Article

Gifted Students' Adjustment and Underachievement in University: An Exploration From the Self-Determination Theory Perspective

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Abstract

Successful transition from school to university is essential for the academic success of any student. Gifted students might encounter unique challenges due to their characteristics, and there is an evidence that a failure to adjust to the demands of university environment has a negative effect on gifted students' academic performance, leading to underachievement. This qualitative study aimed at exploration of gifted students' adjustment to university and issues they face within this process. We use the lenses provided by self-determination theory to further interpret the role of both internal and external motivation forces contributing to gifted students' adjustment and achievement in higher education settings. It was identified that the gifted school and university learning environments, as well as the influence of key people (parents, peers, and teachers) played a crucial role in facilitating or impeding gifted school graduates' sense of self-determination and consequently their adjustment and achievement. This study offers interesting insights for the understanding of gifted (under)achievement in a context where giftedness is predominantly conceived as high intelligence and academic achievement, gifted students are identified via performance-based measures, specialized schools are the preferred means for gifted education, and young people's talents are considered invaluable for the development of the national economy and the society.

Keywords

adjustment, gifted students, motivation, underachievement

First-year university adjustment is considered an indicator of further progress in tertiary education (Hurtado et al., 2007; Jansen & Bruinsma, 2005; Nora et al., 2005) and is directly related to students' program persistence, retention and completion (Kalsner & Pistole, 2003; Kerr et al., 2004), academic achievement (Wormington & Linnenbrink-Garcia, 2017), and well-being (Baker, 2004). The research on students' transition and adjustment issues primarily has been fueled by universities' desire to improve enrollment, retention, and success of different populations of students (Jacobs & Archie, 2008). However, while universities worldwide are highly interested in recruiting the best and brightest students, there is not much evidence about how gifted students in various contexts experience their adjustment to higher education (Mendaglio, 2013; Rinn, 2007; Rinn & Plucker, 2004; Wilson & Adelson, 2012). This is likely due to the false beliefs that gifted students always demonstrate high self-efficacy beliefs, are highly motivated, adjust well to school, and do not have specific socioemotional needs, and therefore, do not experience academic problems, do not underachieve, need no help, and will succeed on their own (Grobman, 2006; Moon, 2009; Peterson, 2009; Robinson et al., 2002).

In this study, we aim to fill this gap in the literature by analyzing the first-year adjustment experiences of gifted students to universities in Kazakhstan. More specifically, in this qualitative study, we aimed to explore the ways gifted school graduates undergo their adjustment to university and what issues they face within this process. We use the lenses provided by self-determination theory (SDT) to further interpret the role of both internal and external motivation forces contributing to gifted students' adjustment and (under)achievement in higher education settings. SDT has generated substantial research and incorporates high explanatory value for understanding the complex interplay between gifted

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students' motivation and achievement (e.g., Al-Dhamit & Kreishan, 2016; Garn et al., 2010), but these studies tended to focus on parental influences on the academic motivation of gifted students in children and adolescents samples. Moreover, besides the work of Valery Chirkov (2009, for a review of cross-cultural studies on autonomous academic motivation and autonomy support in students' development), no research to date has explored motivational issues of gifted students using this theory in post-Soviet contexts.

Giftedness in the Kazakhstani Education System

Kazakhstan presents an interesting case for an analysis of gifted students' experiences in university settings for several reasons. Kazakhstan, the largest and the most rapidly developing economy in the Central Asian region, has inherited a Soviet education system with a specific approach to and interest in gifted education that reflects many of the features of the gifted child paradigm (Dai & Chen, 2013). These include a conceptualization of giftedness determined by high intelligence and performance; an identification system based on achievement and performance-based measures; a segregated education system with specialized schools with advanced curricula in particular strength areas; and a focus on building an intellectual elite and promoting social and economic welfare. In addition, following Soviet traditions, Kazakhstani gifted education places a strong emphasis on academic Olympiads in core subjects, especially in science, which are held to identify gifted children and determine the quality of schools (Grigorenko, 2017; Yakavets, 2014).

In recent years, Kazakhstan has placed much more emphasis on the education of gifted students, considering it "a vehicle" for improving the competitiveness of education, developing national human capital, and reforming society (Hernández-Torrano et al., 2019; Yakavets, 2014). To achieve this goal, in 2009, the government of Kazakhstan created a network of highly selective, state-funded, full-day schools for gifted children between the ages of 12 and 18 years, operating in all 20 regions of Kazakhstan. These schools operate from Grade 7 and define a gifted student as "an individual with high intellectual capacity able to think critically and creatively, strong in spirit, able to apply his/her knowledge for the benefit of social progress" (NIS Annual Report, 2011). The candidates compete for limited scholarship places in these schools and are selected based on their performance in an admission test in five domains: mathematical knowledge, numerical reasoning, and the English, Kazakh, and Russian languages. The admission test is administered in paper form and takes place on 2 consecutive days. First, the students complete a test to assess their mathematical literacy (i.e., mathematical knowledge, logical thinking, the relationship between numbers, and interpretation of figures, graphs, and diagrams). Then, a language test is administered to assess students' reading literacy (i.e., the ability to understand and analyze written texts) in the Kazakh, Russian, and English languages. The math test carries a heavier weight in determining admission to the gifted schools and serves as tie-breaker between students with the same total score. This competitive admission process is prepared by schools in collaboration with reputable international partners, such as CITO (Netherlands) and the Center for Talented Youth at Johns Hopkins University (USA), which also provide training and support in the development of the items and the assessment of the admission tests. These 20 schools for intellectually gifted students are expected to be the "growth points" or "agents of reform" in the whole system of secondary education in Kazakhstan (Kuzhabekova et al., 2018). Each year, about 3,000 gifted students graduate from these schools. However, little is known about how the graduates of these schools experience their transition and adjustment to university life.

