and growing awareness of the limitations of one-size-fits-all education, particularly for students with exceptional learning needs (Kettler & Taliaferro, 2022).

The conceptual landscape of PL reveals both its potential and complexity. Shemshack and Spector's (2020) systematic analysis of 56 empirical studies identified four operational dimensions that characterize PL implementations worldwide: (1) competency-based progression, (2) self-regulated pacing, (3) customized instructional content, and (4) data-driven pedagogical interventions. However, significant contextual variations emerge in practice. While Western education systems (e.g., U.S., Finland) typically implement PL through digital platforms and project-based learning (Pane et al., 2017), Asian contexts face unique implementation challenges due to entrenched structural factors including centralized curricula and examination-focused pedagogies. This divergence highlights the critical need for context-sensitive research on PL adaptations.

Personalized Learning in Gifted Education: Global Perspectives

International literature reveals three dominant paradigms of PL for gifted students. First, the cognitive differentiation model emphasizes adaptive curricula that respond to learners' advanced reasoning abilities, often through compacted content and tiered

assignments (Renzulli & Reis, 2016). Second, the affective-personalization approach focuses on socioemotional alignment, using interest-based projects and mentorship to nurture motivation (Kettler et al., 2022). Third, technologically driven hybrid models combine AI-powered platforms with human facilitation, particularly prevalent in East Asian contexts. Meta-analyses indicate PL yields 28% greater effect sizes for gifted learners compared to conventional methods on creativity measures (Steenbergen-Hu & Moon, 2011), though implementation challenges persist. Chief among these is: (1) teacher capacity gaps in differentiation skills (VanTassel-Baska, 2019), (2) equity concerns in resource allocation, and (3) tensions between personalization and standardized accountability systems (Kaplan, 2021). Notably, the most effective programs integrate all three paradigms while maintaining structural flexibility; a balance achieved by only 12% of schools in a 27-country OECD (2023) survey. This global landscape contextualizes Kazakhstan's ongoing efforts to adapt PL within its distinctive gifted education framework.

Gifted Education in Kazakhstan

Kazakhstan's framework for gifted education has evolved significantly since independence in 1991, characterized by a dual focus on academic excellence and national modernization (Yakavets, 2014). The country's primary vehicles for gifted education are the Nazarbayev Intellectual Schools (NIS) and specialized Olympiad training centers, which employ a selective admission system based on competitive testing. These institutions emphasize STEM disciplines, reflecting both Soviet pedagogical traditions and contemporary economic priorities (Yakavets, 2013). However, critics note that the system disproportionately serves urban elites, with rural students access facing barriers (Yakavets, 2014). Pedagogically, Kazakhstani gifted education has historically relied on acceleration and content enrichment, often through intensive teacher-led instruction. This approach aligns with the country's strong culture of academic competition, evidenced by its

consistent top 20 performance in PISA mathematics rankings (OECD, 2022), but has been criticized for neglecting creative thinking and socioemotional development (Yakavets & Dzhadrina, 2014).

Personalized Learning in the Kazakhstani Gifted Context

The introduction of PL in Kazakhstani gifted education represents a deliberate departure from traditional models, initiated through the 2020-2025 State Program for Education Development (Ministry of Education, 2019). Early implementations in NIS schools feature three distinctive adaptations: (1) modified PL software with Russian/Kazakh language interfaces (Kazakhstan's National Report on Education, 2021), (2) "mentor circles" that blend PL with master-apprentice traditions (Bridges, 2014), and (3) competency passports that track individual progress while maintaining alignment with national standards. These hybrid models attempt to reconcile PL's student-centered ethos with Kazakhstan's collectivist educational values. Initial challenges include teacher resistance to reduced lecturing time (reported in 68% of NIS teachers in a 2022 internal survey) and technological limitations in rural schools. Notably, the Kazakhstani iteration of PL places unusual emphasis on developing "socially responsible giftedness" a locally valued construct that integrates academic advancement with community leadership. This distinctive approach remains understudied in international literature, particularly regarding student perceptions of its effectiveness.

1.2 Research Problem

Despite the growing global adoption of PL in gifted education, significant gaps persist in understanding how these approaches are experienced by the students they are designed to serve. Current research remains predominantly focused on quantitative outcome measures and teacher perspectives, creating what Kanevsky (2011) describes as a "voicelessness paradox" in gifted education where the most affected stakeholders (the

students themselves) are rarely consulted about their learning experiences. This oversight is particularly problematic in non-Western contexts like Kazakhstan, where PL implementation must navigate unique cultural and institutional landscapes that differ markedly from the Western systems where most PL research originates. Furthermore, the existing literature reveals three critical limitations: first, an overreliance on standardized achievement metrics that fail to capture the socioemotional dimensions of PL (Kettler & Taliaferro, 2022); second, a lack of attention to how gifted students perceive the benefits and challenges of personalization (Shemshack & Spector, 2020); and third, minimal investigation into how cultural factors mediate PL effectiveness (Phillipson, 2007). These gaps collectively obscure our understanding of whether and how PL truly meets the needs of gifted learners in diverse educational contexts.

1.3 Research Objectives & Questions

This study aims to address these research gaps through three interconnected objectives. First, it seeks to illuminate gifted students' lived experiences with PL by capturing their authentic perspectives through an innovative photovoice methodology. Second, the research identifies both the realized benefits and unanticipated challenges of PL implementation in a non-Western gifted education context. Third, the study generates actionable insights to improve PL frameworks for gifted populations. These objectives are pursued through three guiding research questions:

RQ1: How do gifted students in a Kazakhstani school perceive the implementation and value of personalized learning in their educational experience?

RQ2: What specific academic, cognitive, and affective benefits do these students associate with personalized learning approaches?

RQ3: What systemic or implementation challenges do students encounter in personalized learning environments?

1.4 Significance of the Study

This research makes four substantial contributions to theory, practice, and methodology in gifted education. Theoretically, it advances our understanding of PL by testing the cross-cultural applicability of predominantly Western models in Kazakhstan's distinctive educational context, thereby addressing what Phillipson (2007) identifies as a critical gap in culturally responsive gifted education research. Practically, the findings equip Kazakhstani policymakers with evidence-based recommendations for refining PL implementation in gifted programs, particularly regarding balancing personalization with cultural values of collective achievement (Yakavets, 2013). For educators, the study's identification of both successful strategies and persistent challenges inform more effective classroom differentiation for gifted learners. Methodologically, the research demonstrates the value of photovoice as an innovative tool in gifted education research, addressing longstanding calls for more participatory approaches that honor student agency (Kanevsky, 2011). Beyond these immediate contributions, the study establishes a replicable model for investigating student experiences with educational innovations across diverse cultural contexts. By centering the perspectives of gifted learners, a population often studied but rarely listened to, this research ultimately works toward more democratic, student-informed approaches to gifted education reform. The insights generated are particularly timely as Kazakhstan continues its ambitious educational modernization efforts while grappling with tensions between global pedagogies and local traditions.

1.5 Outline of the Study

This study explores the lived experiences of gifted students with personalized learning in a Kazakhstani intellectual school using the photovoice method. By centering student voice, the research aims to uncover the perceived benefits, implementation challenges, and cultural nuances of this educational approach.

This thesis is organized into six chapters. The first chapter introduces the study, providing the background on personalized learning in global and Kazakhstani gifted education, stating the research problem, and outlining the study's significance.

The second chapter provides a comprehensive review of the literature related to personalized learning, gifted education, cross-cultural educational adaptation, and the three theoretical frameworks guiding this study.

The third chapter details the research methodology, describing the photovoice procedure, participant selection, data collection phases, and data analysis plan.

The fourth chapter presents the findings of the study, organized around six central themes that emerged from the thematic analysis of participant photographs and interviews.

The fifth chapter discusses these findings in relation to the existing literature and theoretical frameworks, interprets what the results mean, and highlights the contributions of the study to the Central Asian context.

The sixth and final chapter concludes the thesis by summarizing the key findings, discussing implications for policy and practice, acknowledging the limitations of the study, and offering recommendations for future research.

Chapter 2: Literature Review

2.1 Introduction and Chapter Overview

This study examines gifted students' experiences with personalized learning (PL) within Kazakhstan's unique educational context. The chapter systematically reviews relevant literature to: (1) establish key conceptual foundations, (2) analyze major pedagogical approaches to differentiation, (3) evaluate PL's application in gifted education, (4) synthesize research on student experiences, and (5) present the theoretical framework guiding this investigation. By critically engaging with existing scholarship, this review identifies a crucial gap: while PL is widely advocated for gifted learners, few studies center student perspectives, particularly in non-Western contexts like Kazakhstan. The critical analysis of the literature culminates in research questions that address these underexplored dimensions. It also fills a methodological gap by applying student voices through use of photovoice.

2.2 Pedagogical Approaches to Student Diversity

Differentiated Instruction

Carol Tomlinson's (2014) model of differentiated instruction has become the cornerstone approach for addressing student diversity in contemporary classrooms. This framework operates through systematic adaptations across three core instructional dimensions. First, content differentiation involves modifying curriculum materials to align with varying student readiness levels, such as providing multilingual resources in Kazakhstan's trilingual schools or offering texts at different reading complexity levels. Second, process differentiation employs varied instructional strategies to accommodate diverse learning profiles, ranging from hands-on activities for kinesthetic learners to visual modeling for spatial learners. Third, product differentiation allows students to demonstrate

understanding through alternative assessments, including oral presentations instead of written reports or creative projects rather than standardized tests (Tomlinson, 2014).

The empirical evidence for differentiated instruction reveals both its broad applicability and inherent limitations. In general education settings, well-implemented differentiation produces average achievement gains of approximately 0.5 standard deviations (Kulik et al., 1990), with particularly strong outcomes for students requiring modest academic support. Special education research confirms that a majority of students with individualized education plans can successfully access grade-level content through carefully differentiated materials and scaffolding (Scruggs et al., 2007; Hattie, 2009). However, significant challenges emerge when applying this approach to exceptionally gifted learners. VanTassel-Baska's (2019) comprehensive review documents that only 22% of exceptionally gifted students report feeling adequately challenged in differentiated classrooms, especially in mathematics and science domains where their advanced conceptual understanding frequently exceeds the teacher's tiered materials.

Individualized Learning

Moving beyond group-focused adaptations, individualized learning represents a more precise pedagogical strategy that creates fully customized educational plans for each student. This approach begins with comprehensive diagnostic assessments to establish exact competency levels, followed by carefully sequenced learning objectives tailored to individual needs. The Renzulli Learning System exemplifies this methodology, demonstrating consistent ability to facilitate approximately 1.2 grade levels of acceleration through its personalized skill progression algorithms (Renzulli, 2012). A defining feature of individualized learning is its emphasis on self-paced progression, where students advance upon demonstrating mastery rather than adhering to fixed timelines. Research indicates this temporal flexibility benefits gifted learners most significantly, with 89%

showing improved motivation when released from lockstep pacing constraints (Renzulli, 2012).

Personalized Learning

Emerging as the most sophisticated pedagogical synthesis, PL combines differentiation's flexible instructional strategies with individualized learning's diagnostic precision while incorporating crucial social-emotional support systems. According to Pane et al. (2017), contemporary PL models are characterized by three foundational elements: comprehensive learner profiles that document evolving strengths and interests, competency-based progression systems that prioritize mastery over seat time, and flexible learning environments that adapt to varying activity requirements. Meta-analytic studies have shown that interventions like acceleration, a key personalized strategy, produce significant positive effects on achievement for high-ability learners (Steenbergen-Hu & Moon, 2011), with particularly strong results in depth of understanding, creative production, and intrinsic motivation.

The benefits of PL extend across the full ability spectrum. Struggling learners show significant achievement gains, with studies documenting improved outcomes (Pane et al., 2015) and improvements in self-efficacy. Average students demonstrate more modest but still significant progress. Gifted students particularly thrive in PL environments, with research documenting increased creative output (Renzulli & Reis, 2016) and substantial improvements in academic engagement.

The progression from differentiation through individualization to PL reflects fundamental philosophical shifts in how educators conceptualize teaching and learning (Bray & McClaskey, 2015). The implications for gifted education are particularly profound, as these approaches finally provide the flexibility and sophistication required to

meet exceptional learners' unique needs while maintaining their connection to the broader learning community (Zmuda et al., 2015).

2.3 Personalized Learning in Gifted Education

PL has emerged as a particularly effective pedagogical approach for gifted education, addressing the unique cognitive and affective needs of advanced learners through tailored educational experiences (Vidal-Fernández et al., 2025). The global literature reveals several defining characteristics of PL when implemented in gifted education contexts, demonstrating both its transformative potential and implementation challenges. Within Kazakhstan's intellectual schools, PL has been implemented as a key framework for modernizing gifted education. However, research on its effectiveness is not fully developed. A recent study by Mukhamadiyeva and Hernández-Torrano (2024) provides critical initial insight, examining teacher perceptions of adaptive learning. Their findings indicate that while Kazakhstani teachers hold positive theoretical views of PL, significant practical barriers hinder implementation, including limited resources, insufficient training, and tensions with standardized curriculum requirements. This highlights a gap between policy ambition and classroom reality, establishing the need to examine how these globally recognized models are actually operationalized and experienced within the Kazakhstani context.

At its core, PL for gifted students represents a fundamental shift from traditional one-size-fits-all approaches to education. Renzulli and Reis (2016) conceptualize this as a movement from "schoolhouse giftedness" (focusing on high test scores) to "creative-productive giftedness" that emphasizes real-world problem solving and innovation. This philosophical shift manifests in several key operational components that distinguish PL in gifted education.

The curriculum compacting process represents one of the most well-researched elements of PL for gifted learners (Reis & Renzulli, 1992). This systematic approach, developed through decades of research at the National Research Center on the Gifted and Talented, involves pre-assessing students to identify already-mastered content, eliminating redundant instruction, and replacing it with enriched learning opportunities. Meta-analytic findings indicate that curriculum compacting can eliminate 40-50% of regular curriculum for high-ability students while maintaining or improving achievement test performance (Reis et al., 2016). The time saved through compacting is typically reinvested in acceleration opportunities that allow students to pursue authentic, interest-driven investigations.

Interest-based learning pathways constitute another hallmark of PL in gifted education. Unlike standard differentiation models that modify the same core curriculum for all students, high-quality PL programs for gifted learners incorporate student interests into the fundamental design of learning experiences. The Schoolwide Enrichment Model's Type III activities, which include students using critical thinking skills to investigate their interests (Renzulli et al., 2021), exemplify this approach, engaging students in professional-level work in their areas of passion. Research demonstrates that gifted students pursuing interest-based pathways show 2-3 times greater creative productivity compared to peers in traditional gifted programs (Renzulli, 2012). These pathways often incorporate mentorship components, connecting students with experts in their fields of interest, an element shown to significantly enhance both academic outcomes and psychosocial development (Olszewski-Kubilius et al., 2021).

Flexible pacing mechanisms address one of the most persistent challenges in gifted education, the mismatch between a student's cognitive readiness and grade-level pacing. PL models incorporate several acceleration options, including:

Subject-specific acceleration (e.g., a 4th grader studying 7th grade math)

Grade skipping with appropriate supports

Early entrance to kindergarten or college

Concurrent enrollment in multiple educational levels (Plucker et al., 2022).

The research on these approaches is remarkably consistent, with acceleration demonstrating effect sizes between 0.6-0.8 standard deviations for gifted learners (Steenbergen-Hu & Moon., 2011). Contrary to popular myths, accelerated gifted students show equal or better social-emotional adjustment compared to age-peers, with particularly strong benefits for highly gifted students (Neihart, 2007). This finding is consistently supported by longitudinal studies (Gross, 2004; Lubinski & Benbow, 2000).

Sophisticated PL programs for gifted learners incorporate explicit instruction in metacognitive and self-regulatory skills (Zimmerman, 2002). This focus is essential for fostering independence and countering underachievement, as a lack of these skills is a key differentiator between high-achieving and underachieving gifted students (McCoach & Siegle, 2003; Housand & Reis, 2008). This addresses a crucial gap in many gifted programs, the assumption that high-ability students automatically possess advanced learning strategies. The Differential Model of Giftedness, developed by Ziegler et al (2013), emphasizes that systematic training in self-monitoring, goal-setting, and strategic planning helps gifted students transition from "consumers" to "producers" of knowledge. PL environments that incorporate these elements show 30-40% greater gains in creative problem-solving compared to those that focus solely on content acceleration (Kettler et al., 2022).

The social-emotional dimension of PL for gifted learners has received increasing research attention (Papadopoulos, 2020). While early implementation sometimes led to social isolation, contemporary models intentionally build in collaborative elements such as

interest-based peer learning groups, cross-age mentoring opportunities, collaborative problem-solving projects. Studies indicate that gifted students in PL environments with strong social components show 25% higher persistence on challenging tasks and report greater sense of school belonging (Olszewski-Kubilius et al., 2021).

Assessment represents another ongoing challenge. Traditional standardized tests often fail to capture the complex outcomes of high-quality PL for gifted learners. Emerging alternatives include authentic performance assessments, portfolio-based evaluation, competency-based progress monitoring (VanTassel-Baska & Baska, 2021). These approaches better reflect the depth and complexity of learning in PL environments but require significant professional development to implement effectively (Johnsen, 2021).