Adjustment of Gifted Students to University

The term adjustment is often used in the literature interchangeably with such terms as "adaptation" and "integration" (Monroe, 1990) to describe an individual's efforts to adapt to the new social and physical environment. Despite the relatively complex nature of the university environment and students' background characteristics, adjustment is typically considered a multidimensional construct falling into four broad dimensions: academic adjustment, social adjustment, personal–emotional adjustment, and institutional attachment (Baker, 2004; Baker & Siryk, 1984). Baker and his colleagues viewed academic adjustment as the degree to which the new students have adapted to academic demands at the university and how this is reflected in their academic efforts, engagement with their courses, and achievement. Social adjustment mirrors the degree to which new students can integrate themselves into the social life at a higher education institution. Personal–emotional adjustment reflects the degree to which a student is experiencing personal issues such as stress and anxiety. Institutional attachment refers to student's commitment to the university and their satisfaction with their university choice (Baker et al., 1985; Baker & Siryk, 1984).

The literature suggests that gifted students adjust well to the academic demands of higher education environments when they are provided with opportunities for intellectual growth and academic challenge (Hébert & McBee, 2007). According to Diezmann et al. (2001), gifted students can acquire new information quickly, possess advanced reasoning, and display higher academic achievement than other nongifted college-age students. Furthermore, they are often able to establish close relationships with faculty members as they tend to ask more questions and are more likely to communicate with faculty members outside of class (Janos et al., 1989). However, some authors have argued that the first year of university is an unexpectedly challenging period and some gifted students might experience specific issues related to their attempting to fit into a new academic environment (Gómez-Arízaga & Conejeros-Solar, 2013; Mendaglio,

2013; Snyder & Linnenbrink-Garcia, 2013). There is research evidence that a failure to adapt to the demands of the university life can negatively influence gifted students' academic performance, leading to underachievement (e.g., Mendaglio, 2013), which indicates a failure "to perform at level commensurate with previously documented abilities" (Reis & McCoach, 2000, p. 152; see also Lau & Chan, 2001). The literature suggests that gifted students' academic adaptation to their university is mostly related to the following factors: (a) the quality of secondary school, as characterized by a fast pace of study, meaningful assignments, and effective teaching (Muratori et al., 2003; Rinn, 2007); and (b) the ability to develop new skills to cope with the increasing academic demands and the less-structured environments of higher education settings (Gómez-Arízaga & Conejeros-Solar, 2013; Reis et al., 2000).

The social adjustment of gifted students is crucial for a successful university experience, especially during the first year (Gómez-Arízaga & Conejeros-Solar, 2013; Rinn, 2007). The literature indicates that gifted students generally have an active life at university, participate in a greater number of extracurricular activities compared with other students, and manage to build relationships across the campus (Janos et al., 1989). The literature also suggests that shared interests and respect for intellect are influential factors in building new friendships in gifted populations (Olszewski-Kubilius, 1998). However, the literature reports that if gifted students fail to build successful relationships and find insufficient support in their academic and social environment, they might feel emotionally isolated and develop low self-esteem (Southern & Jones, 1991).

A successful transition from school to university is also crucial for students' emotional development. The literature collectively suggests that gifted students are well adjusted to university life as a result of their higher self-esteem and a higher self-concept than their nongifted counterparts (e.g., Mendaglio, 2013; Wouters et al., 2011). However, some studies have found that the academic and social issues that gifted students face at college could influence their emotional adjustment to university. For instance, the university environment might be the first opportunity they have to compare themselves with intellectually equal peers and even superior students, making them question their abilities (Speirs Neumeister, 2004). Other studies indicate that some gifted students may experience homesickness while adjusting to university life due to their being separated from significant people (Muratori et al., 2003), or a sense of isolation if they are not able to fit into the environment of the university (Hébert & McBee, 2007).

Self-Determination Theory and Gifted Students' Adjustment to University

Motivation has been identified as a contributor to a smooth transition to university, and is associated with higher levels of persistence, adjustment, engagement, and performance in postsecondary education settings (e.g., Beyers & Goossens, 2002; Vallerand & Bissonnette, 1992; Yu & Downing, 2012). Motivation can be generally defined as "a process whereby goal-directed activity is instigated and sustained" (Schunk et al., 2008, p. 4). Accumulated evidence suggests that, in general, gifted students tend to report higher levels of motivation than their nongifted classmates (e.g., Gottfried et al., 2005; Vallerand et al., 1994). Prior research also suggests that motivation is related to academic achievement in gifted students. For example, McCoach and Siegle (2003) found that motivation and goal valuation are key characteristics that differentiate between gifted achievers and underachievers. In one of the few studies including higher education samples, Hammond et al. (2007) identified several issues that were central to the motivation and adjustment of a sample of high school students arriving at the university. These included establishing independence from their family, trying to fit into a social network, the desire to overcome challenges, possessing an internal will, and a need to earn recognition from other people. Also, Gómez-Arízaga and Conejeros-Solar (2013) found that postsecondary gifted students conceptualize motivation as a strategy that helps them overcome difficulties and move forward in the academic pathway, and those students who display strong motivational and personal traits tend to be successful in their studies and future career.

A myriad of theoretical frameworks and definitions of motivation have been used in the literature to explore motivational issues in gifted populations (see Clinkenbeard, 2012, for an analysis of contemporary motivation theories on giftedness). In this study, SDT, which has generated substantial research and encompasses high explanatory value for understanding the complex interplay between gifted students' achievement and motivation (e.g., Abu-Hamour & Al-Hmouz, 2013; Al-Dhamit & Kreishan, 2016; Garn et al., 2010), is used to interpret the adjustment experiences of gifted students at university. SDT is a macrotheory of human development that has integrated the knowledge generated from multiple branches of psychological science (e.g., developmental, personality, social, and clinical) on motivation, emotion, and personality over the past 40 years.