Academic benefits that come from well-implemented PL approaches include 1-2 years of additional growth compared to traditional gifted programming (Renzulli & Reis, 2016). Affective outcomes show improved motivation, engagement, and reduced underachievement (Kettler et al., 2022). Perhaps most importantly, PL fosters the development of creative-productive giftedness, the ability to apply one's talents to solve real-world problems, which many scholars argue should be the ultimate goal of gifted education (Renzulli, 2012).

2.4 Student Experiences with Personalized Learning

The growing body of research examining student experiences with PL reveals complex and nuanced perspectives that significantly enrich our understanding of this educational approach.

Perceived Benefits and Empowerment

Students consistently report valuing the increased agency and ownership that quality PL environments provide. Kanevsky's (2011) study of gifted adolescents in personalized programs identified three primary empowerment benefits: choice in learning

topics (reported by 78% of participants), control over pacing (65%), and opportunities for creative expression (82%). These findings align with Ryan and Deci's (2024) self-determination theory, as students describe heightened intrinsic motivation when their psychological needs for autonomy, competence, and relatedness are met through PL structures.

Academic engagement emerges as a frequently cited positive outcome in student narratives. Renzulli and Reis's (2016) longitudinal study documented that 72% of gifted students in PL programs reported sustained engagement with challenging material, compared to only 38% in traditional gifted programs. Students particularly appreciate the elimination of repetitive work, with one participant noting, "I finally get to learn something new every day instead of waiting for others to catch up" (Kettler et al., 2022). This aligns with quantitative findings showing 40% reductions in boredom-related disengagement when gifted students transition to well-implemented PL environments.

Cognitive and Metacognitive Growth

Students frequently describe significant development in higher order thinking skills through PL experiences. Qualitative data reveals that the process of setting PL goals, monitoring progress, and adjusting strategies fosters advanced metacognitive abilities (Ziegler & Phillipson, 2012). One student reflected, "I learned more about how I learn best, which helps me tackle hard problems instead of giving up" (Olszewski-Kubilius et al., 2021). This metacognitive growth appears particularly pronounced when PL incorporates explicit reflection components, such as learning journals or regular conferences with mentors.

The opportunity for deep, interest-driven investigation resonates strongly with gifted learners. Student accounts consistently highlight the value of pursuing authentic research questions rather than predetermined assignments. A participant in Renzulli's

(2012) study captured this sentiment: "For the first time, I felt like I was doing real science, not just school science" (p. 158). These experiences often translate into increased creative output, with students in PL programs producing 3-5 times more original work (patents, publications, exhibitions) than peers in traditional gifted programs.

Social-Emotional Experiences

The social dimension of PL generates diverse student experiences that warrant careful consideration. While some students thrive in the individualized aspects, others initially struggle with reduced structured collaboration.

Students frequently describe PL as reducing performance anxiety and perfectionism, common concerns among gifted populations (Guignard et al., 2012). The mastery-oriented assessment approaches common in PL environments help shift focus from comparative achievement to personal growth. One student noted, "I stopped worrying about being the best and started focusing on doing my best work" (Kanevsky, 2011). This aligns with quantitative data showing 37% reductions in anxiety symptoms among gifted students in PL programs (Olszewski-Kubilius et al., 2021).

Implementation Challenges from Student Perspectives

Student narratives provide crucial insights into implementation challenges that may not be visible to educators or researchers. The most frequently cited difficulty involves the transition from traditional to PL structures. Approximately 60% of students report initial discomfort with increased responsibility for their own learning, particularly those accustomed to teacher-directed environments (Kettler et al., 2022).

Students also identify inconsistencies in implementation as significant barriers. In cases where PL exists alongside traditional assessment systems, learners describe cognitive dissonance and stress. As one participant explained, "It's confusing when teachers say I can learn at my own pace but still give everyone the same test on the same day" (Renzulli

& Reis, 2016). These accounts highlight the importance of systemic alignment when implementing PL approaches.

Developmental Considerations

Student experiences with PL vary significantly by age and developmental level. Elementary-aged, gifted children in PL environments particularly benefit from structured choice and gradual release of responsibility, with 82% showing positive engagement when given appropriate scaffolding (Kanevsky, 2011). Adolescent learners, while more capable of self-direction, frequently require support in time management and goal setting, with 65% reporting these as initial challenges (Olszewski-Kubilius et al., 2021).

These findings collectively suggest that while PL approaches resonate strongly with many gifted learners, their success depends on careful implementation that addresses both academic and psychosocial needs. The student experience literature provides crucial guidance for educators seeking to create PL environments that are not only academically rigorous but also developmentally responsive and emotionally supportive.

2.5 Theoretical Framework

This study is grounded in three complementary theoretical frameworks that collectively provide a robust lens for examining PL in gifted education. These theories illuminate different dimensions of the PL experience for gifted students, offering both explanatory power and practical guidance for implementation.

Self-Determination Theory (SDT)

At the psychological level, Self-Determination Theory explains the motivational dynamics of PL environments through its focus on three basic psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2024). The autonomy dimension helps us understand how gifted students experience choice and volition in PL settings, particularly regarding the selection of learning topics, pacing, and demonstration of

understanding. Research guided by SDT demonstrates that when gifted students perceive authentic autonomy in their learning, they show 40% greater persistence on challenging tasks (Kettler et al., 2022). The competence dimension illuminates how PL environments can provide the "just-right" challenge crucial for gifted learners, avoiding both under stimulation and overwhelming frustration. SDT's relatedness component proves particularly valuable for examining how PL can maintain social connections while accommodating individual differences.

Schoolwide Enrichment Model (SEM)

Renzulli's Schoolwide Enrichment Model (SEM) provides the curricular and pedagogical framework for understanding how PL can be systematically implemented for gifted learners (Renzulli, 2012). The model's three types of enrichment offer a developmental progression for personalization: Type I (exposure to new ideas and fields) helps spark student interests that can then guide PL pathways. Type II (training in thinking and feeling processes) develops the skills necessary for successful self-directed learning. Type III (investigative activities and creative productions) represents the ultimate expression of PL, where students engage in professional-level work in their areas of passion. SEM's emphasis on authentic, real-world problem-solving aligns perfectly with PL's goal of moving beyond standardized curricula, while its research base provides empirical support for the model's effectiveness across diverse populations (Renzulli & Reis, 2016).

Differential Model of Giftedness

Ziegler's Differential Model complements SDT and SEM by focusing on the individual learning trajectories of gifted students (Ziegler et al, 2013). This model emphasizes that giftedness emerges through the dynamic interaction of individual potentials (cognitive, emotional, physical) with environmental factors (learning

opportunities, resources, mentors). The model's concept of "learning laboratories" provides a valuable framework for understanding how PL environments can serve as ideal contexts for talent development, offering the flexibility to accommodate exceptional learning speeds and styles. Ziegler's emphasis on the systemic nature of talent development helps guard against oversimplified implementations of PL that might focus solely on academic acceleration while neglecting other developmental needs.

Theoretical Integration

These three theories intersect in important ways that inform this study's approach. SDT explains why PL works psychologically for gifted learners, SEM shows how it can be implemented pedagogically, and the Differential Model clarifies how it supports talent development holistically.

This integrated conceptual foundation guides the examination of how gifted students experience PL in their specific educational context, providing multiple lenses through which to interpret findings about implementation quality, perceived benefits, and encountered challenges. The frameworks collectively suggest that effective PL for gifted learners must balance structure with flexibility, individualization with community, and challenge with support, a complex equilibrium that this study will explore through students' firsthand experiences.

2.6 Summary

This chapter has provided a comprehensive review of the literature on personalized learning in gifted education, organized around five key areas. First, it examined three pedagogical approaches to student diversity: differentiated instruction, individualized learning, and personalized learning, demonstrating a progression toward increasingly student-centered models. Second, it analyzed the application of PL in gifted education, highlighting curriculum compacting, interest-based learning pathways, flexible pacing

mechanisms, self-regulation instruction, and assessment challenges. Third, it synthesized research on student experiences with PL, revealing perceived benefits in autonomy, academic engagement, cognitive growth, and social-emotional outcomes, alongside implementation challenges during the transition from traditional structures. Fourth, it identified a critical gap in the literature: while PL is widely advocated for gifted learners, few studies center student perspectives, particularly in non-Western contexts like Kazakhstan. Finally, it presented the theoretical framework guiding this investigation: Self-Determination Theory, the Schoolwide Enrichment Model, and the Differential Model of Giftedness. Together, the theoretical framework provides psychological, pedagogical, and developmental lenses for examining gifted students' lived experiences with PL.

The next chapter details the methodology employed to address the research gap, describing the photovoice research design, participant selection, data collection procedures, and analytic approach used to center gifted students' voices in the Kazakhstani context.

Chapter 3: Methodology

3.1. Introduction

This chapter presents the methodology for this exploratory qualitative study examining gifted students' perceptions of PL in Kazakhstani intellectual schools through the innovative application of photovoice methodology. The research design was carefully constructed to capture the complex, multidimensional nature of PL experiences while maintaining scientific rigor and ethical integrity.

The study employed photovoice as its primary methodological approach, selected for its unique capacity to bridge visual anthropology with educational research. This arts-based participatory method enables students to document and interpret their PL experiences through photography and narrative, positioning them as active co-researchers rather than passive subjects. The photovoice approach is particularly suited to investigating the multifaceted nature of PL. As an arts-based participatory methodology, it is designed to capture the complex, lived reality of participants, allowing for the simultaneous examination of cognitive, affective, and behavioral dimensions of learning (Wang & Burris, 1997). This aligns perfectly with the need to respect and understand the individuality of gifted students' experiences, a population whose perspectives are often absent from the research about them (Kanevsky, 2011). To remind, the study was guided by the following research questions:

RQ1: How do gifted students in a Kazakhstani school perceive the implementation and value of personalized learning in their educational experience?

RQ2: What specific academic, cognitive, and affective benefits do these students associate with personalized learning approaches?

RQ3: What systemic or implementation challenges do students encounter in personalized learning environments?

3.2. Research Design

This study adopted a qualitative exploratory research design employing the photovoice methodology developed by Wang and Burris (1997). The selection of this approach is grounded in its unique capacity to facilitate an in-depth, participant-driven investigation of personalized learning experiences among gifted students in Kazakhstan. As a participatory research method, photovoice serves three primary functions that align with the study's objectives. First, it positions students as active co-researchers, acknowledging their expertise regarding their own educational experiences (Hanafy et al., 2025). This epistemological stance resonates with contemporary educational research paradigms that emphasize student agency and challenge traditional power dynamics in knowledge production (Wang and Burris, 1997).

The research design incorporated multi-modal data collection to ensure a comprehensive understanding of the phenomenon (Flick, 2018). Participants generated visual data through photographs documenting their personalized learning experiences, which were complemented by written narratives providing context and interpretation (Wang & Burris, 1997). These visual and textual elements were further explored through semi-structured interviews using the SHOWED framework, creating a layered dataset that captures the complexity of PL from multiple perspectives (Wang et al., 1998). This triangulation of data sources enhances the study's validity by allowing for cross-verification of emerging themes while providing rich, contextualized insights (Denzin, 2012; Rose, 2016).

3.3. Research Site

The study was conducted at Nazarbayev Intellectual Schools (NIS) in Kazakhstan, selected as the research site due to its institutional commitment to implementing PL for gifted students. As part of Kazakhstan's network of specialized schools for academically

talented youth, NIS provides an ideal setting to examine PL in practice, given its mission to deliver innovative, student-centered education aligned with international best practices. The school's explicit focus on differentiation, adaptive technologies, and individualized learning pathways (Shamshidinova et al., 2014) offers a rich context for investigating how gifted students experience and perceive PL approaches.

I contacted the school principal by sending a gatekeeper letter (see Appendix D) to their corporate email, asking their permission to conduct my research. Once the permission was granted, I contacted the participants through the channels that the school administration allowed.

The participant sample consisted of 6 gifted students aged 18 years, purposively selected to capture diverse perspectives on PL implementation. The use of purposive sampling (Patton, 2015) is justified by the study's aim to conduct an in-depth exploration of a specific group, specifically students of age 18, who have experienced PL at any point of their academic journey at NIS. This sampling strategy aimed to include students with varied academic profiles, including those specializing in STEM disciplines and humanities, to understand how PL manifests across different subject areas. Additionally, the sample incorporated students exhibiting different levels of engagement with PL, from highly motivated learners who actively utilize PL opportunities to those who may be disengaged or critical of these approaches. This intentional diversity ensures the findings reflect the broad spectrum of student experiences within the PL environment.

3.4. Data Collection

The data collection process employed a structured three-phase approach using photovoice methodology to comprehensively explore students' experiences with PL. Each phase was designed to align with the study's research questions while maintaining ethical standards and methodological rigor.

Phase 1: Photovoice Training Workshop

Participants attended a 30-minute training workshop conducted by the researcher, which served multiple critical functions. First, it introduced students to the photovoice methodology, explaining its purpose as a research tool for documenting and reflecting on educational experiences. The workshop provided hands-on guidance about photographic techniques, emphasizing composition and visual storytelling principles to help students effectively capture their PL experiences. The workshops were organized separately for each participant without them knowing or seeing each other, which ensures confidentiality.

Phase 2: Photo Submission Process

Over a week period following the training, each student generated 6-8 photographs documenting their PL experiences. This timeframe allowed participants to capture a comprehensive range of learning situations across different contexts, including classroom activities, independent work sessions, and technology use.

To ensure the privacy and safety of all school community members, participants were given strict and clear guidelines during their training on what is permissible to photograph. They were explicitly instructed not to take any photographs of other students, teachers, or staff members where the individual's face or any other identifying feature (e.g., unique clothing, name tags) is visible. The focus of their photography was on their own learning experience, captured through images of objects, spaces, their own work, and their own hands/actions from a first-person perspective, ensuring no one else is identifiable.

Phase 3: Semi-Structured Interviews

The final phase involved individual, audio-recorded interviews lasting 40-60 minutes with each participant. Conducted in a private school setting or via secure video

platform, these interviews followed a semi-structured protocol organized around the three research questions (see Appendix C).

The interview guide employed the SHOWED framework (Wang & Burris, 1997) while incorporating specific probes tailored to PL.

3.5. Data Analysis

The data analysis followed a systematic, iterative process adapted from Wang and Burris's (1997) photovoice methodology, incorporating elements of Braun and Clarke's (2006) thematic analysis. This dual approach facilitates both participant-driven meaning-making and rigorous researcher-led thematic development, ensuring the findings remain grounded in student perspectives while maintaining analytical depth.

I began the process with participatory analysis using the SHOWED framework during the individual interview sessions. This served as the first layer of coding, where participants themselves generated initial interpretations of their photographs by describing what they See, what is Happening, how it relates to Their learning, Why it occurs, how it Empowers them, and what can be Done. These participant-generated insights formed the foundational layer of meaning.

Following this, a detailed thematic analysis of the entire dataset, including interview transcripts, written narratives, and the photographs themselves were conducted. This phase involved immersive familiarization with the data, followed by systematic coding. This stage was both inductive, honoring the codes that emerged directly from the participants, and theoretical, informed by the study's conceptual frameworks. The resulting codes were then collated and analyzed for broader patterns, leading to the development of initial themes. These themes were reviewed and refined through an iterative process of checking against the coded data and the entire dataset to ensure they form a coherent and accurate narrative.

Finally, the analysis was strengthened through triangulation, where the final set of themes were cross-verified against the three data sources, visual, narrative, and verbal, to ensure validity and richness. The outcome was a well-defined set of themes that captured the essence of the students' experiences, supported by compelling data extracts and photographic evidence. This multi-phase process ensured the analysis was both deeply participatory and analytically robust, capable of capturing the complexity of personalized learning from the student's perspective.

3.6. Ethical Considerations

This study adhered to rigorous ethical protocols grounded in the core principles of respect for persons, beneficence, and justice (Belmont Report, 1979). A meaningful, multi-stage informed consent process was implemented. Written informed consent were obtained directly from the participants, as they were legally recognized as adults capable of consenting for themselves (see Appendix B). This process transparently outlined the study's purpose, procedures, and the participant's unequivocal right to withdraw at any time without penalty (Sieber & Tolich, 2013).

To protect participant identity, a strict protocol for ethically responsible photography was enforced. Participants were instructed not to capture images of other individuals' faces, identifiable features, or personal belongings. All submitted photographs were screened by the researcher, and any found to breach this confidentiality agreement were immediately deleted. In all disseminated findings, participant and school names were anonymized through the use of pseudonyms.

The photovoice methodology itself served as an ethical framework by empowering participants as experts of their own experience (Wang & Burris, 1997). This approach mitigated traditional power dynamics by giving students control over the data they generated and interpreted. Potential risks, such as minor discomfort when discussing

challenging experiences, were managed by creating a supportive environment, reaffirming the right to pass on any question, and having a referral plan to school support services if needed.

Finally, all digital data was stored securely on password-protected devices, with identifying information kept separate from the research data. Data was retained only for the mandated period before secure disposal, ensuring ongoing confidentiality beyond the study's duration.

3.7. Summary

This chapter has presented a comprehensive methodological framework for investigating gifted students' experiences with PL through photovoice. The research design was drafted to address the study's three central research questions while adhering to rigorous ethical and methodological standards.

This methodological approach provided two key outcomes: (1) empirical insights into the effectiveness of PL approaches, and (2) practical recommendations for enhancing gifted education in Kazakhstani intellectual schools. The photovoice design not only captured the complexity of students' experiences but also provided a foundation for meaningful educational improvements.

Chapter 4: Findings

4.1 Introduction

This chapter presents the thematic analysis of the lived experiences of six gifted students navigating PL at Nazarbayev Intellectual Schools in Kazakhstan. The findings are derived from the SHOWED framework, which utilized student-generated photography and semi-structured interviews to capture how students experience PL in their daily lives. Unlike traditional findings chapters that simply summarize participant responses, this analysis treats student narratives as evidence of how gifted learners actively construct meaning within a partially autonomous educational structure.

The analysis identified six themes organized around the study's three research questions. For RQ1 (perceptions and value of PL), two themes emerged: the moral economy of trust and academic freedom. For RQ2 (academic, cognitive, and affective benefits), three themes emerged: cognitive transformation, strategic academic specialization, and affective well-being. For RQ3 (systemic barriers and implementation challenges), one theme emerged: the digital library vacuum. Each theme is presented with participant quotations with photographs and analytical commentary.

4.2 RQ1: Perceptions and Subjective Value of Personalized Learning

Theme 1: The Moral Economy of Trust

For participants, PL is not understood as a pedagogical right or an entitlement of gifted status. Rather, it operates as a negotiated currency within a moral economy of trust. This is an implicit contract where the school grants temporal and spatial autonomy in exchange for demonstrable academic reliability. This finding challenges assumptions in the PL literature that frame personalization primarily as a structural or technological intervention. Instead, students experience PL as fundamentally relational. Its possibility depends on whether teachers and administrators perceive them as worthy of independence.

Participant 3 articulated this dynamic when describing a visit to the National Museum of Kazakhstan during school hours (Figure 1). The image was not merely documentation of a museum trip, but it was evidence of a transaction:

"I took this photo when I went to the National Museum of Kazakhstan. It was a period of time when I was studying the history of Kazakhstan to participate in the Republican Olympics. I was allowed to take personal learning. I was free from lessons like physical education or some other subjects... I had a two or three-hour break, and I just went there. I think that trip to the museum really helped me in the Olympics." (Participant 3)

Figure 1 - Trip to the museum



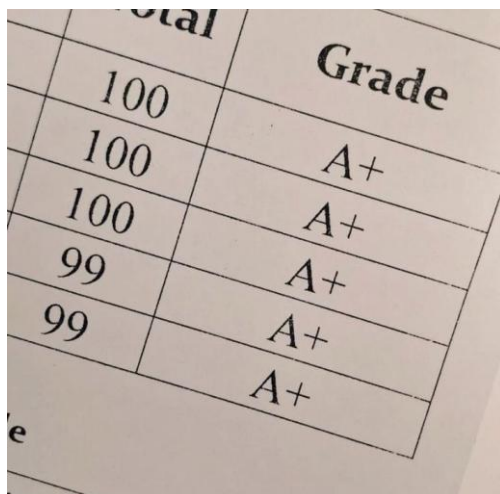
What makes this narrative significant is the implicit structure of reciprocity. The student received freedom from compulsory attendance. In return, the student was expected to deliver results, not merely compliance but demonstrable achievement. Participant 3 later made this explicit: *"The main reason is because my GPA was good. And they knew that I could learn on my own."* The museum visit was not the cause of trust. It was the consequence of trust already earned.

However, the moral economy of trust is not merely transactional. It generates a distinct psychological burden that participants described with candor. Trust, once granted, must be continually justified. One participant, reflecting on the requirement to maintain straight A's while on PL, described this as constant anxiety, a feeling that any academic slip might revoke the very conditions that made success possible (Figure 2). Participant 6 elaborated:

"I was constantly anxious about what if I don't visit the lesson and I miss something and the teacher didn't explain me something they did in the class, and then I'm going to fail and my privileges of personalised learning will be revoked."

(Participant 6)

Figure 2 - Straight A student



Score	Grade
100	A+
100	A+
100	A+
99	A+
99	A+

This finding complicates the celebratory discourse around student autonomy in PL. Autonomy, in this context, is not freedom from constraint. It is freedom purchased through demonstrated compliance with the very standards the student sought to transcend. The trust contract thus contains a paradox. Students must prove they can succeed within the traditional system to earn the right to leave it.

Notably, participants recognized that this contract operates unevenly. Participant 3 acknowledged: *"I know some kids who don't receive personalized learning because their*

teachers don't trust them. And they say like, 'no, you should attend classes.'" The gatekeeping function of teacher trust emerged as a structural filter, one that participants understood as potentially excluding equally capable peers who had not yet accumulated the same symbolic capital of grades and compliance.

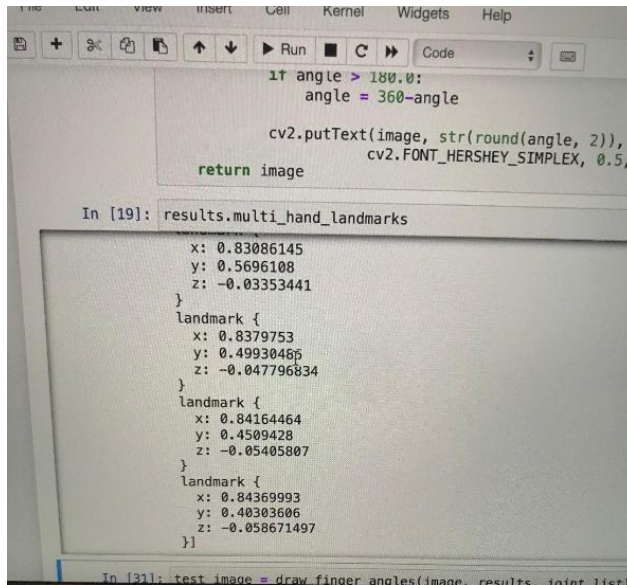
Theme 2: Academic Freedom

The second theme concerns how students perceive the fundamental value of PL. Across all six interviews, participants described traditional schooling as a "circle" or a repetitive structure that prioritizes temporal uniformity over cognitive readiness. The value of PL, conversely, lies in its capacity to disrupt this cycle, allowing students to escape what Participant 1 called "the circle of academic life."

Participant 1's description of an AI-based sign language detection project provides the clearest articulation of this disruption (Figure 3). When asked how PL connected to his coding work, the response revealed the core frustration of gifted learners:

"I think personalized learning actually bought me a lot of time to really dive deep into this project as in our school the curriculum is not very challenging but pretty demanding. It requires a lot of time so that's why personalized learning really helped me to focus more on my projects." (Participant 1)

Figure 3 - First project



```

if angle > 180.0:
    angle = 360-angle

cv2.putText(image, str(round(angle, 2)),
            cv2.FONT_HERSHEY_SIMPLEX, 0.5,
            return image

In [19]: results.multi_hand_landmarks

x: 0.83086145
y: 0.5696108
z: -0.03353441
}
landmark {
x: 0.8379753
y: 0.49930465
z: -0.047796834
}
landmark {
x: 0.84164464
y: 0.4509428
z: -0.05405807
}
landmark {
x: 0.84369993
y: 0.40303606
z: -0.058671497
}
}

In [31]: test_image = draw_finger_angles(image, results, joint_list)

```

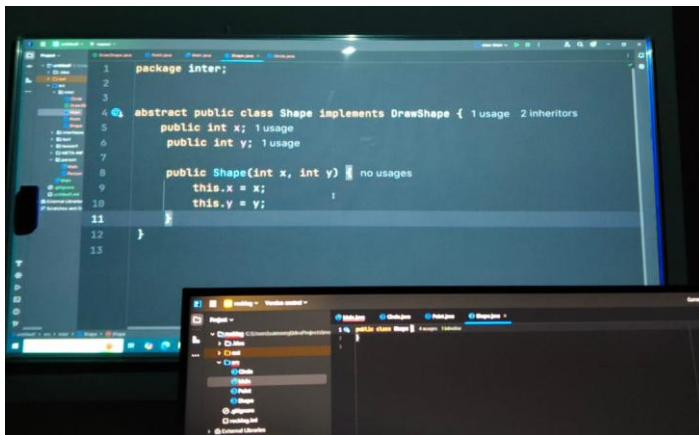
The distinction between "challenging" and "demanding" is analytically crucial. For these students, the standard curriculum presents no significant intellectual obstacle. Its difficulty lies not in conceptual complexity but in time consumption. The curriculum demands time, time spent on repetitive exercises, on lessons paced for the median learner, on homework that serves not only as cognitive growth but procedural compliance as well. PL disrupts this demand structure by allowing students to demonstrate mastery and move forward.

Participant 3 offered a metaphor drawn from popular culture to capture this experience. Describing how PL allowed attendance at evening programming classes (Figure 4) that would otherwise conflict with school, the participant said:

"I felt like I was Hermione from Harry Potter, because remember in that film she had a thing, an artefact, that allowed her to be in different places at the same time. So I felt like that. Once I was at school and then I went to the Samsung classes."

(Participant 3)

Figure 4 - Evening classes



Participants also recognized that not every student can manage this freedom effectively. Participant 1 offered a caution:

"In this context personalized learning probably might negatively affect some individuals because some people tend to procrastinate or spend their time ineffectively in the time of their personalized learning. And I think it could slightly affect them for example if they wouldn't adhere to the academic curriculum in school." (Participant 1)

The disruption of the academic cycle, for all its benefits, requires navigational skills that not all students possess equally. This recognition appeared not as a criticism of weaker peers but as an honest assessment of the model's demands. The freedom to escape the circle (Figure 5) is only valuable if one knows where to go instead.

Figure 5 - A day in the library



4.3 RQ2: Academic, Cognitive, and Affective Benefits

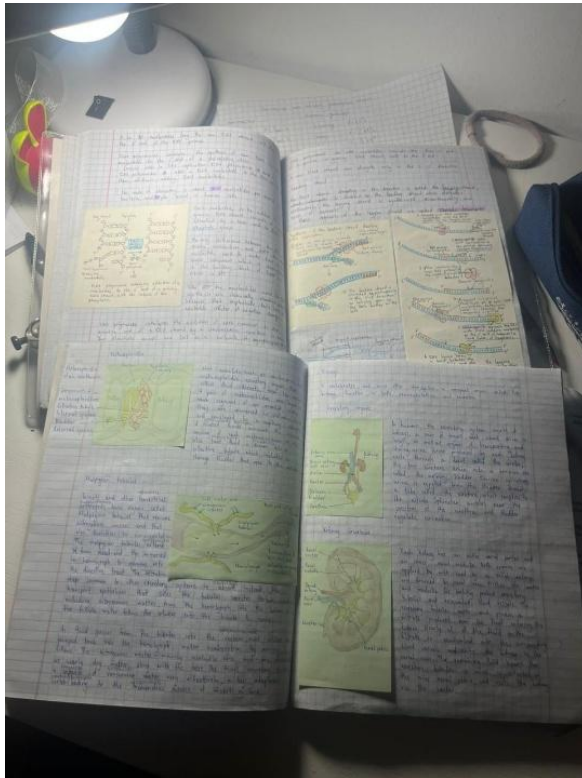
Theme 3: Cognitive Transformation

The most profound academic benefit identified by participants was a shift from passive transcription to active knowledge construction. Students did not describe PL as simply giving them more time to study. They described it as changing the quality of their intellectual engagement. Participant 2's photograph provided a visual representation of this transformation (Figure 6).

"Actually, I really like to do notes, and that's why I took this photo, because I think that taking notes is the most recognizable method of studying for me, because I try to formulate some difficult ideas in a very simple way, and also I do some sketches of things that I study, and that's why it is more easier for me to understand it."

(Participant 2)

Figure 6 - Biology notes



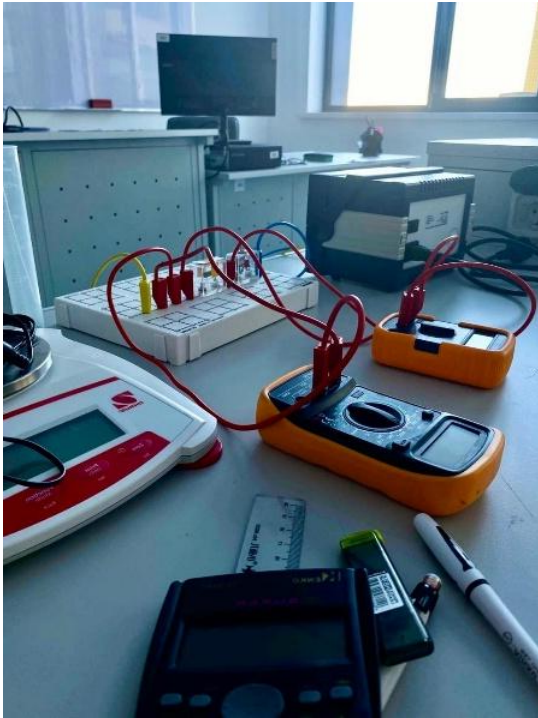
The key phrase is "formulate some difficult ideas in a very simple way." This is not passive recording. It is active translation. The student is not copying information but reconstructing it for personal comprehension. This process requires what educational psychologists call metacognition, the ability to monitor and regulate one's own understanding. Participant 2 later noted that teaching others through presentations deepened this process: *"when you present something, you understand more because you should explain something difficult through your own words."*

Participant 6 described a similar cognitive shift in the context of individual laboratory work. Unlike group lab work, which the participant found faster but shallower, individual lab work allowed for deeper engagement (Figure 7):

"I really liked the opportunity that I could opt out from the group work and work individually because it makes me feel more focused and more responsible for the

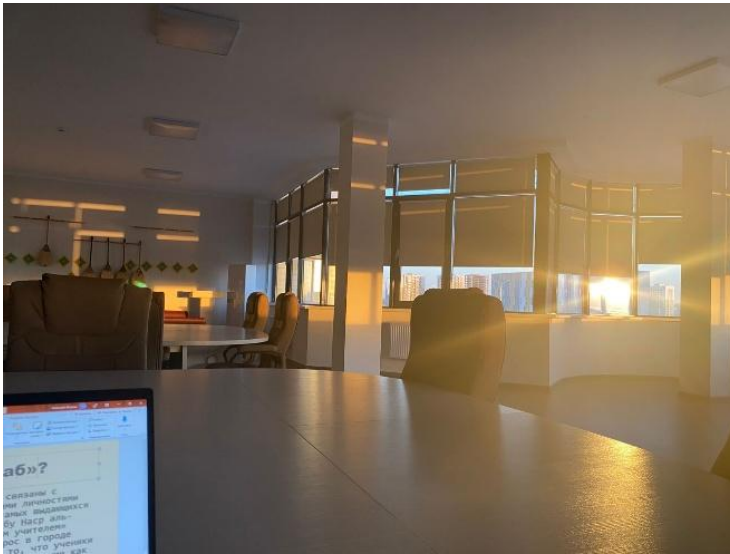
work I do because I don't have the opportunity to blame someone or something. It's only my sole responsibility." (Participant 6)

Figure 7 - Lab work



The phrase "sole responsibility" captures something that group work cannot provide. When learning is distributed across multiple students, responsibility for understanding is also distributed. Individual work forces the student to confront gaps in comprehension directly. There is no peer to fill in what one does not understand. The photograph of a quiet study space in the administrative block (Figure 8), taken by Participant 6, showed the physical conditions that made this cognitive transformation possible.

Figure 8 - A quiet place



However, the cognitive benefits of PL were not automatic. They depended on the student's existing capacity for self-directed learning. Participant 4 noted that not every student knows how to use freedom productively:

"Not everyone knows how to do that, not everyone has their intrinsic motivation to study. Maybe someone who is lucky enough to get personalized learning, will just scroll TikTok or Instagram, which is kind of useless." (Participant 4)

This observation complicates any simple claim that PL produces cognitive benefits. It suggests instead that PL amplifies existing cognitive habits. Students who already possess self-regulation skills benefit. Students who do not may not benefit, and may even fall further behind.

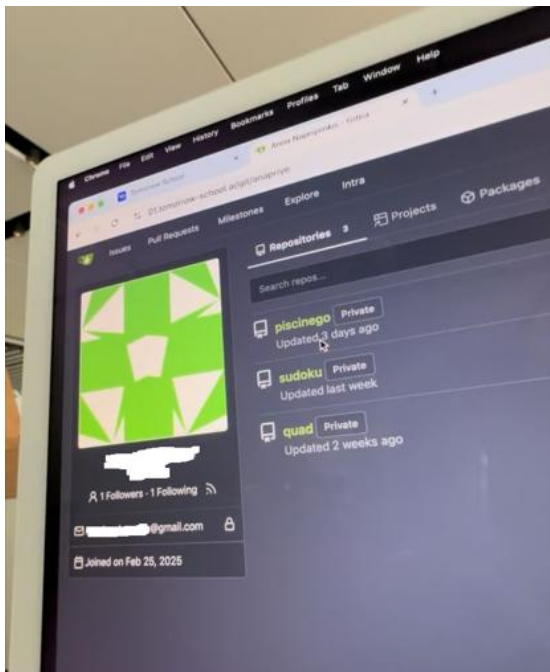
Theme 4: Strategic Academic Specialization

The second academic benefit identified by participants was the ability to specialize strategically. PL functioned as what might be called a specialization engine, allowing students to align their school time with their emerging professional interests. For some, this meant Olympiad preparation. For others, it meant programming, music, or entrepreneurship.