In general, SDT differentiates types of motivation along a continuum from autonomous to controlled motivation. Autonomous types of motivation are volitional and reflect one's own interest and values, while controlled motivations represent behaviors in which a person feels internally or externally pressurized or compelled to act (Ryan & Deci, 2017). This distinction is informed by earlier work distinguishing between three types of motivation: intrinsic, extrinsic, and amotivation (Deci & Ryan, 1985, 2008). Intrinsic motivation means being involved in an activity for its own sake and for the satisfaction which one might get from participating in this activity. For instance, gifted students are intrinsically motivated when they engage in academic tasks out of their desire to develop personally and learn something

(Garn & Jolly, 2014). Extrinsic motivation is a behavior that is driven by an external reward like appraisal or grades. An extrinsically motivated gifted student could study hard to get the approval of her parents. Amotivation refers to diminished inspiration or a state of lacking the motivation to engage in an activity. Amotivated students cannot achieve their goals because they do not see the link between the goals and their behavior (Deci & Ryan, 1985). Consequently, an amotivated gifted student resists engaging in learning, even when presented with rewards or punishments (Garn & Jolly, 2014). Deci and Ryan (1985) argued that these three dimensions are not mutually exclusive, and the student might be both intrinsically and extrinsically motivated toward a learning task.

Intrinsically motivated behaviors are autonomous by definition, as they emanate from one's self. Here, the motive to engage in a behavior is to experience the inherent feeling of enjoyment and satisfaction that accompany that behavior. In contrast, extrinsically motivated behaviors vary widely along the autonomous-controlled continuum depending on varying amounts of internalization or congruence with one's self. On these grounds, SDT distinguishes between four categories of extrinsic motivations: (a) integration, (b) identification, (c) introjection, and (d) external forms of extrinsic motivation (Ryan & Deci, 2000). Integration and identification are internalized (self-determined) and can be considered as more autonomous. Introjection and external regulation are controlled (non-self-determined) forms of extrinsic motivation (Ryan & Deci, 2017). Integration refers to engaging in a behavior because it is imbedded in one's value system. Identification refers to one's identification with and acceptance of the value of the extrinsic behavior. Introjection is defined as engaging in behavior either for reasons not fully accepted as one's own, or for social approval. Introjection can be motivated by feelings such as guilt, shame, fear of disapproval, and ego enhancement. Behaviors are externally regulated if they are exclusively contingent on external forces (e.g., rewards and punishment).

According to SDT, the development of self-determined forms of motivation is determined by the ability of social environments to fulfil three basic psychological needs: (a) autonomy, or the need to self-regulate one's experiences and actions; (b) competence, or the need to experience self-efficacy and mastery; and (c) relatedness, or the need to feel socially connected (Deci & Ryan, 2008; Ryan & Deci, 2017). Social environments that contribute to the development of these three basic needs are considered to be autonomy-supportive, well-structured, warm, and responsive (Ryan & Deci, 2017). Autonomy-supportive environments are those that nurture students' inner motivational resources, provide choice and opportunity for self-direction, provide positive and constructive feedback to students, rely on informal, noncontrolling language, explicitly link elements of classroom structure (e.g., rewards, expectations) to explanations of why these features are important for students' learning and well-being, and to respect for another person's perspectives (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000). Well-structured, warm, and responsive environments predominantly contribute to the satisfaction of the three basic psychological needs as they foster clarity, connectedness, love, and understanding within relationships (e.g., Vansteenkiste et al., 2012).

Providing autonomy-supportive, well-structured, warm, and responsive environments for the university students is important because self-determined motivation has been linked to positive educational outcomes in college-aged samples, including perseverance (Black & Deci, 2000; Vansteenkiste et al., 2004), academic adjustment (Ratelle et al., 2007), academic achievement (Black & Deci, 2000; González et al., 2012; Ratelle et al., 2005; Vansteenkiste et al., 2004; Vansteenkiste et al., 2009), higher perceived competence, academic interest and enjoyment (Black & Deci, 2000), and higher well-being and lower anxiety (Black & Deci, 2000; Chirkov, & Ryan, 2001; Levesque et al., 2004). Controlled forms of motivation, on the other hand, have been linked to negative educational and well-being outcomes in higher education students such as poor concentration at school, academic hopelessness, fewer intentions of pursuing further education (González et al., 2012; Ratelle et al., 2005; Vansteenkiste et al., 2009), and to lower levels of creativity (Amabile, 1985), maladjustment, and maladaptive functioning including conduct disorders, aggressive tendencies, failures of social internalization, and deficiencies in self-regulation, relatedness, and empathy (Kasser & Ryan, 1993, 1996; Ryan et al., 2016; Vansteenkiste & Ryan, 2013).

The SDT integrates and further expands the concepts of motivation, basic psychological needs, and social contexts into six mini-theories, each addressing specific motivational issues. There is a certain overlap between the SDT theory and its six mini-theories, so these will be described here only briefly. The cognitive evaluation theory (CET) focuses on the processes through which social environments facilitate or undermine intrinsic motivation and, in turn, high-quality performance, engagement, and well-being (Deci et al., 1991). More specifically, the CET posits that environments that support perceived autonomy and competence—and to a certain extent relatedness—enhance intrinsic forms of motivation. The organismic integration theory (OIT) is concerned with the development of extrinsic motivation and the regulation mechanisms through which extrinsically motivated behaviors become either autonomous or controlled (i.e., internalization; Ryan & Deci, 2000). These mechanisms, as indicated above, include internal, integrated, introjected, and external regulations. The basic psychological needs theory specifically describes how the satisfaction of the three basic psychological needs (i.e., autonomy, competence, and relatedness) contributes to positive psychological health and well-being and prevents the development of psychopathology (Ryan et al., 2006). The causality orientations theory (COT) postulates that people

can be differentially motivated by various social conditions. The COT accounts for three motivational orientation types, which denote individual tendencies or traits to focus on particular features of the environment and express corresponding motives (Ryan & Deci, 2017). Autonomous orientations focus on interests and opportunities to grow. Controlled orientations focus on external contingencies, while impersonal orientations focus on performance outcomes and failure avoidance (Ryan & Deci, 2019). The goals content theory (GCT) describes the relationship between the three basic psychological needs and people's intrinsic and extrinsic goals and aspirations. Intrinsic aspirations are those that have a value in their own right and provide direct satisfaction to the three basic psychological needs, like those related to personal development and close relationships. Extrinsic aspirations refer to goals that are built around contingent satisfactions (e.g., financial success, appearance, fame, and power; Ryan & Deci, 2017). Finally, the relationship motivation theory (RMT) explains the relationships between autonomy and relationship psychological needs. More specifically, the RMT argues that high-quality relationships depend not only on the individual's ability to experience positivity and regard but also on respect for autonomy (Ryan & Deci, 2017, 2019; Vansteenkiste et al., 2010).