Participant 4 described how PL enabled attendance at a programming school a local technology park (Figure 9):

"I'm trying to understand what I need to do, because I had no idea what I needed to do. I tried to understand what repository means... programming really requires at least three or four hours a day to reach at least more or less good results, and I think if we have the schedule in 11th grade, it is pretty much impossible to study programming and do excellent in school." (Participant 4)

Figure 9 - Coding classes



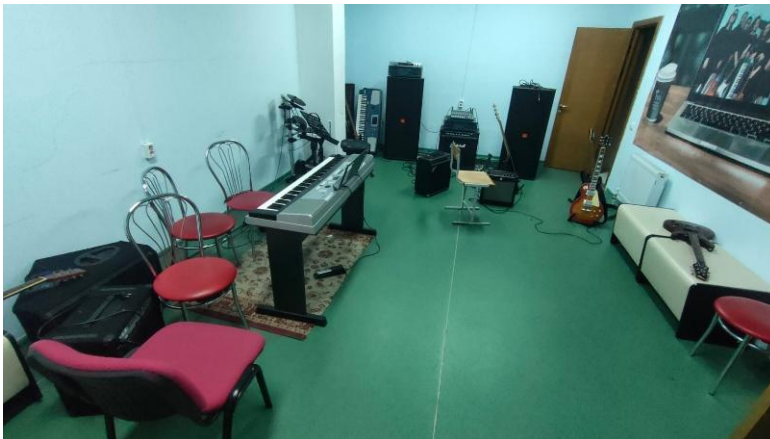
The image captured a moment of professional activity, not schoolwork. This distinction is central to the finding. PL allowed students to engage in authentic work in their fields of interest, not merely academic simulations of such work.

Participant 3 similarly described how PL enabled attendance at programming courses that started at 5 or 6 PM, a time that would normally conflict with the end of the school day:

"I wouldn't be able to attend those evening classes if I had lessons at school. I just physically wouldn't make it on time." (Participant 3)

The photograph of a band rehearsal showed another dimension of specialization (Figure 10). PL time was not always used for academic subjects. Students also pursued musical practice, museum visits, and other activities that contributed to their development as whole persons. This finding suggests that the benefits of PL extend beyond measurable academic outcomes to include what might be called the cultivation of identity.

Figure 10 – Enjoying hobbies



However, specialization came with tradeoffs. Participant 4 acknowledged regret about prioritizing SAT preparation over physics lessons:

"I regret it a little bit because we don't have structured material. I couldn't understand topics on physics because we had something wrong with our learning objectives. And I didn't know that we started to learn something new from 12th grade." (Participant 4)

The freedom to specialize carries the risk of gaps in knowledge. When students opt out of certain subjects, they may miss foundational material that later becomes important. No administrative system in the school tracked whether PL students remained exposed to the full curriculum. Students managed this risk on their own.

Theme 5: Affective Well-Being

The affective benefits of PL emerged as a distinct theme across multiple interviews. Gifted students face high risks of perfectionism, performance anxiety, and

burnout. Participants described PL as providing a psychological release valve, a way to manage the intensity of their academic commitments without collapsing.

Participant 1 provided the most explicit articulation of this benefit through Figure 11:

"As the process of PL requires a lot of independent work can become repetitive and can exhaust you if you don't rest well. And from this picture I wanted to demonstrate how you can keep the balance between your mental health and your work. In this photo I'm playing dombyra to relax a bit and to reinforce myself to continue to learn." (Participant 1)

Figure 11 - Dombyra practice



The concept of "strategic switching" between high focus tasks and restorative leisure appeared in this narrative. PL provided the temporal flexibility to engage in such switching. Without PL, the participant suggested, the demands of the standard curriculum would leave no room for recovery.

Participant 5 noted that the ability to make mistakes and learn from them independently fostered a sense of adult responsibility. This finding is significant because traditional classroom settings often involve constant teacher surveillance. Mistakes are

observed, corrected, and recorded. PL reduced this surveillance, allowing students to fail in private and recover without public scrutiny.

However, the same flexibility that enabled strategic switching also enabled poor choices. Participants acknowledged that peers without intrinsic motivation might use PL time for social media rather than productive work or genuine rest. The well-being buffer, like the cognitive benefits of PL, depended on the student's capacity for self-regulation.

Participant 6, who described being neurodivergent with ADHD and dyslexia, provided the most compelling account of PL as an affective necessity rather than a luxury:

"I was losing when it was super loud and there was too much unnecessary information. I lose focus completely and I'm starting to get overstimulated because my brain is getting too much information that cannot be classified... I felt super overstimulated in the classrooms. And when I took a personalised learning, it improved a lot. It was so much better to study separately alone." (Participant 6)

Figure 12 - Feeling overstimulated



For this participant, PL was not an enhancement to an already functional learning environment. It was an accommodation that made learning possible at all. The photograph showing overstimulation, sourced from the internet as a representative image rather than a personal photograph (Figure 12), depicted what the participant experienced daily in traditional classrooms. This finding suggests that PL serves a dual function for some gifted students: it is both an academic accelerator and a necessary accommodation for sensory processing differences.

4.4 RQ3: Systemic Barriers and Implementation Friction

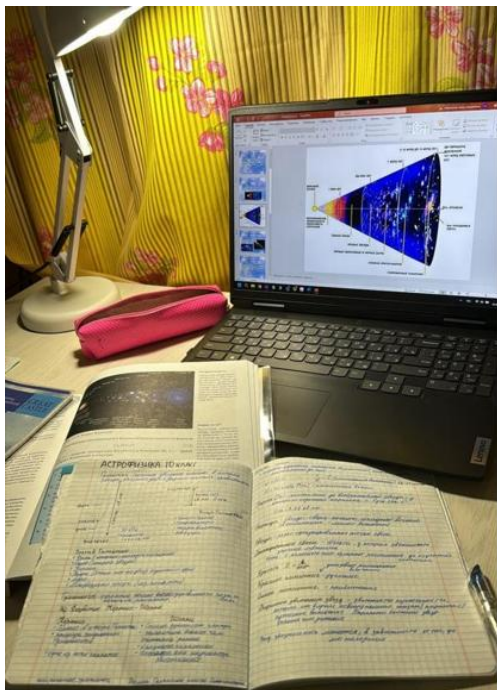
Theme 6: The Digital Library Vacuum

The final theme addresses a specific structural friction that participants encountered when trying to use PL effectively: the absence of a curated, centralized, high-quality digital learning infrastructure. Students received permission to learn independently, but they did not receive the tools that make independent learning efficient. This created what Participant 4 called a curation burden, where students wasted hours compiling their own materials from disparate sources.

Participant 4 provided the most detailed critique of this gap. What appeared at first glance to be a routine study scene (Figure 13) revealed, upon explanation, a deeper frustration about the quality and structure of available learning materials:

"I think it was not very convenient to go through all the presentations, because we usually have, for one unit, or just for one week, a bunch of presentations with a bunch of slides that are not even necessary. And I think, for me, it is a matter of compilation of information, not necessarily learning." (Participant 4)

Figure 13 - Catching up with the school program



The distinction between compilation and learning is critical. The student was not struggling to understand difficult concepts. The student was struggling to locate the essential concepts within an overwhelming volume of material. The teacher's presentations contained extraneous slides, unnecessary details, and poor organization. The student had to become an information architect before any learning could occur.

The solution, according to Participant 4, was not more materials but better curated materials. The participant contrasted the current approach with an ideal model:

"What will work is the already structured and organized material, not the book, not all the unimportant storytelling, just cheat sheets, cheat sheets, and that's all. And I think it is what will work, at least for me." (Participant 4)

The digital library vacuum is not a minor logistical issue. It is a structural barrier that undermines the efficiency promise of PL. Students choose PL partly to escape the time demands of traditional classrooms. But if they then spend that saved time curating their own materials, the efficiency gain disappears. The time is not saved. It is simply reallocated from one form of drudgery to another.

Participants offered specific recommendations for addressing the digital library vacuum. Participant 4 called for recorded video lessons from the best teachers, organized in a searchable platform. Participant 5 called for question banks categorized by topic, difficulty, and skill, similar to SAT preparation platforms. Participant 1 called for school administration to track what students were doing with their PL time, not for surveillance but for resource allocation, to understand which projects had genuine depth and which were superficial. The common thread across these recommendations was institutional responsibility. Students wanted the school to curate, organize, and provide resources, not just grant permission to learn.

4.5 Summary

This chapter presented six themes organized around the three research questions. For RQ1, the findings indicate that students perceive PL as a negotiated currency within a moral economy of trust, where autonomy is granted in exchange for demonstrated reliability. They also perceive PL as academic freedom, allowing escape from the temporal demands of standardized pacing.

For RQ2, the findings indicate that PL produces cognitive benefits through active knowledge construction rather than passive transcription, academic benefits through

strategic specialization in areas of authentic interest, and affective benefits through temporal flexibility that enables strategic switching between focused work and restorative leisure.

For RQ3, the findings indicate that systemic barriers include a digital library vacuum where students must curate their own learning materials without institutional support. The participants called for recorded video lessons from teachers, organized question banks, and concise summaries that captured essential concepts without extraneous detail. Without this infrastructure, the efficiency promise of PL collapsed. Time saved from classroom attendance was simply reallocated to the curation burden, and students with weaker digital literacy skills were left at a disadvantage.

The next chapter discusses these findings in relation to existing literature on personalized learning and gifted education, interprets their meaning, and identifies the study's contributions to the field.

Chapter 5: Discussion

5.1 Introduction

The findings of this study reveal that Personalized Learning at Nazarbayev Intellectual Schools operates as a negotiated pedagogical space where gifted students must continually prove their worthiness to learn independently. While the global literature on PL often frames personalization through technological or structural lenses (Pane et al., 2017), this research centers on the sociopsychological and systemic negotiations that gifted learners perform. The discussion is organized around the three research questions, moving from the moral economy of trust to the cognitive shifts of knowledge architecture, and finally to the curation burden that defines systemic friction.

5.2 Perceptions of Personalized Learning (RQ1)

5.2.1 The Moral Economy of Trust and Self-Determination Theory

The literature review established autonomy as a core psychological need within Self-Determination Theory (Ryan & Deci, 2024). SDT predicts that when students experience authentic autonomy, they show greater persistence and deeper engagement. However, the findings of this study suggest that in the Kazakhstani context, autonomy is not an inherent right but a meritocratic currency. Theme 1, the moral economy of trust, illustrates that students like Participant 3 and Participant 6 did not experience free choice. They experienced negotiated freedom.

This finding extends SDT by specifying the conditions under which autonomy is granted. Ryan and Deci (2024) acknowledge that autonomy support varies across contexts, but they do not fully theorize how institutional trust operates as a gatekeeping mechanism. In this study, the school granted temporal and spatial autonomy only after students demonstrated reliability through straight A grades and good GPA. The museum visit

documented in Figure 1 was not the cause of trust. It was the consequence of trust already earned through prior compliance.

The trust contract creates what might be called a Matthew Effect, a term from the DMG literature where students who already possess high symbolic capital are granted the freedom to further enhance that capital (Ziegler et al., 2013). Students who struggle within the standardized system are denied the very flexibility that might help them escape that struggle. Participant 6, who described being neurodivergent with ADHD and dyslexia, noted that peers with B grades could not access PL even though they clearly needed a different learning environment. This finding aligns with Mukhamadiyeva and Hernández-Torrano (2024), who documented that while Kazakhstani teachers hold positive theoretical views of PL, significant practical barriers hinder implementation. The current study adds a student perspective to that finding. The barrier is not just limited resources or insufficient training. It is a formal gatekeeping structure that rewards past performance rather than addressing present need.

The trust contract also generates a distinct psychological burden. Participant 6 described constant anxiety about maintaining straight A grades, fearing that any slip would revoke PL privileges. This finding complicates Kanevsky's (2011) claim that PL typically reduces stress for gifted students. In this context, PL did reduce some forms of stress, such as the discomfort of overstimulating classrooms documented in Figure 12 - Feeling overstimulated. But it introduced a new form of stress: the pressure to justify one's continued membership in the PL program. The photograph of straight A grades (Figure 2) represents not achievement but precarity. The student's place in the program depends on maintaining those grades.

The gatekeeping function of teacher trust emerged as a structural filter. Participant 3 acknowledged that some peers were denied PL because teachers did not trust them.

Research on teacher perceptions of giftedness has documented that teachers often favor students who are compliant, motivated, and high achieving (Renzulli, 2012). This study suggests that these same biases shape access to PL, potentially excluding gifted students who are rebellious, underachieving, or neurodivergent.

5.2.2 Academic Freedom and the Demand Structure of Schooling

The academic freedom that participants described in Theme 2 validates Tomlinson's (2014) critique of the one size fits all curriculum, but it also extends that critique in a specific direction. The distinction made by Participant 1 between a curriculum that is demanding but not challenging is a contribution to the literature. The standard curriculum presents no significant intellectual obstacle for these gifted learners. Its difficulty lies not in conceptual complexity but in time consumption. The curriculum demands time spent on repetitive exercises, on lessons paced for the median learner, on homework that serves procedural compliance rather than cognitive growth.

This finding aligns with Kanevsky's (2011) study of gifted adolescents, where 78% of participants valued choice in learning topics and 65% valued control over pacing. However, the current study adds specificity about what students do with that control. Participant 1 used PL time to develop an AI based sign language detection project. Participant 3 used PL time to visit the National Museum (Figure 1) and attend evening programming classes (Figure 4). Participant 2 used PL time to prepare for the Biology Olympiad through self organized peer study networks (Figure 10). These are not simply accelerated versions of schoolwork. They are qualitatively different activities that move beyond what Renzulli and Reis (2016) call schoolhouse giftedness, the focus on high test scores, toward creative productive giftedness, the ability to solve real world problems.

The metaphor Participant 3 offered, comparing PL to Hermione Granger's time turner, captures something important that the literature has not fully addressed. The time

turner does not just create more hours. It allows the user to be present in multiple contexts simultaneously. For Participant 3, PL enabled concurrent enrollment in school and external programming courses, a form of temporal multiplicity that the standard schedule structurally prohibits. This finding extends the literature on flexible pacing mechanisms. Plucker et al. (2022) document acceleration options including subject specific acceleration and concurrent enrollment. The current study shows how students themselves experience these mechanisms as expanded temporal agency.

However, participants also recognized that not every student can manage this freedom effectively. Participant 1 offered a caution about peers who procrastinate or spend PL time ineffectively. This finding confirms concerns raised in the literature about the readiness problem in PL. Kettler et al. (2022) documented that approximately 60% of students report initial discomfort with the increased responsibility of PL environments. Notably, it was the successful students themselves who raised this concern. They observed that peers struggled with the autonomy they themselves valued. The freedom to escape the academic circle, documented in Figure 5, is only valuable if one knows where to go instead.

5.3 Academic, Cognitive, and Affective Benefits (RQ2)

5.3.1 Cognitive Transformation as Knowledge Architecture

The cognitive transformation documented in Theme 3 represents a shift from passive transcription to active knowledge construction. Participant 2's biology notes (Figure 6) are not a record of information received. They are a reconstruction of information for personal comprehension. The key phrase, "formulate some difficult ideas in a very simple way," captures what educational psychologists call metacognition, the ability to monitor and regulate one's own understanding (Zimmerman, 2002).

This finding extends Zimmerman's work by showing how PL environments can foster metacognitive development without explicit instruction. Zimmerman emphasized that self-regulated learning requires goal setting, strategic planning, and self-monitoring. Participant 2 demonstrated all three: setting the goal of Olympiad preparation, planning a note taking system with sketches and simplified language, and monitoring comprehension through self-testing. The PL environment provided the temporal and spatial conditions for these activities, but the student supplied the metacognitive strategies.

From the perspective of the Schoolwide Enrichment Model, the cognitive transformation represents Type II enrichment, training in thinking and feeling processes (Renzulli & Reis, 2016). However, the current study shows that students can self impose these processes without formal training. The school did not provide instruction in metacognitive strategies. Participant 2 developed note taking techniques independently, drawing on personal preferences for visual learning and simplification. This finding suggests that gifted students may arrive at PL with existing self regulation skills, as Participant 4 noted, but it also raises the question of what happens to students who do not possess these skills. The PL environment amplifies existing cognitive habits rather than building new ones.

Participant 6 described a different dimension of cognitive transformation through individual laboratory work (Figure 7). Unlike group work, which the participant found faster but shallower, individual work forced confrontation with gaps in comprehension. The phrase "sole responsibility" captures something that group work cannot provide. When learning is distributed across multiple students, responsibility for understanding is also distributed. Individual work removes the opportunity to blame someone else or let a peer fill in what one does not understand. This finding complicates the collaborative learning literature, which emphasizes the benefits of peer interaction (Olszewski-Kubilius

et al., 2021). For some gifted students, solitude is not a cost to be tolerated but a condition for deep cognitive engagement. The quiet study space documented in Figure 8 provided the sensory conditions that made this cognitive transformation possible.