Collectively, the six mini-theories have important implications for the adjustment of gifted students to university. First, university environments have the potential to contribute to students' adjustment by enhancing students' intrinsic motivation through the provision of meaningful choices, the consideration of students' internal frames of reference, and offering positive feedback (CET; Patall et al., 2008; Ryan & Deci, 2019). Indeed, intrinsically motivated behaviors have been associated with better psychological adjustment to university and lower levels of perceived stress and psychological distress while studying in college (Baker, 2004). Second, according to OIT, university environments that promote autonomy, competence, and relatedness could facilitate the adoption of more autonomous forms of extrinsic regulations, leading to higher levels of student adjustment in terms of long-term persistence, overall well-being, and lower internal stress and substance abuse (Chirkov & Ryan, 2001; Pelletier et al., 2001; Vansteenkiste et al., 2006). Third, students arrive at the university with different styles for orienting to the regulation of their behaviors (COT), so similar experiences can motivate different responses and forms of academic, social, emotional, and institutional adjustment. For example, autonomous oriented university students have demonstrated a more open and flexible identity construction, while controlled-oriented students tend to rely on the prescriptions and expectations held by significant others (Soenens et al., 2005). Fourth, students assign different values to objectives and aspirations, but not all objectives affect university adjustment in the same way (GCT). For instance, Kasser and Ahuvia (2002) found that business students with strongly internalized materialistic values (extrinsic) reported lower levels of self-actualization, vitality, and happiness, and higher levels of anxiety and physical symptomatology, compared with students holding more intrinsic values. What is less clear is if is these implications also apply to gifted students' adjustment and performance in university settings, considering their unique personal and contextual characteristics. This study aims to address this issue using the lenses of the SDT.

The Present Study

This study is a part of a larger project aimed to exploring the academic, social, emotional, and institutional experiences of gifted students transitioning to a university context in Kazakhstan. The project procedures included surveying and interviewing gifted high school graduates enrolled in their first year at two large highly selective Kazakhstani universities. These two universities were purposefully chosen because most graduates of the special schools for gifted children choose to study there. The students who completed the survey in the first phase of the project were asked to express their willingness to participate in the qualitative phase of the project. The current study is based on the qualitative phase of the project (i.e., interview data).

Method

An exploratory qualitative research design (Creswell, 1998) was employed to understand the gifted students' university adjustment and achievement experiences and their motivational pathways. SDT (Deci & Ryan, 2000) was used to interpret the findings, but the goal of the study was not to test the SDT. Instead, the authors use SDT as a lens to better understand the gifted students' university adjustment and achievement experiences at higher education institutions in Kazakhstan.

Participants and Data Collection Tools

The data collection period lasted for 2 months, between April and June of 2016. Sixty-four students who expressed the interest to participate in the interviews were e-mailed an invitation explaining the purpose of the study and procedures of the data collection. Out of this number, we selected 30 school graduates (15 females) who were available during the data collection period and willing to participate in the focus groups or one-in-one interviews. Maximal variation sampling was used to select participants. We aimed to obtain a participant sample that varies on different background characteristics, such as age, gender, school, and disciplinary affiliation. All students were 18- to 19-year-old graduates of 14 different schools for gifted children, were enrolled in their first year at the university, and demonstrated good distribution across the national gifted school network. About 73% of participants study in STEM (science, technology, engineering, and mathematics) majors.

Four focus groups and eight individual interviews were conducted by the first author in two highly selective universities situated in the capital city of Kazakhstan. Twenty-two students participated in four focus group interviews (four to six students for each focus group interview, two interviews in each university). Eight other students, different from the participants in the focus group interviews, were chosen for in-depth individual interviews (four students in each university). Focus group interviews were conducted in places close to the university campus so that it would be easier for the students to get there. The individual interviews were conducted in a location of the student's choice, often outside the university campus so that the student could feel comfortable enough to voice his or her experiences. Each interview was conducted for about an hour and a half and was recorded with the permission of the participant. In addition, the interviewer took reflexive notes during the interviews.

The blend of focus groups and individual interviews was chosen both for practical and theoretical reasons. A focus group interview is a "way of collecting qualitative data, which essentially involves engaging a small number of people in an informal group discussion, 'focused' on a particular topic or set of issues" (Wilkinson, 2004, p. 177). Researchers often rely on focus groups, as they are a fast and efficient method of collecting data from multiple participants (Krueger & Casey, 2000). The focus group interview is also often chosen because it allows participants to interact with each other, agreeing or disagreeing about some issues and highlighting specific aspects, which seem to be more interesting for them. Our focus group interviews maximized the experience within each group as the majority of participants were familiar with each other and were able to share their experience and have a better discussion between the group. The individual interviews, in turn, provided an opportunity for deeper exploration of ideas and experiences mentioned in the focus group interviews.

The interview protocols both for individual and focus group interviews were semistructured and included 10 to 15 questions. They were developed based on a systematic review of literature on gifted students' adjustment to higher education, as well as the literature on gifted students' achievement and motivation. The interview questions were formulated to assess the students' feelings about their academic transition, perceptions of their sources of motivation, and opinions about the challenges that they have encountered during their first year. The questions were similar in focus groups and individual interviews. The questions in the focus group interview protocol were aimed toward the facilitation of discussion on the abovementioned issues, whereas the individual interview protocol included additional questions which allowed the interviewees to share their personal experiences and struggles. Several interview questions were added to the individual interview protocol after the preliminary analysis of focus group interview data for the purpose of clarifying the emergent themes. Though a preliminary protocol was arranged for the interviews, the interviewer tried not to fully control the interviews, giving the interviewees the opportunity to share their stories, express their opinions and ideas, and explore emerging ideas and themes. Sample interview questions were as follows: *What was the most challenging situation for you during your first term at the university? Where do you think this challenge come from? What and who motivates you in your studies? Is there any other issue with your adjustment to university life that you would like to talk about? Have you encountered any challenges/obstacles to your studies during your first year at the university? Were they mostly academic, social, and emotional? What has facilitated/impeded your adjustment?*

Prior to the interviews, the participants were informed about the purposes of the study and the risks and benefits of participation, as well as their rights, withdrawal, and confidentiality procedures.

Data Procedures and Analysis

The recordings from the study were transcribed and we then manually analyzed the interview data using a general inductive approach (Thomas, 2006). The steps for qualitative data analysis included the following: (a) a preliminary analysis of data by reading through the transcripts and notes and writing memos, (b) coding the transcripts by segmenting and highlighting the text, (c) using the codes to develop larger themes by assembling similar codes, and (d) connecting and interrelating the appearing themes (Miles & Huberman, 1994; Elo & Kyngäs, 2008).

We undertook several steps to ensure trustworthiness throughout the data collection and analysis. We employed purposive sampling procedures in order to recruit the participants who might have the best knowledge concerning the phenomenon under investigation, and we provide a detailed description of the participants and data collection process as well as the context of the study to ensure the transferability of the inquiry (Elo et al., 2014). Furthermore, during each interview, notes were taken and member checking was conducted at the end of each focus group and individual interview to ensure that the interviewer understood the participants' responses correctly. Peer examination was used to ensure that the codes represent the interview data (Strauss & Corbin, 1990). The codes and categories identified in the analysis were discussed with doctoral students who were trained on qualitative research procedures and who comprehend the context well enough to identify the categories not covered by research questions, which ultimately enhances the credibility of the findings. The credibility of the findings was also promoted through triangulation of both sources of qualitative data: focus group and individual interviews (Creswell 1998; Miles & Huberman, 1994). To ensure the confirmability of data, the interviewer kept a reflexive journal where she kept notes during the interview and included her personal reflections in relation to study (Elo et al., 2014).

Initially, the first author conducted the preliminary analysis of data by reading through the transcripts and reflexive notes and coding the data using the open coding techniques (Miles & Huberman, 1994). Then, the two authors further discussed the identified codes in order to reach an agreement before grouping the codes into categories and connecting and interrelating the appearing themes (Elo et al., 2014; Miles & Huberman, 1994; Strauss & Corbin, 1990). The authors moved back and forth between the transcripts, reflexive notes, codes, and preliminary categories before identifying the connections between them based on their differences and similarities, as suggested by Elo et al. (2014).

Findings

Four themes emerged from the data analysis as contributors to the positive adjustment of gifted students to higher education settings: (a) the role of gifted schools in developing a high sense of competence and internalized motives toward learning, personal development, and academic performance; (b) the role of the university in providing opportunities to grow and contribute socially; (c) the possibility to establish personal relationships with other gifted students at university; and (d) a positive effect of parental and social expectations in their desire to perform well. Moreover, three other themes were identified as barriers to the adjustment of gifted university students, including (a) a challenge to adapt to the demands of an ill-defined, impersonal university environment; (b) a fear to fail and look stupid in the eyes of classmates and university professors; and (c) a struggle negotiating their new identities as university students and emerging adults. Direct quotes are used within each theme to represents gifted students' views of their transition experiences to higher education in the sections below.

The Contribution of Gifted Secondary Schools to University Adjustment

Virtually all students referred to their gifted schools as one of the key factors contributing to their university adjustment and subsequent academic achievement. The students recognized the contribution of their specialized schools in developing a strong sense of academic competence and efficacy derived from a considerably demanding curriculum developed by the schools' international partners, and high academic workloads and standards, which were different from that in other schools: "At my school, the level of preparation was very high; they set a very high standard for us" (Individual interview, April 28, 2016). Moreover, the participants reported that teachers in their gifted schools were effective in motivating the students and providing support for developing the students' individual capacities and encouraging the students to set high goals for themselves. As one student observed, "At school, I was a leader in all kinds of events, and this helped me develop and practice my leadership skills. I am very grateful to the teachers who always motivated me to be a leader" (Individual interview, May 3, 2016). Another commented, "The teachers always motivated us to develop personally. They used to say, 'You are the best students of the best schools in Kazakhstan'" (Individual interview, April 27, 2016).

However, due to the demanding curriculum and high academic standards at schools, the students had to manage a large workload with eight or nine lessons each day and individual consultations after classes to get additional support: "We had such a big amount of workload there . . . some students were feeling sick after such a big amount of workload . . . " (Individual interview, May 5, 2016). The teachers realized that students had a large workload and therefore paid them a high degree of attention, constantly supervising their progress and providing additional academic supervision and support: "During our last year at school, we had so much workload, so many tests . . . The teachers were running after us." (Individual interview, April 28, 2016). Moreover, participants indicated that the competitive nature of their gifted schools, both in terms of selective admission processes and the emphasis on participating in academic Olympiads, exerted an ambivalent influence in their adjustment to the university. There was also a hidden competition among these students to achieve the highest grades and tests results, as those who underachieved were excluded from the schools. Also gifted students were used to comparing themselves with others in their specialized schools:

> We had a very competitive atmosphere in our class. The teachers used to say that our class was the strongest as there were a lot of strong students and the competition between us was quite big . . . we were competing for the high test scores all the time. (Individual interview, April 20, 2016)

Opportunities to Grow and Contribute to the Development of the Society

Participants' responses suggest that the university environment triggered autonomous orientations and intrinsic aspirations such as growth, personal development, and social contribution, which contributed to their adjustment. For example, one participant indicated as follows: "I feel now the importance of my every single decision. When I came here, I became a different person; I want to develop personally. I can make the decisions myself, and I am very motivated by that." (Individual interview, May 6, 2016). Some students also described their goal as a desire to become a highly qualified specialist who will be able "to contribute to the country's development" after graduating from the university. Another participant expressed a similar idea: "I am extremely motivated. I want to achieve something, change my life and my country . . . " (Focus group interview, May 5, 2016). Those students reported they were looking for

opportunities for professional and personal development, such as mobility programs and internships abroad, driven by their desire to develop personally. Some illustrative comments include the following:

> From my school . . . four even five people including myself submitted their documents for academic mobility program . . . this is an exchange program which allows going abroad. . . . This is a great opportunity, and I wish to go abroad to learn something new. (Individual interview, April 28, 2016)

Other students, however, demonstrated more controlled orientations and considered that studying in a highly selective university in the capital city presented an excellent opportunity to get a high-paid job: "My goal is to stay in Astana (in the capital city) and find a job here. That is why I am very motivated to study well and get a high GPA" (Focus interview, April 28, 2016).