The cognitive benefits of PL were not automatic, however. Participant 4 noted that not every student has intrinsic motivation or knows how to use freedom productively. Some peers, the participant suggested, would scroll social media instead of studying. This observation aligns with the DMG's emphasis on intrapersonal catalysts for talent development (Ziegler et al., 2013). Motivation, volition, and persistence are not distributed equally. The PL environment amplified existing differences. Students who entered with strong self regulation skills benefited. Students who did not may have fallen further behind. The school provided no training in self regulation, no gradual release of responsibility, no scaffold for developing the skills that PL demands.

5.3.2 Strategic Academic Specialization

The strategic specialization documented in Theme 4 allowed students to align school time with emerging professional identities. Participant 4 described how PL enabled attendance at a programming school (Figure 9). The photograph captured a moment of professional activity, not schoolwork. This distinction is central to the finding. PL allowed engagement in authentic work, not merely academic simulations of such work.

This finding validates Renzulli's (2012) emphasis on Type III enrichment, where students engage in professional level work in their areas of passion. Research demonstrates that gifted students pursuing interest based pathways show two to three times greater creative productivity compared to peers in traditional gifted programs. Participant 4's description of learning to commit code to a repository, to use version control, to understand how compilers work in practice, illustrates this creative productivity. The student was not preparing for a test about programming. The student was programming.

Participant 3 similarly used PL to attend programming courses (Figure 4). The photograph is not of a classroom but of an evening class held at Expo, a technology park. The participant described feeling like Hermione with a time turner, able to be at school and at programming class simultaneously. This finding extends the literature on acceleration by showing how PL enables what might be called concurrent acceleration, the pursuit of advanced learning in one domain while maintaining standard progress in others. Plucker et al. (2022) document concurrent enrollment as an acceleration option, but they do not capture the subjective experience of temporal multiplicity that Participant 3 described.

The specialization extended beyond academic subjects. Participant 1 documented playing a musical instrument (Figure 11) as a use of PL time. Participant 2 documented organizing peer study networks. Participant 3 documented band rehearsal (Figure 10). These activities contributed to identity cultivation, not just academic achievement. This finding suggests that the benefits of PL extend beyond measurable outcomes to include what might be called the development of a whole person. Gifted students are not just cognitive beings. They have social, emotional, and creative needs that PL can support when it provides temporal flexibility.

However, specialization came with tradeoffs. Participant 4 expressed regret about prioritizing SAT preparation over physics lessons. The freedom to specialize carried the risk of knowledge gaps. When students opted out of certain subjects, they missed foundational material that later became important. No administrative system tracked whether PL students remained exposed to the full curriculum. Students managed this risk on their own, sometimes unsuccessfully. This finding suggests that PL programs need mechanisms to ensure breadth of exposure even while allowing depth of specialization.

5.3.3 Affective Well Being and Neurodivergent Accommodation

The affective benefits documented in Theme 5 provide the most distinctive finding of this study. Gifted students face high risks of perfectionism, performance anxiety, and burnout (Guignard et al., 2012). Participants described PL as providing a psychological release valve. Participant 1's Figure 11 illustrated strategic switching between high focus tasks and restorative leisure. PL provided the temporal flexibility to engage in such switching. Without PL, the participant suggested, the demands of the standard curriculum would leave no room for recovery.

This finding aligns with Olszewski-Kubilius and colleagues' (2021) research on social emotional dimensions of PL, which shows that gifted students in PL environments with strong social components report a greater sense of school belonging. However, the current study adds a dimension not emphasized in the literature: the value of solitude for affective regulation. Participant 1 did not seek peer interaction during dombyra practice. The student sought alone time, a chance to reset after intense cognitive work.

Participant 6 provided the most compelling account of PL as affective necessity rather than luxury. The participant described being neurodivergent with ADHD and dyslexia. The traditional classroom caused overstimulation: too much noise, too much unnecessary information, a brain receiving too much unfiltered input that could not be classified. The participant felt overstimulated and lost focus completely. When PL allowed study in a quiet place alone (Figure 8), the improvement was substantial.

This finding extends the literature significantly. PL is typically discussed as an academic acceleration tool. For Participant 6, it was also an environmental accommodation. The photograph of overstimulation (Figure 12), sourced from the internet as a representative image, depicted what the participant experienced daily in traditional

classrooms. This finding suggests that PL serves a dual function for some gifted students: it is both an academic accelerator and a necessary tool for sensory management.

The DMG provides a framework for understanding this finding. Ziegler et al. (2013) emphasize that talent development depends on environmental catalysts, including the physical and social conditions of learning. For Participant 6, the standard classroom was not a neutral environment but an active impediment to learning. PL provided the environmental control needed to transform raw ability into developed talent. This finding has not been documented in the Western PL literature, which tends to assume that classrooms are functionally adequate for all students who are not in special education. The Kazakhstani context, where gifted education has historically focused on cognitive acceleration and content enrichment, has paid little attention to sensory and environmental conditions. This study suggests that such attention is overdue.

5.4 Systemic Barriers and Implementation Friction (RQ3)

5.4.1 The Digital Library Vacuum

The most significant systemic barrier identified in this study is the digital library vacuum documented in Theme 6. Students received permission to learn independently, but they did not receive the tools that make independent learning efficient. This created what Participant 4 called a curation burden, hours spent compiling materials from disparate sources rather than engaging with those sources.

The photograph in Figure 13 shows a student catching up with the school program. What appears to be a routine study scene revealed, upon explanation, a deeper frustration. The student was not struggling to understand difficult concepts. The student was struggling to locate essential concepts within an overwhelming volume of material. Teacher presentations contained extraneous slides, unnecessary details, and poor organization. The student had to become an information architect before any learning could occur.

This finding aligns with Mukhamadiyeva and Hernández-Torrano's (2024) documentation of practical barriers to PL implementation in Kazakhstan, including limited resources and insufficient training. However, the current study extends that finding by showing how these barriers are experienced from the student perspective. The problem is not just that resources are limited. It is that the resources that exist are poorly structured. Students need curated, concise, organized materials. They receive dense textbooks and scattered presentations.

The distinction between compilation and learning is critical. Participant 4 noted that the learning part was small and easy. The compilation part was large and time consuming. This finding reveals a paradox at the heart of PL implementation in this context. Students choose PL partly to escape the time demands of traditional classrooms. But if they then spend that saved time curating their own materials, the efficiency gain disappears. The time is not saved. It is reallocated from one form of drudgery to another.

From the perspective of the SEM, this finding represents a failure of Type I enrichment. The Schoolwide Enrichment Model emphasizes exposure to new ideas and fields as the first stage of talent development (Renzulli & Reis, 2016). But exposure requires access to curated resources. The school in this study provided the opportunity for independent investigation but did not provide the curated exposure that makes such investigation efficient. Students were left to find their own resources on the open internet, a task that requires digital literacy skills not all students possess equally.

Participant 4 called for recorded video lessons from the best teachers, organized in a searchable platform, similar to MIT OpenCourseWare. The participant also called for question banks categorized by topic, difficulty, and skill, similar to SAT preparation platforms. These recommendations point toward a lean learning model that mirrors modern professional workflows. In programming, for example, developers use curated

repositories like GitHub, not scattered documentation. The call for cheat sheets, concise summaries that capture essential concepts without extraneous detail, reflects a desire for efficiency that the current system does not provide.

The digital library vacuum also creates inequity within the PL program. Students with strong digital literacy skills, who know how to find resources efficiently and evaluate their quality, can compensate for the school's failure. Students without these skills cannot. The curation burden falls heaviest on those least equipped to bear it. This finding suggests that PL, as currently implemented, may inadvertently reward existing advantages rather than level the playing field.

5.5 Revisiting the Theoretical Framework

The three theoretical frameworks that guided this study proved useful but also showed limitations when applied to the Kazakhstani context.

Self-Determination Theory explained why students valued autonomy over time. The need for competence explained the satisfaction students felt when mastering challenging material independently. However, SDT did not anticipate the trust contract. The theory assumes that autonomy is intrinsically motivating. In this context, autonomy was extrinsically conditional. Students experienced autonomy not as freedom but as freedom purchased through continued compliance. SDT would benefit from greater attention to how institutional gatekeeping shapes the experience of autonomy.

The Schoolwide Enrichment Model provided a valuable pedagogical framework. Type I enrichment (exposure), Type II enrichment (skill training), and Type III enrichment (authentic investigation) mapped onto the student experiences documented in this study. Students moved from exposure to independent investigation. However, the SEM did not provide guidance on the infrastructure needed to support enrichment. The digital library vacuum represents a failure of the school to provide curated resources for Type I and Type

II activities. The SEM assumes that schools will provide these resources. The current study shows that this assumption cannot be taken for granted.

The Differentiated Model of Giftedness proved most useful for interpreting the equity concerns raised by participants. The DMG emphasizes environmental catalysts for talent development (Ziegler et al., 2013). The trust contract, the digital library vacuum, and the absence of structured self regulation training are all environmental factors that shape whether giftedness transforms into talent. Students who navigate these barriers successfully develop their potential. Students who cannot do not. The DMG provides a language for describing these barriers, but it does not offer solutions for removing them.

5.6 Contributions to the Kazakhstani Context

This study makes three contributions that are specific to the Central Asian context.

First, the trust contract documented in Theme 1 reflects the Soviet inherited emphasis on demonstrated achievement as a prerequisite for autonomy. Unlike Western PL models that assume student agency as a starting point, the Kazakhstani model requires students to earn the right to learn independently. This finding has not been documented in the Western literature, which tends to take autonomy as an inherent good rather than a conditional privilege.

Second, the environmental accommodation finding in Theme 5 emerged from a context where gifted education has historically focused on cognitive acceleration and content enrichment. Kazakhstani gifted schools have paid little attention to sensory processing differences. Participant 6's account of overstimulation and relief through PL suggests that this oversight is significant. The finding that PL served as a necessary accommodation for a neurodivergent student extends the literature on gifted education and disability, a connection that is rarely made in either field.

Third, the digital library vacuum documented in Theme 6 reflects the gap between policy aspiration and implementation infrastructure. Kazakhstan has adopted international models of educational reform, including PL, but has not adapted the underlying systems that make those models work. The call for curated video lessons and organized question banks is a call for the school to take institutional responsibility for resource provision rather than shifting that burden onto students.

5.7 Summary

This chapter has discussed the six themes in relation to the literature and theoretical frameworks. The findings indicate that students perceive PL as a negotiated trust contract and as academic freedom from temporal demands. They benefit cognitively through knowledge architecture, academically through strategic specialization, and affectively through stress reduction and environmental accommodation. However, the digital library vacuum undermines the efficiency promise of PL, and the trust contract excludes students who might benefit most.

The next chapter addresses the limitations of this study, discusses the implications of these findings for policy and practice in Kazakhstani gifted education and offers recommendations for policy, practice, and future research based on the findings discussed here.

Chapter 6: Conclusion

6.1 Introduction

This final chapter synthesizes the key findings of the study, discusses their implications for policy and practice in Kazakhstani gifted education, acknowledges the limitations of the research, and offers recommendations for future inquiry. The study set out to explore the lived experiences of gifted students with PL at Nazarbayev Intellectual Schools in Kazakhstan, using photovoice as a participatory methodology. Through the analysis of student-generated photographs and interviews, six themes emerged: the moral economy of trust, academic freedom, cognitive transformation, strategic academic specialization, affective well-being, and the digital library vacuum.

These findings reveal a complex picture of PL as an approach that gifted students value primarily for the autonomy it grants over time, yet one that is undermined by conditional access, administrative friction, and an absence of curated digital infrastructure. The study addresses the three gaps identified in Chapter 1: the overreliance on quantitative achievement metrics in PL research, the absence of student perspectives, and the neglect of cultural context in gifted education scholarship. By centering student voices in Kazakhstan, this research provides a counterweight to Western-dominated, outcomes-focused literature.

6.2 Implications for Policy and Practice

The findings of this study offer several implications for school administrators implementing PL in gifted education.

First, the trust contract documented in Theme 1 suggests that schools should reconsider straight A requirements for PL eligibility. The current system selects students who have already proven they do not need PL, at least by the school's own metrics. Alternative criteria might include progress based models focused on percentage

improvements, structured trial periods with phased autonomy, or multiple indicators including teacher recommendation, student self-nomination, and evidence of struggle within traditional settings. Without such changes, PL risks becoming a program that serves only students who have already succeeded within the system it seeks to transform.

Second, the finding that PL functions as an amplifier rather than a scaffold suggests that schools should provide structured support to develop self-regulation skills. The assumption that gifted students automatically possess advanced learning strategies is frequently incorrect (McCoach & Siegle, 2003). Schools might provide formal training in goal setting, time management, and metacognitive strategies, as called for in the Type II enrichment component of the SEM (Renzulli & Reis, 2016). A gradual release model that phases in autonomy over time could help students build self-regulation skills incrementally.

Third, the digital library vacuum documented in Theme 6 requires systemic response. Students should not have to curate their own materials from scattered sources. Schools might develop curated video libraries featuring teachers, organized question banks categorized by topic and difficulty, and concise summaries that capture essential concepts without extraneous detail. The call for cheat sheets is a call for efficient knowledge representation, not academic dishonesty. Without this infrastructure, the efficiency promise of PL collapses.

For classroom teachers, the findings highlight the importance of explicit instruction in self-regulation strategies. The assumption that gifted students automatically possess advanced learning skills is frequently incorrect (McCoach & Siegle, 2003). Teachers can support PL by providing structured guidance in goal setting, progress monitoring, and strategic planning, as well as by helping students identify productive study environments and collaborative opportunities.

6.3 Limitations of the Study

Several limitations qualify the conclusions of this study. Acknowledging these limitations is essential for interpreting the findings appropriately and for guiding future research.

The most significant limitation concerns the photovoice methodology itself. The semi-structured interviews guided by the SHOWED framework became repetitive over the course of data collection. The same questions asked about each photograph led to participant fatigue and, in some cases, increasingly brief responses. As noted in the participant interviews, students said they had already answered and moved quickly through later photographs. This repetition may have discouraged participants from offering new insights in later images, potentially flattening the richness of the data.

A second limitation is the reliance on retrospective accounts. Participants were asked to recall and reflect on PL experiences that had occurred months or even years earlier. Memory is reconstructive. Students may have remembered their experiences in ways that were shaped by subsequent outcomes, such as Olympiad success or university admission. The study did not include observational data of PL in action. There is no record of what students actually did during their PL time, only what they said they did.

A third limitation is the potential for social desirability bias. Participants knew they were speaking to a researcher who was also associated with the school system. They may have been reluctant to criticize the program too harshly, or alternatively, to admit that they had struggled with the autonomy PL provided. The participant, who cautioned about peers who procrastinate, may have been describing themselves indirectly.

A fourth limitation is the absence of non-user perspectives. The study included only successful PL users. The voices of students who applied for PL and were denied, who started PL and withdrew, who were eligible but chose not to participate, or who attended

schools without PL programs are entirely absent. These voices would be essential for understanding the full scope of PL access, equity, and implementation challenges.

6.4 Recommendations for Future Research

Based on the findings and limitations of this study, several directions for future research emerge.

First, future research should intentionally sample students who have been excluded from PL, who withdrew from PL, or who attend schools without PL programs.

Comparative studies across multiple NIS schools, as well as between NIS schools and ordinary public schools, would illuminate how PL access and implementation vary across the Kazakhstani educational landscape.

Second, future photovoice studies in this area should consider methodological modifications to address the repetition and fatigue documented here. Rather than applying the full SHOWED framework to every photograph, participants could be asked to select two or three images they consider most significant and discuss only those in depth. This is consistent with photovoice's original emphasis on participant-led meaning-making (Wang & Burris, 1997) and would concentrate analytical energy on the images participants themselves find most meaningful, reducing fatigue while potentially increasing depth.

Third, the SHOWED framework could be used more selectively rather than sequentially. The questions do not have to be asked in full for every photograph. An alternative is to use them as a facilitator's internal guide rather than a visible script, allowing the researcher to draw on relevant prompts organically as the conversation develops. This preserves the framework's analytical value without producing the repetitive interview experience participants described.

Fourth, researchers could shift toward a pile sorting or ranking approach mid study. After initial individual photograph discussions, participants could be invited to lay all their

photographs out together and organise them by theme, importance, or emotion. This comparative, whole collection approach often generates richer, more interpretive talk than sequential single image questioning, as participants begin making connections across their own data rather than responding to the same prompt repeatedly.

Fifth, group photovoice discussions could be introduced earlier. Photovoice was originally designed to include a community discussion phase. If this were introduced earlier in the data collection process, rather than only after individual interviews, it could break the repetitive single photograph format and generate new insights through peer dialogue. Participants often articulate ideas in group settings that they do not surface individually, particularly when photographs prompt shared recognition.

Sixth, follow-up interviews with a different structure could be used. Rather than repeating the same framework-driven interview format, a second interview could take a narrative approach, asking participants to tell the story of their whole collection or to reflect on what they noticed across all their photographs taken together. This shifts from item by item analysis to holistic reflection and tends to generate more interpretive, higher order responses.