Building Personal Relationships at the University

The analysis of the interview data revealed that succeeding in developing social networks and personal relationships with other university students was another important factor of gifted students' adjustment through the satisfaction of their need to relate with others. In general, students agreed that the two highly selective universities provided opportunities to engage in social interactions (e.g., participation in student clubs and activities) and feel part of a community. In this regard, an interesting finding of the study is that gifted students preferred to communicate with peers with similar ability and background and tried to find new friendships mostly among students from other schools for gifted children, "bubbling" around a relatively closed community of gifted students. As one of the students said, this was because they had "a lot of common topics" to discuss and it was easy for them to find a "common language" to communicate.

On the one hand, having a support network of similarly able students at university seemed to facilitate the gifted students' university adjustment. The students reported that, in that "bubble," they tried to support each other, forming an informal network or community of graduates from similar schools within the university, which helped them in many ways to get accustomed to university life and also helped the students stay motivated. As one of the participants commented, "I live here on campus with my friends from [X gifted school], and when it is difficult, they always motivate and support me, even financially" (Individual interview, May 6, 2016). Another participant commented that he found it vital to the overall adjustment to university life: "The most important is to find your community of people who share your ideas and your vision of life" (Focus group interview, April 23, 2016).

On the other hand, it was also identified that those students who had not been able to get to a department where many graduates of gifted schools study (e.g., humanities and social sciences) were likely to feel isolated, lonely, and socially unadjusted to their new learning environments. Those students reported relying more on the school friends from high school and parents and feeling not adjusted to the university context. This can be evidenced in the words of one of the participants:

> I was not able to enter [university X] . . . and I am the only student from our school at our department. I am feeling myself absolutely lonely here. I come here only for the lectures . . . all my friends are at [university X]. I was not able to find close friends here. (Individual interview, April 23, 2016)

Influence of Parental and Societal Expectations on University Adjustment

The parents and more generally the society were often described by the participants as important sources of motivation influencing their university adjustment and success. On a few occasions, participants indicated that they find satisfaction and pleasure in meeting parents' expectations, as they consider that having graduated from a gifted school and being "the best students of the best schools in Kazakhstan" (Individual interview, April 27, 2016), they should perform highly and contribute to the development of their country, which points to identified regulation styles. However, for a majority of students, these external expectations represented less self-determined motives (i.e., introjected), and students simply recognized trying to perform high to avoid external sources of disapproval from parents and society more generally. This is illustrated by one of the respondents, "My parents always told me: You entered the best school in Kazakhstan, you should work hard, only the best kids study there. That is why I was always cautious about getting high marks" (Focus group interview, April 28, 2016).

Adapting to the Demands of an Ill-Structured, Impersonal University Environment

The analysis identified the fact that participants also reported a range of challenges when trying to fit into their new academic environments. One challenge consistently expressed by the participants was closely connected to the school background of the students. Participants indicated that their gifted schools were characterized by offering students personalized attention and ongoing academic support throughout their studies. However, on entrance to the university, the students found it difficult to adjust to a university environment characterized by larger classes, less supervision and guidance, and requiring students to take responsibility for their learning. More specifically, the gifted schools were not very successful in satisfying autonomy needs to self-regulate their own actions in the new learning environment, which had a negative influence in the adjustment of students to the

university life. In this regard, a common problem for many participants was to transition from the previous status of a supervised school student to a new status of a university student with "greater academic independence" (Individual interview, April 26, 2016), who had to take care of their studies with minimum supervision and support. As one of school graduates commented,

> Those from gifted schools are like to be cared for. Those who are from ordinary schools, they were really working a lot. We need more care and supervision as the teachers in our schools were caring about us . . . sometimes too much. (Individual interview, April 26, 2016)

A number of gifted students also indicated having little confidence in themselves and being unable to embrace academic university challenges and, consequently, underachieving and feeling less adjusted. They experienced diminished motivation, failed to use their time and resources effectively, and reported procrastinating from time to time. An illustrative comment focuses on such challenges:

> There is a lot of freedom, no one asks you to do the assignments. For me it was tough to manage my time correctly. . . . I found out that I absolutely do not know how to do it." (Focus group interview, April 23, 2016)

Another participant highlighted the issue of managing the assignments which were not assessed but were crucial to an understanding the important themes:

> The students have a lot of freedom. Professors give the assignments; not all of them are assessed; it is up to you to do those tasks or not. There were, of course, the tasks that were assessed, usually once a month or twice a month. Nobody checks the unassessed assignments, and we did not even look at them considering them unimportant. However, when it came to the exams, we had to revise everything . . . it was so hard. (Focus group interview, April 23, 2016)

Also, it was particularly difficult for them to build relationships with university professors who seemed "absolutely indifferent," "busy and unapproachable" for the students. The majority of study participants were also not satisfied with the amount of communication and support they got from the university:

> . . . the whole system of the university is underdeveloped regarding communication between the students and the university staff. Regarding communication between professors and the student, it is really hard to be heard. No one cares about you. (Individual interview, April 26, 2016)

Fear to Fail and Look Stupid in Others' Eyes

The habit of comparing themselves with other students, which was developed at their highly demanding and competitive gifted schools, was also found to negatively influence these students' university adjustment and achievement. On entrance to the university, some continued to compare themselves with others and developed "a fear of failure":

> I do not know why we have this . . . it is in our culture or something else . . . I do not know. I heard somewhere the phrase "a fear of failure." It is exactly this . . . (Individual interview, April 22, 2016)

At the two highly selective universities, the students found themselves among other high achieving peers who were also uncomfortable seeking help from faculty and group mates as it was difficult for them "to show their weakness." They referred to a "fear of looking stupid" in professors' and peers' eyes (Individual interview, April 26, 2016; Individual interview, May 6, 2016). Eleven participants reported that they did not feel comfortable asking questions in class, and therefore, they experienced loss of achievement and did not fully feel academically adjusted to the university. As one of participants commented, "I never ask questions in the lectures; I do not want to look stupid in the classmates' eyes . . . and this results in my performance . . . " (Individual interview, April 22, 2016).

Negotiating New Identities in Higher Education

Negotiating new identities significantly complicated adjustment from gifted school to university life. First, it was difficult for the study participants to start feeling that they were adults who had passed the adolescent stage. The students reported that they were simultaneously enjoying new freedoms and opportunities and struggling with new responsibilities derived from living far from their school friends and families for the first time in their lives. Second, they also experienced a change in their identities from being a secondary school student to being a higher education student, and this included taking full responsibility for their studies and learning how to make decisions in their everyday life. Third, students also experienced an identity change associated with their "gifted" label. Being identified as "gifted" in the secondary school context, the gifted school graduates felt the need to reassess their identity of being "the best and brightest students" in the university setting.

Some students were shocked by "being just a number in a big class" and by the "impersonal attitude" of university professors and staff, and reported being overwhelmed by the fact that they had failed a test or an exam for the first time; they, thus, started to question their giftedness. The students reported anxieties associated with their fear of failure and reported that they were sometimes "very depressed and unhappy" comparing their achievement with other high-achieving students. Two study participants related their underachievement and thoughts of "quitting the studies at this university." On top of that, all eight participants of the individual interviews reported experiencing emotional issues such as homesickness, loneliness, and financial issues during

their first year at the university. A comment from a student explains the situation:

> I was overwhelmed in the beginning. First, I was very excited about my studies and everything, but later, I started to miss my home, I do not know why . . . probably because of so many difficulties I faced or because of loneliness. (Individual interview, May 6, 2016)

Discussion

We examined the adjustment experiences of a sample of gifted students in two highly selective universities in Kazakhstan and the issues they face while adjusting to these settings. The students identified certain academic, social, personal, and institutional challenges that seem to affect their experiences during their first year. There exists a belief that gifted students face relatively few difficulties in the context of higher education as they possess a higher innate capacity to learn, remember, and process new information than their peers (Rinn, 2007; Rogers, 2007). However, we found that, beyond their innate abilities, the school, university, family, and social environments played a critical role in the adjustment experiences and academic achievement of these gifted students in higher education settings.

The results showed that specialized schools for gifted students have proved to be relatively effective environments in satisfying the needs of competence, relatedness, and, to a lesser extent, autonomy. This, consequently, contributed to their positive adjustment and academic success. Gifted schools contributed to developing a feeling of high academic competence and efficacy by providing students with an optimized challenging learning environment characterized by a demanding curriculum, high academic standards, and the expectation that they participate in academic Olympiads. This is consistent with previous literature in other contexts, which suggest that opportunities for intellectual growth and academic challenge (Hébert & McBee, 2007), together with a high pace of study, meaningful assignments, and effective teaching (Muratori et al., 2003; Rinn, 2007), are prerequisites for the positive adjustment and academic achievement of gifted students in educational settings.

The gifted school environment was also very helpful in promoting a sense of relatedness and "gifted" community for gifted students, which was useful in building social connections and support networks during their first year at university, as has been evidenced in other contexts (Gómez-Arízaga & Conejeros-Solar, 2013; Rinn, 2007). However, this school environment, also characterized by a highly controlling atmosphere, hindered the development of students' autonomy to adjust to a university environment characterized by larger classes, less supervision and guidance, and increased responsibility for their own learning. As a result, a certain number of gifted school graduates experienced disengagement with their studies at university and reported procrastinating, failing to develop the required independent learning skills, and experiencing underachievement (Gómez-Arízaga & Conejeros-Solar, 2013; Reis et al., 2000).

The gifted schools have also contributed to development of "other-referenced" competitive behaviors (Udvari & Schneider, 2010), which were motivated primarily by the desire to outperform other students. In our study, the students also exhibited these behaviors in higher education settings. While competition itself is beneficial for self-improvement, competition with others does not benefit the students and might be detrimental to achievement. From the SDT perspective, the desire to compete with other students has the potential to undermine students' intrinsic motivation (Deci & Ryan, 1985).

The university environment was also demonstrated to contribute positively to the adjustment of gifted students by addressing the three psychological needs in the SDT. The university environment promoted autonomous orientations and intrinsic aspirations for personal development and a desire to contribute to the development of the country. The higher education environment also continued offering students multiple academic challenges and opportunities to satisfy their efficacy and mastery needs (i.e., competence).

The majority of the students have been able to build social connections in higher education settings, generally satisfying the need to feel socially connected (relatedness), although the gifted school graduates preferred to "bubble" around other gifted students and to develop social networks exclusively with students with similarly high abilities in the university context. Creating "a bubble" was possible for a majority of students in STEM fields, but those students who were admitted to departments where fewer similar students are enrolled (e.g., Humanities and Social Sciences) failed to develop the same level of relatedness with nongifted peers and reported on their loneliness. This is consistent with previous literature that suggests that gifted students who fail to forge successful relationships and find sufficient support in their academic and social environment are likely to feel emotionally isolated (Gómez-Arízaga & Conejeros-Solar, 2013; Rinn, 2007; Southern & Jones, 1991).

It was also evident that the university climate in two selective universities was unable to support the gifted students' need for developing a sense of relatedness with teaching staff, which negatively affected their adjustment experience (e.g., Janos et al., 1989). Moreover, the university environment did not provide students with the necessary amount of support, and it failed to facilitate the greater internalization of extrinsic motivations of the students and develop these gifted students' need for autonomy. As a result, a certain number of highly able students failed to adjust fully to the new academic context.