Seventh, the fatigue and brevity observed in later responses could be acknowledged and reframed as a methodological finding. The shorter responses may reflect saturation, participants having said what they need to say, rather than a deficit in the data. Reframing this not only as a limitation but as evidence of the point at which meaning making was exhausted could be a theoretically productive move, drawing on saturation literature (Guest et al., 2006) to argue that the data reached sufficient depth even if later responses were briefer.

Eighth, member checking could be used as a depth generating strategy. Returning a summary of early themes to participants and asking them to respond, whether to affirm,

challenge, or extend, is a common trustworthiness strategy but also a practical way of generating richer data without repeating the original interview structure. This is particularly useful when initial interviews have produced thinner responses toward the end.

Ninth, future research should include observational data of PL in action. What do students actually do during PL time? Observational studies could verify or complicate the retrospective accounts collected here. Mixed methods designs combining surveys of self-regulation capacity with qualitative interviews could help untangle the relationship between pre-existing skills and PL outcomes.

Tenth, comparative research across post-Soviet educational systems could examine whether the implementation gaps documented here are unique to Kazakhstan or reflect broader patterns in how formerly Soviet systems adapt Western pedagogical innovations. Similarly, research comparing PL implementation in collectivist and individualist cultural contexts could illuminate how cultural values shape student experiences of autonomy, collaboration, and self-regulation.

6.5 Summary

This study set out to center the voices of gifted students in discussions of PL, a population often studied but rarely listened to. The photovoice methodology, despite its limitations, succeeded in capturing student perspectives in ways that traditional surveys or interviews might not have. The photographs provide visual evidence of the trust contract, the academic freedom, the cognitive transformation, the strategic specialization, affective well-being, and the digital library vacuum.

The findings reveal a fundamental tension at the heart of PL in this context. Students value PL for the autonomy it grants them over time, and they use that autonomy for impressive, self-directed pursuits that extend far beyond the standard curriculum. Yet

the same system that enables this autonomy also assumes self-regulation skills that not all students possess, creates social isolation that only confident students can compensate for.

These tensions are not unique to Kazakhstan, but they take particular forms in this context. The legacy of Soviet educational administration, the Olympiad system, and the rapid adoption of international reforms without corresponding adaptation of organizational routines create a distinctive implementation landscape. As Kazakhstan continues its educational modernization efforts, the voices captured in this study offer both validation of what PL can offer gifted students and a warning about what it can become when implementation lags behind aspiration.

The next step is not to abandon PL but to refine it: to build the scaffolds that support self-regulation, to design administrative systems that serve rather than frustrate, to curate digital resources that make independent learning efficient, and to recognize that for some gifted students, the most important personalization is the freedom to learn in a quiet space of their own choosing. These are not simple changes, but they are necessary ones if PL is to fulfill its promise for all gifted students, not just those who have already succeeded within the system it seeks to transform.

References

- Ayubayeva, N. (2018). *Teacher collaboration for professional learning: Case studies of three schools in Kazakhstan* [Doctoral dissertation, University of Cambridge]. <https://www.repository.cam.ac.uk/handle/1810/273675>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Bray, B., & McClaskey, K. (2015). *Make learning personal: The what, who, how, where, and why*. Corwin.
- Bridges, D. (Ed.). (2014). *Educational reform and internationalisation: The case of school reform in Kazakhstan*. Cambridge University Press.
- Cavanagh, T. B., Chen, B., Lahcen, R. A. M., & Paradiso, J. R. (2020). Constructing a design framework and pedagogical approach for adaptive learning in higher education. *Innovative Higher Education*, 45(3), 173-189.
- Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2010). Facilitating preservice teachers' development of technological, pedagogical, and content knowledge (TPACK). *Educational Technology & Society*, 13(4), 63-73.
- Cook, K., & Buck, G. (2010). Photovoice: A community-based socioscientific pedagogical tool. *Science Scope*, 33(7), 35-39.
- Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research*, 6(2), 80-88.
- Elmore, R. F. (2004). *School reform from the inside out: Policy, practice, and performance*. Harvard Education Press.
- Flick, U. (2018). Triangulation in data collection. In *The SAGE Handbook of Qualitative Data Collection* (pp. 527-544). SAGE Publications Ltd.

- Gagné, F. (2000). Understanding the complex choreography of talent development. In K. A. Heller, F. J. Mönks, R. J. Sternberg, & R. F. Subotnik (Eds.), *International handbook of giftedness and talent* (2nd ed., pp. 67-79). Elsevier.
- Gross, M. U. M. (2004). *Exceptionally gifted children* (2nd ed.). Routledge.
- Guignard J-H, Jacquet A-Y, Lubart TI (2012) Perfectionism and Anxiety: A Paradox in Intellectual Giftedness? PLoS ONE 7(7): e41043.
[doi:10.1371/journal.pone.0041043](https://doi.org/10.1371/journal.pone.0041043)
- Hanafy, M., Goodnight, M., & O'Brien, V. (2025). Implementing photovoice in school-based evaluations: Navigating challenges and leveraging benefits. *Journal of MultiDisciplinary Evaluation*, 21(51), 84-103.
<https://doi.org/10.56645/jmde.v21i51.1179>
- Hattie, J. (2009). **Visible learning: A synthesis of over 800 meta-analyses relating to achievement**. Routledge.
- Housand, A. M., & Reis, S. M. (2008). Self-regulated learning in reading: Gifted pedagogy and instructional settings. *Journal of Advanced Academics*, 20(1), 108-136.
- Johnsen, S. K. (2021). *Identifying gifted students: A practical guide* (3rd ed.). Routledge.
- Kanevsky, L. (2011). Differential differentiation: What types of differentiation do students want? *Gifted Child Quarterly*, 55(4), 279-299.
<https://doi.org/10.1177/0016986211422098>
- Kaplan, S. N. (2021). *Differentiated curriculum and instruction for advanced and gifted learners*. Routledge. <https://doi.org/10.4324/9781003111443>
- Kazakhstan Ministry of Education. (2019). *State Program for Education and Science Development 2020-2025*. Government of the Republic of Kazakhstan.
- Kazakhstan National Report on Education. (2021). *Digital transformation in gifted education*. Ministry of Education.

- Kettler, T., & Taliaferro, C. (2022). Personalized learning in gifted education: Differentiated instruction that maximizes students' potential. Routledge. <https://doi.org/10.4324/9781003237136>
- Khosravi, H., Sadiq, S., & Gasevic, D. (2020). Development and adoption of an adaptive learning system: Reflections and lessons learned. *Proceedings of the 2020 ACM Conference on Innovation and Technology in Computer Science Education*, 58-64.
- Kulik, C.-L. C., Kulik, J. A., & Bangert-Drowns, R. L. (1990). Effectiveness of mastery learning programs: A meta-analysis. *Review of Educational Research*, 60(2), 265–299.
- Lee D, Huh Y, Lin CY, Reigeluth CM, Lee E. (2021) Differences in personalized learning practice and technology use in high- and low-performing learner-centered schools in the United States. *Educational Technology Research and Development*. 69(2), 1221-1245. [10.1007/s11423-021-09937-y](https://doi.org/10.1007/s11423-021-09937-y).
- Lubinski, D., & Benbow, C. P. (2000). States of excellence. *American Psychologist*, 55(1), 137–150.
- McCoach, D. B., & Siegle, D. (2003). Factors that differentiate underachieving gifted students from high-achieving gifted students. *Gifted Child Quarterly*, 47(2), 144-154.
- Ministry of Education of the Republic of Kazakhstan. (2019). *State Program for Education Development of the Republic of Kazakhstan for 2020-2025*. Nur-Sultan: Author.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054.

- Mukhamadiyeva, S., & Hernández-Torrano, D. (2024). Adaptive learning to maximize gifted education: Teacher perceptions, practices, and experiences. *Journal of Advanced Academics*. Advance online publication. <https://doi.org/10.1177/1932202X241253166>
- Neihart, M. (2007). The socioaffective impact of acceleration and ability grouping: Recommendations for best practice. *Gifted Child Quarterly*, 51(4), 330-341.
- OECD. (2022). PISA 2022 results (Volume I): Excellence and equity in education. OECD Publishing. <https://doi.org/10.1787/19963777>
- OECD. (2023). Towards an Effective Digital Education Ecosystem. OECD Publishing.
- Olszewski-Kubilius, P., Subotnik, R. F., & Worrell, F. C. (2021). Talent development as a framework for gifted education. In P. Olszewski-Kubilius, R. F. Subotnik, & F. C. Worrell (Eds.), *Talent development as a framework for gifted education: Implications for best practices and applications in schools* (pp. 1986-2005). Routledge
- Organisation for Economic Co-operation and Development. (2022). *PISA 2022 results: Mathematics performance in Kazakhstan*. OECD Publishing.
- Organisation for Economic Co-operation and Development. (2023). *Personalised learning in OECD countries: A comparative survey*. OECD Publishing.
- Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2017). Informing progress: Insights on personalized learning implementation and effects. RAND Corporation. <https://doi.org/10.7249/RR2042>
- Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2015). Continued progress: Promising evidence on personalized learning. RAND Corporation.

- Pane, J. F., Steiner, E. D., Baird, M. D., Hamilton, L. S., & Pane, J. D. (2017). *Informing progress: Insights on personalized learning implementation and effects*. RAND Corporation.
- Papadopoulos, D. (2020). Effects of a social-emotional learning-based program on self-esteem and self-perception of gifted kindergarten students: A pilot study. *Journal for the Education of Gifted Young Scientists*, 8(3), 1275-1290.
<http://dx.doi.org/10.17478/jegys.779438>
- Patall, E. A., Cooper, H., & Robinson, J. C. (2018). The effects of choice on intrinsic motivation and related outcomes: A meta-analysis of research findings. *Psychological Bulletin*, 134(2), 270-300. <https://doi.org/10.1037/0033-2909.134.2.270>
- Phillipson, S. N. (2007). A framework for the study of sociocultural perspectives of giftedness. In S. N. Phillipson & M. McCann (Eds.), *Conceptions of giftedness: Socio-cultural perspectives* (pp. 3-32). Lawrence Erlbaum Associates.
- Plucker, J. A., Healey, G., & Roberts, J. L. (2022). Early high school graduation: Policy support for secondary acceleration. *Gifted Child Today*, 45(3), 150-161.
<https://doi.org/10.1177/10762175221091857>
- Reis, S. M., Renzulli, J. S., & Burns, D. E. (2016). *Curriculum compacting: A guide to differentiating curriculum and instruction through enrichment and acceleration* (2nd ed.). Routledge. <https://doi.org/10.4324/9781003234036>
- Renzulli, J. S. (2012). Reexamining the role of gifted education and talent development for the 21st century. *Gifted Child Quarterly*, 56(3), 150-159. <https://doi.org/10.1177/0016986212444901>
- Renzulli, J. S., & Reis, S. M. (2014). *The Schoolwide Enrichment Model: A how-to guide for talent development* (3rd ed.). Prufrock Press.

- Renzulli, J. S., Reis, S. M., & Brigandi, C. (2020). Enrichment theory, research, and practice. In *Critical issues and practices in gifted education* (pp. 185-199). Routledge. [10.4324/9781003233961-15](https://doi.org/10.4324/9781003233961-15)
- Roberts-Mahoney, H., Means, A., & Garrison, M. (2016). Netflixing human capital development: Personalized learning technology and the corporatization of K-12 education. *Journal of Education Policy*, 31(4), 1–16. <https://doi.org/10.1080/02680939.2015.1132774>
- Rose, G. (2016). *Visual methodologies: An introduction to researching with visual materials* (4th ed.). SAGE Publications.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Ryan, R. M., & Deci, E. L. (2024). Self-determination theory. *Encyclopedia of quality of life and well-being research*, 6229–6235
- Scruggs, T. E., Mastropieri, M. A., & McDuffie, K. A. (2007). Co-Teaching in Inclusive Classrooms: A Metasynthesis of Qualitative Research. *Exceptional Children*, 73(4), 392–416.
- Shamshidinova, K., Ayubayeva, N., & Bridges, D. (2014). Implementing radical change: Nazarbayev Intellectual Schools as agents of change. In D. Bridges (Ed.), *Educational reform and internationalisation: The case of school reforms in Kazakhstan* (pp. 67-82). Cambridge University Press.
- Shemshack, A., & Spector, J. M. (2020). A systematic literature review of personalized learning terms. *Smart Learning Environments*, 7(1), 1-20. <https://doi.org/10.1186/s40561-020-00140-9>
- Sieber, J. E., & Tolich, M. B. (2013). *Planning ethically responsible research* (2nd ed.). SAGE Publications.

- Steenbergen-Hu, S., & Moon, S. M. (2011). The effects of acceleration on high-ability learners: A meta-analysis. *Gifted Child Quarterly*, 55(1), 39-53. <https://doi.org/10.1177/0016986210383155>
- Taylor, D. L., Yeung, M., & Bashet, A. Z. (2021). Personalized and adaptive learning: A systematic review of the literature. *Educational Research Review*, 34, 100396.
- Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). ASCD.
- VanTassel-Baska, J. (2019). *Curriculum planning and instructional design for gifted learners* (3rd ed.). Prufrock Press.
- VanTassel-Baska, J., & Baska, A. (2021). Assessment of learning in gifted programs. In *Snapshots of progress: Alternative assessment in gifted education* (3rd ed., pp. 185-202). Routledge.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Wang, C. C., Yi, W. K., Tao, Z. W., & Carovano, K. (1998). Photovoice as a participatory health promotion strategy. *Health Promotion International*, 13(1), 75-86.
- Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, 24(3), 369-387. <https://doi.org/10.1177/109019819702400309>
- Yakovets, N. (2013). Reforming society through education for gifted children: The case of Kazakhstan. *Research Papers in Education*, 28(5), 529-553. <https://doi.org/10.1080/02671522.2013.825311>
- Yakovets, N. (2014). Educational reform in Kazakhstan: The first decade of independence. In D. Bridges (Ed.), *Educational reform and internationalisation: The case of school reform in Kazakhstan*, 14-38. Cambridge University Press.

- Yakavets, N., & Dzhadrina, M. (2014). Educational reform in Kazakhstan: Entering the world arena. In D. Bridges (Ed.), *Educational reform and internationalisation: The case of school reform in Kazakhstan*. Cambridge University Press.
- Yakavets, N., Bridges, D., & Shamatov, D. (2017). On constructs and the construction of teachers' professional knowledge in a post-Soviet context. *Journal of Education for Teaching*, 43(5), 594-615.
- Ziegler, A., & Phillipson, S. N. (2012). Towards a systemic theory of gifted education. *High Ability Studies*, 23(1), 3-30.
<https://doi.org/10.1080/13598139.2012.679085>
- Ziegler, A., Vialle, W., & Wimmer, B. (2013). The actiotope model of giftedness. In S. N. Phillipson, H. Stoeger, & A. Ziegler (Eds.), *Exceptionality in East Asia: Explorations in the actiotope model of giftedness*, 1-19. Routledge.
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2), 64-70.
- Zmuda, A., Curtis, G., & Ullman, D. (2015). *Learning personalized: The evolution of the contemporary classroom*. Jossey-Bass.

Appendix A: AI Declaration Form



Thesis Title: Students' Experiences with Personalized Learning in Intellectual Schools in
Kazakhstan: An Exploratory Photovoice Study

Declaration of the Use of Generative AI

I hereby declare that I have read and understood NUGSE's policy concerning appropriate use of AI and composed this work independently (please check one):

☒ with the use of artificial intelligence tools, or

☐ without the use of artificial intelligence tools.

(If you have used AI tools as defined in the GSE policy document, please complete the rest of this form.)

During the preparation of this thesis/examination, I used Gemini, Scribbr to paraphrase, brainstorm and ask for tips to improve coherence.

I also declare that I

☒ am aware of the capabilities and limitations of AI tool(s),

☒ have verified that the content generated by AI systems and adopted by me is factually correct,

☒ am aware that as the author of this thesis I bear full responsibility for the statements and assertions made in it,

☒ have submitted complete and accurate information about my use of AI tools in this work, and

☒ acknowledge that there may be disciplinary consequences if I have not followed NUGSE's guidelines regarding appropriate AI use.

Name: Aizat Kabakova

Signature:

Date: 27.04.2026

Appendix B: Informed Consent Form

Title of the Research Study: Students' Experiences with Personalized Learning in Intellectual Schools in Kazakhstan: An Exploratory Photovoice Study.

Introduction: You are invited to participate in a research study focused on understanding the experiences of gifted students with personalized learning in Kazakhstan. This research employs an art-based, participatory methodology known as photovoice. Participation in this study is voluntary, and I aim to provide you with comprehensive information to facilitate your decision-making process.

Purpose of the Study: The purpose of this study is to explore the distinct experiences of gifted students with personalized learning in intellectual schools in Kazakhstan. I plan to achieve this by utilizing the photovoice methodology, where you will use a camera to capture aspects of your daily learning experiences and subsequently share the stories connected to these photographs.

Participation Requirements: If you decide to participate in this study, you will be requested to undertake the following activities:

Workshop Session: Attend a one-hour workshop session where you will receive an introduction to the research and in-depth information about photovoice, including strict ethical guidelines on photography to protect the privacy of others.

Photovoice Task: Photographing your daily experiences with personalized learning over a two-week period. You will be asked to take 6-8 photographs that best encapsulate your personal perspectives, ensuring you do not capture identifiable images of other people without permission.

Written Narratives: Provide a short-written explanation for each photograph you submit.

Semi-Structured Interview: Participate in an individual semi-structured interview to discuss the photographs you have chosen. I will audio-record the interview only with your explicit consent.

Review and Confirmation: Confirm and approve the accuracy of the descriptions and narratives related to your chosen photographs, as recorded by the researcher.

Time Commitment: Your involvement in this study is expected to require approximately 5-7 hours over three weeks. Individual meeting schedules will be arranged to accommodate your availability and preferences.

Voluntary Participation: Your participation in this research is entirely voluntary. You possess the right to decline participation or withdraw from the study at any time without any adverse consequences or repercussions on your academic standing or relationship with the school. Any photos and data you have already submitted will be immediately destroyed.

Confidentiality: I assure you that all information and data collected from you will be treated with the utmost confidentiality. Your name and any other identifying information will be removed and replaced with a pseudonym in all research materials. Only the researcher and thesis supervisor will have access to the original data. Photographs featuring any identifiable information will be carefully edited or not used to protect everyone's privacy. All data will be stored on the researcher's password-protected computer.

Potential Risks and Benefits: This research has minimal levels of risk. The primary risks involve a potential loss of privacy, which is mitigated by the strict confidentiality procedures described above, and a minimal investment of your time. There is no direct benefit to you for participating; however, your insights will be invaluable for helping educators and policymakers understand how to improve personalized learning

programs for gifted students in Kazakhstan. This contributes to the broader field of education by centering the student voice in educational research.

Contact Information: If you have any questions or need additional clarification regarding the study, please feel free to reach out to the researcher, Aizat Kabakova, at +77024253711 or via email at aizat.kabakova@nu.edu.kz. Additionally, you can contact the Master's Thesis Supervisor, Dr. Janet Helmer, who is overseeing this student's work, at janet.helmer@nu.edu.kz.

Consent: I have read and understood the information presented in this consent form. I have been allowed to ask questions and have received satisfactory responses. I willingly agree to participate in the research, understanding that I retain the right to withdraw my consent at any point without any adverse consequences.

Printed Name of Participant:

Date:

Participant's Signature:

ҚАТЫСУШЫЛАРДЫҢ АҚПАРАТТЫ КЕЛІСІМ ФОРМАСЫ

Зерттеу тақырыбы: **Қазақстанның зияткерлік мектептеріндегі оқушылардың дербес оқыту тәжірибесі: Фотодауыс зерттеуі**

Кіріспе: Сізді Қазақстандағы дарынды оқушылардың жекелендірілген оқу тәжірибесін түсінуге бағытталған зерттеуге қатысуға шақырамыз. Бұл зерттеу фотодауыс деп аталатын суретке түсіру арқылы жүргізіледі. Зерттеуге қатысу өз еркіңізбен болып, сізге шешім қабылдауға көмектесу үшін толық ақпарат беруге тырысамын.

Зерттеудің мақсаты: Бұл зерттеудің мақсаты – Қазақстандағы интеллектуалды мектептерде дарынды оқушылардың жекелендірілген оқу тәжірибесін зерттеу. Мен мұны фотодауыс әдісін қолдану арқылы жүзеге асырмақпын, яғни сіз өз күнделікті оқу тәжірибеңіздің кейбір аспектілерін фотосуретке түсіресіз және осы суреттермен байланысты әңгімелеріңізді бөлісесіз.

Қатысу талаптары: Егер сіз осы зерттеуге қатысуға шешсеңіз, сізден төмендегі әрекеттерді орындау сұралады:

Жұмысшы отырыс: Зерттеуге кіріспепен және фотодауыс туралы егжей-тегжейлі ақпаратпен, соның ішінде басқа адамдардың құпиялығын қорғау туралы этикалық нұсқаулармен танысу үшін бір сағаттық жұмысшы отырысқа қатысу.

Фотодауыс тапсырмасы: Екі апта бойы жекелендірілген оқумен байланысты күнделікті тәжірибеңізді фотосуретке түсіру. Сізден жеке көзқарастарыңызды ең жақсы көрсететін 6-8 фотосурет түсіру сұралады, басқа адамдардың бетін рұқсатсыз түсірмеуге көз жеткізу керек.

Жазылған әңгімелер: Тапсырған әрбір фотосуретіңізге қысқаша жазылған түсініктеме беру.

Жартылай құрылымдалған сұхбат: Таңдаған фотосуреттеріңізді талқылау үшін

жеке жартылай құрылымдалған сұхбатқа қатысу. Сұхбатты сіздің нақты келісіміңізбен ғана аудиожазуға аламын.

Растау: Зерттеуші жазып алған таңдаған фотосуреттеріңізге қатысты сипаттамалар мен әңгімелердің дұрыстығын растау және бекіту.

Уақыт кірісі: Зерттеуге қатысу үшін үш апта ішінде шамамен 5-7 сағат уақыт бөлу қажет. Жеке кездесу кестесі сіздің қолыңыздан келетін уақытқа сәйкес құрастырылады.

Ерікті қатысу: Осы зерттеуге қатысу толығымен ерікті. Сізде қатысудан бас тартуға немесе зерттеуден кез келген уақытта шығуға, оқу жағдайыңызға немесе мектеппен қарым-қатынасыңызға кез келген кері әсерінсіз құқығыңыз бар. Сіз жіберген кез келген фотосуреттер мен деректер бірден жойылады.

Құпиялылық: Сізден жиналған барлық ақпарат пен деректер шектеулі құпиялылықта сақталады деп сендіремін. Сіздің атыңыз және кез келген басқа сізді анықтайтын ақпарат барлық зерттеу материалдарынан алынып, оның орнына бүркеншік ат қойылады. Тек зерттеуші және жетекші ғана түпнұсқа деректерге қол жеткізе алады. Кез келген анықталатын ақпараты бар фотосуреттер мұқият өңделінеді немесе қолданылмайды. Барлық деректер зерттеушінің құпия сөзбен қорғалған компьютерінде сақталады.

Ықтимал тәуекелдер мен пайдалар: Бұл зерттеудің тәуекел деңгейі минималды. Негізгі тәуекелдер жоғарыда сипатталған қатаң құпиялылық процедуралары арқылы азайтылған жеке өмірдің құпиялылығын жоғалту ықтималдығын және уақыттың аз investmentын қамтиды. Қатысқаныңыз үшін сізге тікелей пайда жоқ; дегенмен, сіздің түсініктемелеріңіз Қазақстандағы дарынды оқушыларға арналған жекелендірілген оқу бағдарламаларын жақсартуды түсінуге

көмектесу үшін құнды болады. Бұл білім беру зерттеуінде оқушы дауысын орталыққа қою арқылы білім беру саласына үлес қосады.

Байланыс ақпараты: Зерттеуге қатысты сұрақтарыңыз болса, зерттеуші Айзат Кабаковаға +77024253711 нөміріне немесе aizat.kabakova@nu.edu.kz email адресіне хабарласа аласыз. Сонымен қатар, жетекшісі, Dr. Janet Helmer-ge janet.helmer@nu.edu.kj email адресі арқылы хабарласа аласыз.

Келісім: Мен осы келісім құжатында ұсынылған ақпаратты оқыдым және түсіндім. Маған сұрақтар қоюға мүмкіндік берілді және қанағаттанарлық жауаптар алдым. Мен кез келген уақытта кері әсерсіз келісімімді кері ала алатынымды түсіне отырып, зерттеуге ерікті түрде қатысуға келісемін.

Қатысушының басылған аты-жөні:

Күні:

Қатысушының қолтаңбасы:

Ата-ананың/қамқоршының басылған аты-жөні (егер қатысушы 18 жастан кіші болса):

Күні:

Ата-ананың/қамқоршының қолтаңбасы:

ИНФОРМИРОВАННОЕ СОГЛАСИЕ

Название исследования: Опыт учащихся при персонализированном обучении в интеллектуальных школах Казахстана: Исследование методом фотоголоса

Введение: Приглашаем Вас принять участие в исследовании, посвященном пониманию опыта одаренных учащихся с персонализированным обучением в Казахстане. Это исследование использует основанную на искусстве совместную методологию, известную как Фотоголос. Участие в исследовании является добровольным, и я ставлю целью предоставить вам исчерпывающую информацию для облегчения процесса принятия решения.

Цель исследования: Цель данного исследования – изучить уникальный опыт одаренных учащихся с персонализированным обучением в интеллектуальных школах Казахстана. Я планирую достичь этого, используя методологию Фотоголоса, где вы будете использовать камеру для фиксации аспектов вашего повседневного учебного опыта и последующего предоставления связанных с этими фотографиями историй.

Требования к участию: Если вы решите принять участие в этом исследовании, от вас потребуются выполнение следующих действий:

Обучающий семинар: Посещение часового обучающего семинара, где вы получите введение в исследование и подробную информацию о Фотоголосе, включая строгие этические принципы по фотосъемке для защиты конфиденциальности других.

Задание по Фотоголосу: Фотографирование вашего повседневного опыта персонализированного обучения в течение двух недель. Вам будет предложено сделать 6-8 фотографий, которые наилучшим образом отражают ваш личный взгляд, гарантируя, что вы не снимаете идентифицируемые изображения других людей без разрешения.

Письменные описания: Предоставление краткого письменного объяснения к каждой представленной фотографии.

Полуструктурированное интервью: Участие в индивидуальном полуструктурированном интервью для обсуждения выбранных вами фотографий. Я буду аудиозаписывать интервью только с вашего явного согласия.

Проверка и подтверждение: Подтверждение и одобрение точности описаний и нарративов, связанных с выбранными фотографиями, записанных исследователем.

Временные затраты: Ваше участие в исследовании, как ожидается, потребует приблизительно 5-7 часов в течение трех недель. Индивидуальные графики встреч будут согласованы в соответствии с вашей доступностью и предпочтениями.

Добровольность участия: Ваше участие в данном исследовании является полностью добровольным. Вы имеете право отказаться от участия или выйти из исследования в любое время без каких-либо неблагоприятных последствий для вашего академического статуса или отношений со школой. Любые уже представленные вами фотографии и данные будут немедленно уничтожены.

Конфиденциальность: Я заверяю вас, что вся информация и данные, собранные от вас, будут обрабатываться с максимальной конфиденциальностью. Ваше имя и любая другая идентифицирующая информация будут удалены и заменены псевдонимом во всех исследовательских материалах. Только исследователь и научный руководитель будут иметь доступ к исходным данным. Фотографии, содержащие любую идентифицирующую информацию, будут тщательно отредактированы или не будут использоваться для защиты приватности всех. Все данные будут храниться на защищенном паролем компьютере исследователя.

Потенциальные риски и преимущества: У данного исследования минимальный уровень риска. Основные риски включают потенциальную потерю конфиденциальности, которая снижается строгими процедурами конфиденциальности, описанными выше, и минимальные затраты вашего времени. Нет прямой выгоды для вас от участия; однако ваши идеи будут неоценимы для помощи педагогам и политикам в понимании того, как улучшить программы персонализированного обучения для одаренных учащихся в Казахстане. Это вносит вклад в более широкую область образования, выдвигая на первый план голос учащегося в образовательных исследованиях.

Контактная информация: Если у вас есть какие-либо вопросы или вам необходимо дополнительное разъяснение относительно исследования, пожалуйста, не стесняйтесь обращаться к исследователю, Айзат Кабаковой, по номеру +77024253711 или по email aizat.kabakova@nu.edu.kz. Кроме того, вы можете связаться с научным руководителем магистерской диссертации, Доктором Джанет Хелмер, которая курирует эту работу, по адресу janet.helmer@nu.edu.kz.

Согласие: Я прочитал(а) и понял(а) информацию, представленную в данной форме согласия. Мне была предоставлена возможность задать вопросы, и я получил(а) удовлетворительные ответы. Я добровольно соглашаюсь участвовать в исследовании, понимая, что сохраняю право отозвать свое согласие в любой момент без каких-либо неблагоприятных последствий.

Имя участника:

Дата:

Подпись участника:

Имя родителя/опекуна (если участник младше 18 лет):

Дата:

Подпись родителя/опекуна:

Appendix C: Interview Protocol

Purpose of the Study: The purpose of this study is to explore the distinct experiences of gifted students using personalized learning in Kazakhstani intellectual schools using an arts-based, participatory research approach – photovoice – accompanied by a semi-structured interview. We aim to comprehensively understand your personal insights and experiences related to your learning journey.

Interview Duration: Our interview today will last approximately 45-60 minutes. During this time, we will discuss the photographs you have taken, applying the SHOWED approach (Wang & Burris, 1997) to guide our conversation.

Consent for Recording: You completed a consent form indicating whether you give permission to audio record our conversation. Before we begin, are you still comfortable with me recording our discussion today?

If yes: Thank you! Please let me know if, at any point, you want me to turn off the recorder or keep something you said off the record.

If no: Thank you for letting me know. I will take detailed notes instead.

Questions and Concerns: Do you have any final questions or concerns before we begin the interview? Please feel free to discuss anything.

Open Communication: Please remember that your participation is voluntary. If you are uncomfortable with any question, you can skip it, and we will move on. If you wish to stop the interview at any time, simply let me know.

SHOWED Approach Interview

Researcher Introduction: "Thank you for selecting your photographs. I am very interested to hear about your experiences. We will talk about each photo using a

framework called SHOWED. This will help us explore what you captured and what it means to you."

S - What do you SEE here?

Please describe what is in this photograph as if you were explaining it to someone who wasn't there.

H - What is really HAPPENING here?

What is the story behind this photo in relation to your learning?

O - How does this relate to OUR lives?

Why did you choose to take this specific photo to represent your experience with personalized learning?

How does this image make you feel about your education? (e.g., excited, challenged, confused, independent?)

W - WHY does this situation, concern, or strength exist?

Why do you think this learning situation (whether positive or negative) exists in our school?

E - How can this image EDUCATE people?

What does this image say about what really works or what doesn't work in our approach to personalized learning?

D - What can we DO about it?

Based on what this photo shows, what is one specific change you would recommend to improve personalized learning in our school?

These interviews aim to delve into and articulate themes from your daily learning experiences, providing a deeper understanding of your perspectives and insights related to the research questions. Your input is invaluable in shedding light on

gifted students' experiences with personalized learning in Kazakhstani intellectual schools.

Thank you for your participation in this study.

СҰХБАТ ПРОТОКОЛЫ

Зерттеудің мақсаты: Бұл зерттеудің мақсаты – фотодауыс әдісі арқылы жүргізілетін, жартылай құрылымдалған сұхбатпен толықтырылатын Қазақстандағы интеллектуалды мектептерде дарынды оқушылардың жекелендірілген оқу тәжірибесін зерттеу. Біз сіздің оқу жолыңызба байланысты жеке түсініктемелеріңіз мен тәжірибелеріңізді толық қамтып түсінуге ұмтыламыз.

Сұхбат ұзақтығы: Бүгінгі сұхбатымыз шамамен 45-60 минутқа созылады. Осы уақыт ішінде біз сіздің түсірген фотосуреттеріңізді Wang & Burris-тің (1997) SHOWED әдісін қолданып талқылаймыз.

Жазылымға келісім: Сіз біздің әңгіемізді аудиожазуға түсіруге рұқсат беретініңізді көрсететін келісім құжатын толтырдыңыз. Бастамас бұрын, біздің әңгімені бүгін жазуға түсіруге әлі де қолайлысыз ба?

Иә болса: Рахмет! Кез келген сәтте жазуға түсіруді өшіруді немесе айтқан сөзіңізді жазылымнан алып тастауды қаласаңыз, маған хабарлаңыз.

Жоқ болса: Хабарлағаныңыз үшін рахмет. Оның орнына мен егжей-тегжейлі жазбаша жазба жасаймын.

Сұрақтар мен алаңдаушылықтар: Сұхбатты бастамас бұрын, соңғы сұрақтарыңыз немесе алаңдаушылықтарыңыз бар ма? Кез келген нәрсені талқылауға болады.

Ашық байланыс: Қатысуыңыздың ерікті екенін есіңізде сақтаңыз. Кез келген сұрақ сізге ыңғайсыз болса, оны өткізіп жіберуге және келесіге көшуге құқығыңыз бар. Сұхбатты кез келген уақытта тоқтатқыңыз келсе, маған хабарлаңыз.

SHOWED тәсілі бойынша сұхбат

Зерттеушінің кіріспе сөзі: "Фотосуреттеріңізді таңдағаныңыз үшін рахмет. Сіздің тәжірибелеріңіз туралы естуге менің қызығуым зор. Біз әрбір фотосуретті SHOWED

деп аталатын әдістеме арқымызда талқылаймыз. Бұл бізге сіздің нені бейнелегеніңізді және оның сіз үшін қандай мағынаға ие екенін зерттеуге көмектеседі."

S: Сіз мұнда не КӨРЕСІЗ?

Осы фотосуретте не бейнеленгенін сипаттаңыз.

Сіз осы кескінде нені түсіруді мақсат еттіңіз?

H: Мұнда ШЫНДЫҒЫНДА НЕ БОЛУДА?

Бұл суретті түсірген кезде не болып жатты?

Бұл фотосуреттің артындағы оқиға неде?

O: Бұл БІЗДІҢ ӨМІРІМІЗГЕ / СІЗДІҢ ОҚУЫҢЫЗҒА ҚАЛАЙ

БАЙЛАНЫСТЫ?

Бұл сурет жекелендірілген оқумен сіздің жеке тәжірибеңізге қалай байланысты?

Бұл фотосурет осы ортада сіздің оқушы ретіндегі қасиеттеріңізді қалай көрсетеді?

W: Неге бұл жағдай, мәселе немесе нысан ОРНАЛҒАН?

Неге бұл сіздің оқу тәжірибеңіздің бір бөлігі деп ойлайсыз?

Қандай факторлар бұл жағдайды, шақыруды немесе табысты мүмкін етеді?

E: Бұл бізді ЖАҢА ТҮСІНІК арқылы ҚҰҚЫҚТАНДЫРУЫ ҚАЛАЙ?

Бұл фотосурет жекелендірілген оқуда ненің жұмыс істейтінін немесе істемейтінін бізге не үйретеді?

Бұл тәжірибені түсіну сізге немесе басқа оқушыларға қалай көмектеседі?

D: Біз бұл туралы НЕ ІСТЕЙ АЛАМЫЗ?

Осының негізінде сіз үшін немесе басқа оқушылар үшін тәжірибені жақсарту үшін не істеуге болады?

Бұл фотосуретте көрсетілгенге қатысты сіздің идеалды сценарийіңіз қандай?

Бұл сұхбаттар сіздің күнделікті оқу тәжірибелеріңізден тақырыптарды тереңірек зерттеуге және айқындауға бағытталған, зерттеу сұрақтарына қатысты сіздің көзқарастарыңыз бен түсініктемелеріңізді тереңірек түсінуге ықпал етеді. Сіздің үлесіңіз қазақстандық интеллектуалды мектептердегі дарынды оқушылардың жекелендірілген оқу тәжірибесін түсіну үшін өте құнды. Осы зерттеуге қатысқаныңыз үшін рахмет.

ПРОТОКОЛ ИНТЕРВЬЮ

Цель исследования:

Цель данного исследования – изучить уникальный опыт одарённых учащихся в условиях персонализированного обучения в интеллектуальных школах Казахстана, с использованием художественного, партисипативного исследовательского подхода – *photovoice* – в сочетании с полуструктурированным интервью. Мы стремимся глубже понять ваши личные взгляды и опыт, связанные с вашим учебным путём.

Продолжительность интервью:

Наше интервью сегодня займёт примерно 45–60 минут. В течение этого времени мы обсудим фотографии, которые вы сделали, используя методику **SHOWED** (Wang & Burris, 1997), которая будет направлять нашу беседу.

Согласие на запись:

Вы уже заполнили форму согласия, где указали, разрешаете ли вы аудиозапись нашей беседы. Перед началом хочу уточнить: вы всё ещё согласны, чтобы я записывал наше интервью?

Если да: Спасибо! Пожалуйста, дайте знать в любой момент, если вы захотите, чтобы я выключил запись или не фиксировал какие-то ваши слова.

Если нет: Спасибо, что сообщили. Я буду вести подробные записи вручную.

Вопросы и сомнения:

Есть ли у вас какие-то вопросы или сомнения перед началом интервью?

Пожалуйста, не стесняйтесь обсудить всё, что считаете важным.

Открытое общение:

Помните, что ваше участие является добровольным. Если вам будет некомфортно отвечать на какой-то вопрос, вы можете пропустить его, и мы перейдём дальше.

Если вы захотите прекратить интервью в любой момент – просто скажите мне об этом.

Методика SHOWED

Вступительное слово исследователя:

«Спасибо, что выбрали свои фотографии. Мне очень интересно узнать о вашем опыте. Мы будем обсуждать каждое фото, используя структуру под названием SHOWED. Она поможет нам глубже исследовать, что именно вы зафиксировали и какое это имеет значение для вас».

S (See) – Что вы здесь видите?

Опишите, что изображено на этой фотографии.

Что вы хотели запечатлеть на этом снимке?

H (Happening) – Что на самом деле здесь происходит?

Что происходило в момент съёмки?

Какая история стоит за этой фотографией?

O (Our lives) – Как это связано с нашей жизнью / вашим обучением?

Как это изображение связано с вашим личным опытом персонализированного обучения?

Что эта фотография показывает о вас как об ученике в этой среде?

W (Why) – Почему эта ситуация, проблема или успех существуют?

Почему, по вашему мнению, это является частью вашего учебного опыта?

Какие факторы делают возможной эту ситуацию, трудность или достижение?

E (Empower) – Как это может дать нам новые силы и понимание?

Чему эта фотография может нас научить о том, что работает или не работает в персонализированном обучении?

Как понимание этого опыта может помочь вам или другим ученикам?

D (Do) – Что мы можем с этим сделать?

Что можно сделать для улучшения опыта персонализированного обучения для вас или других учеников?

Какой ваш идеальный вариант ситуации, изображённой на фото?

Заключение:

Эти интервью направлены на то, чтобы глубже исследовать и выявить основные темы из вашего повседневного учебного опыта, а также понять ваши взгляды и наблюдения в контексте исследовательских вопросов. Ваш вклад бесценен для понимания опыта одарённых учащихся в условиях персонализированного обучения в казахстанских интеллектуальных школах.

Спасибо за участие в исследовании!

Appendix D: Gatekeeper letter

Subject: Request for Permission to Conduct Research on Students' Experiences with Personalized Learning in Intellectual Schools in Kazakhstan: An Exploratory Photovoice Study.

Dear NIS principal,

My name is Aizat Kabakova, and I am a student of MSc Educational Leadership of Inclusive Education program at Nazarbayev University. As part of MSc program requirements, I am interested in conducting research focusing on students' experiences with personalized learning in an Intellectual School, and I am scheduled to collect data for my research between November and December 2025.

To support the school's commitment to innovative, equitable education, I believe we should examine students' experiences with personalized learning. This exploration will reveal the program's effectiveness, key success factors, and final impact on student outcomes.

I kindly request your support and permission to allow me to interact with students who are over 18 years) from Nazarbayev Intellectual School. NIS was selected for this study due to its renowned commitment to educational innovation and its explicit focus on personalized learning approaches. As a leader in implementing modern pedagogical frameworks, NIS provides a unique and ideal context to investigate the student experience in a setting designed for individualized growth.

The purpose of this research is to gain a deeper understanding of how students at Nazarbayev Intellectual School experience personalized learning models and the impact of these models on their academic engagement and personal development. Specifically, I aim to explore their narratives and lived experiences regarding the customization of their

learning journey, as well as their perspectives on the opportunities and challenges that arise within this innovative educational environment.

The research will employ the photovoice method with a select group of students at NIS. This will involve students taking photographs to document their experiences, which will then be discussed in subsequent semi-structured interviews.

Students' participation in the study will be voluntary, and their responses will be kept confidential and anonymized to ensure privacy and confidentiality.

I believe that this research will provide valuable insights into the effectiveness of personalized learning models in a pioneering educational context. The findings from this study can inform educational policies, curriculum development, and the design of more effective and equitable student support systems.

Thank you for considering my request. I look forward to your favorable response.

Sincerely,

Aizat Kabakova,

M.Sc. Educational Leadership in Inclusive Education

Graduate School of Education

Nazarbayev University

Тақырыбы: Қазақстандағы зияткерлік мектептерде оқушылардың дербестендірілген оқыту тәжірибесі: фотодәлел (Photovoice) әдісіне негізделген зерттеу жүргізуге рұқсат сұрау

Құрметті директор мырза,

Менің атым — Айзат Кабакова, мен Назарбаев университетінің Білім беруді басқару саласының ғылым магистрі бағдарламасының студентімін. Бағдарлама талаптарының бір бөлігі ретінде Қазақстандағы зияткерлік мектепте оқушылардың дербестендірілген оқыту тәжірибесін зерттеуді жоспарлап отырмын. Зерттеу үшін деректерді 2025 жылдың қараша–желтоқсан айлары аралығында жинауды көздеп отырмын.

Мектептің инновациялық әрі тең қолжетімді білім беруге деген ұмтылысын қолдау мақсатында, оқушылардың дербестендірілген оқыту тәжірибесін зерттеу қажет деп санаймын. Мұндай зерттеу бағдарламаның тиімділігін, табыстың негізгі факторларын және оқушылардың нәтижелеріне тигізетін түпкілікті ықпалын айқындауға мүмкіндік береді.

Сізден Назарбаев Зияткерлік мектебінің 18 жастан асқан оқушыларымен жұмыс жасауға қолдау көрсетіп, рұқсат беруіңізді құрметпен сұраймын. Бұл зерттеу үшін НЗМ-нің таңдалу себебі – оның білім берудегі инновацияларға айрықша мән беретіндігі және дербестендірілген оқыту тәсілдеріне баса назар аударатындығы. Заманауи педагогикалық үлгілерді енгізуде көшбасшы болып саналатын НЗМ, оқушылар тәжірибесін зерттеуге арналған даралануға негізделген ерекше әрі қолайлы орта ұсынады.

Бұл зерттеудің мақсаты – Назарбаев Зияткерлік мектебі оқушыларының дербестендірілген оқыту үлгілерін қалай қабылдайтынын және олардың академиялық белсенділігі мен жеке дамуына тигізетін ықпалын тереңірек түсіну.

Атап айтқанда, мен оқушылардың өз оқу жолын жекелендіруге қатысты әңгімелері мен шынайы тәжірибелерін, сондай-ақ осы инновациялық білім беру ортасында туындайтын мүмкіндіктер мен қиындықтарға байланысты көзқарастарын зерттеуді көздеймін.

Зерттеу Назарбаев Зияткерлік мектебінің белгілі бір тобы оқушыларымен фотодәлел әдісін қолдану арқылы жүзеге асырылады. Бұл үдерісте оқушылар өз тәжірибелерін бейнелейтін фотосуреттер түсіреді, кейін олар жартылай құрылымдалған сұхбаттарда талқыланады.

Зерттеуге оқушылардың қатысуы ерікті болады, ал олардың жауаптары құпия сақталып, анонимдендіріледі. Бұл олардың деректерінің құпиялығы мен құпиялылығын қамтамасыз ету үшін жасалады.

Менің ойымша, бұл зерттеу дербестендірілген оқыту үлгілерінің тиімділігін жаңашыл білім беру жағдайында бағалауға құнды мәліметтер береді. Зерттеу нәтижелері білім беру саясатын жетілдіруге, оқу бағдарламаларын әзірлеуге және анағұрлым тиімді әрі әділ студенттерді қолдау жүйелерін құруға үлес қоса алады.

Өтінішімді қарастырғаныңыз үшін алғыс айтамын. Сіздің оң шешіміңізді асыға күтемін.

Құрметпен,

Айзат Кабакова,

Білім беруді басқару саласының ғылым магистрі

Жоғары білім беру мектебі

Назарбаев университеті

Тема: Запрос на разрешение проведения исследования об опыте учащихся с персонализированным обучением в интеллектуальных школах Казахстана:

Исследование методом Фотоголоса.

Уважаемый директор НИШ!

Меня зовут Айзат Кабакова, я являюсь студентом программы Магистр наук в области управления образованием в Назарбаев университете. В рамках требований моей программы я заинтересована в проведении исследования, посвящённого опыту студентов в области персонализированного обучения в Интеллектуальной школе. Сбор данных для исследования запланирован на период с ноября по декабрь 2025 года.

В поддержку стремления школы к инновационному и справедливому образованию, я считаю необходимым изучить опыт студентов с персонализированным обучением. Такое исследование позволит выявить эффективность программы, ключевые факторы успеха и её конечное влияние на результаты студентов.

Я прошу Вас о поддержке и разрешении взаимодействовать со студентами Назарбаев Интеллектуальной школы, достигшими 18 лет. НИШ была выбрана для данного исследования благодаря своей признанной приверженности образовательным инновациям и особому вниманию к персонализированным подходам в обучении. Являясь лидером в реализации современных педагогических моделей, НИШ представляет собой уникальный и оптимальный контекст для изучения студенческого опыта в условиях, специально созданных для индивидуального развития.

Цель данного исследования — более глубокое понимание того, как студенты Назарбаев Интеллектуальной школы воспринимают модели персонализированного

обучения и как эти модели влияют на их академическую вовлечённость и личностное развитие. В частности, я намерена исследовать их рассказы и жизненный опыт, связанные с индивидуализацией учебного пути, а также их взгляды на возможности и вызовы, возникающие в условиях инновационной образовательной среды.

В рамках исследования будет применяться метод фотоголос с участием выбранной группы студентов НИШ. Это предполагает, что студенты будут делать фотографии, фиксирующие их опыт, которые затем будут обсуждаться в ходе последующих полуструктурированных интервью.

Участие студентов в исследовании будет добровольным, а их ответы будут обезличены и конфиденциальны для обеспечения полной защиты личных данных.

Я убеждена, что данное исследование предоставит ценные сведения об эффективности моделей персонализированного обучения в инновационном образовательном контексте. Результаты работы могут быть полезны для совершенствования образовательной политики, разработки учебных программ, а также создания более эффективных и справедливых систем поддержки студентов.

Благодарю за рассмотрение моего запроса. С нетерпением жду Вашего положительного ответа.

С уважением,

Айзат Кабакова,

Магистр наук в области управления образованием

Высшая школа образования

Назарбаев университет

Appendix E: Data Analysis – Coding Samples

Category	Themes	Quotations
RQ1: Perceptions and Value of PL		
Trust	Earned autonomy	"I took this photo when I went to the National Museum of Kazakhstan... I was allowed to take personal learning. I was free from lessons like physical education or some other subjects... I had a two or three-hour break, and I just went there." (Participant 3)
		"The main reason is because my GPA was good. And they knew that I could learn on my own." (Participant 3)
	Anxiety of revocation	"I was constantly anxious about what if I don't visit the lesson and I miss something and the teacher didn't explain me something they did in the class, and then I'm going to fail and my privileges of personalised learning will be revoked." (Participant 6)
	Gatekeeping	"I know some kids who don't receive personalized learning because their teachers don't trust them. And they say like, 'no, you should attend classes.'" (Participant 3)
Academic Freedom	Escaping the academic circle	"I think personalized learning actually bought me a lot of time to really dive deep into this project as in our school the curriculum is not very challenging but pretty demanding. It requires a lot of time." (Participant 1)

Category	Themes	Quotations
	Time benefits	"I felt like I was Hermione from Harry Potter, because remember in that film she had a thing, an artefact, that allowed her to be in different places at the same time. So I felt like that. Once I was at school and then I went to the Samsung classes." (Participant 3)
	Risk of freedom	"In this context personalized learning probably might negatively affect some individuals because some people tend to procrastinate or spend their time ineffectively in the time of their personalized learning." (Participant 1)
RQ2: Academic, Cognitive, and Affective Benefits		
Cognitive Transformation	Knowledge construction	"Actually, I really like to do notes... because I try to formulate some difficult ideas in a very simple way, and also I do some sketches of things that I study, and that's why it is more easier for me to understand it." (Participant 2)
		"When you present something, you understand more because you should explain something difficult through your own words." (Participant 2)
	Responsibility	"I really liked the opportunity that I could opt out from the group work and work individually because it makes me feel more focused and more responsible for the work I do because I don't have the opportunity to blame someone or something. It's only my sole responsibility." (Participant 6)

Category	Themes	Quotations
	Amplification effect	"Not everyone knows how to do that, not everyone has their intrinsic motivation to study. Maybe someone who is lucky enough to get personalized learning, will just scroll TikTok or Instagram, which is kind of useless." (Participant 4)
Strategic Specialization	Professional identity	"Programming really requires at least three or four hours a day to reach at least more or less good results, and I think if we have the schedule in 11th grade, it is pretty much impossible to study programming and do excellent in school." (Participant 4)
	Gaps	"I regret it a little bit because we don't have structured material. I couldn't understand topics on physics because we had something wrong with our learning objectives. And I didn't know that we started to learn something new from 12th grade." (Participant 4)
Affective Well-Being	Strategic switching	"As the process of PL requires a lot of independent work can become repetitive and can exhaust you if you don't rest well. And from this picture I wanted to demonstrate how you can keep the balance between your mental health and your work. In this photo I'm playing dombyra to relax a bit and to reinforce myself to continue to learn." (Participant 1)

Category	Themes	Quotations
	Neurodivergent accommodation	"I was losing when it was super loud and there was too much unnecessary information. I lose focus completely and I'm starting to get overstimulated because my brain is getting too much information that cannot be classified... I felt super overstimulated in the classrooms. And when I took a personalised learning, it improved a lot. It was so much better to study separately alone." (Participant 6)
RQ3: Systemic Barriers		
Digital Library Vacuum	Curation challenges	"I think it was not very convenient to go through all the presentations, because we usually have, for one unit, or just for one week, a bunch of presentations with a bunch of slides that are not even necessary. And I think, for me, it is a matter of compilation of information, not necessarily learning." (Participant 4)
	Curated materials	"What will work is the already structured and organized material, not the book, not all the unimportant storytelling, just cheat sheets, cheat sheets, and that's all. And I think it is what will work, at least for me." (Participant 4)
	Institutional responsibility	"I think it is really good to record all the lessons online... just picking one of the best teachers, for example, in math or physics, will save me a lot of time." (Participant 4)