Being admitted to highly selective universities, put students in a position where they could compare themselves with students with the same or even higher ability, which made them start to doubt their own personal capacity for

achievement (lack of competence) and experience a fear of looking stupid (not competent enough). These doubts hindered the adoption of more autonomous forms of extrinsic regulations, also leading to lower levels of student adjustment, leading to underachievement.

High parental and societal expectations emerged in this study as a powerful external motivation force that acted as a double-edged sword in the adjustment and achievement of gifted students at university. On the one hand, not to disappoint high family and social expectations, the students try to give the best of themselves, which has a positive influence on their desire to achieve highly. On the other hand, this pressure generated anxiety and stress in some students, who feared being unable to live up to the expectations placed on them, and limited their adjustment and performance in the university. The issue of high societal expectations placed on gifted students is commonplace around the world. Prior research suggests that high standards and expectations from society and surrounding people have become a norm for gifted students (Chan, 2007). As McHugh (2006) stated:

> Expectations and standards are often extremely high for gifted students. A long history of high academic success, continual, glowing feedback from teachers and parents; and pressures from school, society and family, and self can contribute to the idea that peak performance should always be a norm for gifted adolescents. (p. 184)

However, the particular role that gifted schools play in the development of society and economy in Kazakhstan seems to add additional pressures to these gifted students. These schools claim that their explicit mission is to prepare the new generation of young people who will help propel the country forward in its economic and social development (Yakavets, 2014). Thus, high social expectations are, to some extent, caused by the ambitious aspirations of the schools and high societal attention paid to gifted students. Therefore, the students feel the responsibility and external pressures to perform well. It was particularly challenging for some participants to find themselves in the context of highly selective universities where there were many high achieving students from all over Kazakhstan; these students experienced anxiety and distress for not being "the most gifted" and "the brightest" any more, and had to reassess their "gifted" identity.

Overall, the results of this study illustrate multiple gifted motivational pathways when adjusting to university and suggest that gifted students often draw on different sources of motivation to cope with the academic, social, and personal demands in higher education settings. As identified in the study, gifted students simultaneously connect their motivation to their internal will to develop their skills and knowledge, and grow personally in response to other self-determined extrinsic motives, such as making their parents and teachers proud, being socially recognized, becoming a high-qualified specialist and getting a high-paid job. Less self-determined forms of regulation were also evident in participants' voices. For some participants, the desire to meet the high expectations from other people, together with avoiding the shame of failure, protecting their self-esteem, and competing with other students served as powerful external motivators. However, these motives seemed to negatively influence their adjustment at university and generated anxiety, stress, disengagement, and underachievement.

Implications for Understanding Gifted (Under) achievement

This study offers interesting insights for the understanding of gifted (under)achievement in university settings in a context where giftedness is predominantly conceived as high intelligence and academic achievement, gifted students are identified via performance-based measures, specialized schools are the preferred means for gifted education, and young people's talents are considered invaluable for the development of the national economy and the society.

Previous research suggests that one of the key factors contributing to gifted underachievement is the unavailability of challenging learning opportunities adjusted to students' interests (e.g., Snyder & Linnenbrink-Garcia, 2013). Interestingly, this does not seem the case for the students in our sample, who reported experiencing a demanding curriculum, abundant teacher support, and encouragement to participate in academic Olympiads in their specialized gifted schools, and multiple and challenging academic opportunities in their university settings. These experiences indeed helped students develop a sense of academic competence and self-efficacy that in turn contributed to their ability to perform according to their expected capacity.

Low goal valuation refers to the failure to find meaning in a task and it has been identified as another precursor of underachievement in gifted students (McCoach & Siegle, 2003; Siegle et al., 2017; Siegle & McCoach, 2005). However, participants in our study reported valuing their academic experience through secondary and postsecondary education providing them with opportunities to develop personally, raise their aspirations, contribute to the development of the society, and build personal relationships with other fellow gifted students.

The academic achievement of gifted students is also moderated by external sources such as parents and teachers (Reis & McCoach, 2000; Siegle et al., 2017). In our study, congruent levels of gifted academic achievement were promoted by an internalized pleasure in meeting high academic and occupational expectations from parents and society, as well as conscious intentions to avoid failing such expectations. However, parental and societal pressures to perform highly during their first year at university, while beneficial for some

students, appeared to cause stress and anxiety for others. A plausible explanation is that high parental pressures to succeed academically may lead some gifted students to internalize these pressures and contribute to the development of maladaptive competence beliefs (e.g., excessive contingency for self-worth on academics, entity belief about intelligence, and normative conceptions about ability) that set the stage for underachievement (Snyder & Linnenbrink-Garcia, 2013).

The risk for gifted underachievement was also fueled by the habit of comparing themselves with other students in terms of academic performance, which developed in their specialized gifted schools, and the fear of not being able to outperform their peers in university. Believing that giftedness is dependent on outperforming others and being able to succeed on tasks that others cannot do are considered maladaptive competence beliefs that are likely to promote maladaptive coping strategies (e.g., self-handicapping), especially when academic demands increase as when transitioning from secondary to postsecondary education, leading to gifted underachievement (Snyder & Linnenbrink-Garcia, 2013).

The failure of gifted schools and higher education settings to promote a sense of autonomy to function independently in a less structured university environment was perceived by participants as another factor potentially contributing to gifted underachievement. This is not surprising considering that self-regulatory learning strategies, such as time management, are considered essential for the achievement of gifted students and are also a characteristic differentiating between gifted achievers and underachievers (Colangelo et al., 2004; McCoach & Siegle, 2003).

Similarly, we identified the failure of university environments to support gifted students' relatedness as another contributor to gifted underachievement. The lack of similarly gifted students with whom they can socialize and their inability to engage in social interactions with their university professors led to psychological disengagement with their scholarly work that threatened their ability to perform at their expected level. This is in line with previous research that suggests that gifted students might feel isolated in university and that interacting with other gifted peers and effective mentors is beneficial for these students' intellectual and psychosocial growth (Hébert & McBee, 2007), which might contribute to academic achievement.

Conclusion

Using the SDT as a lens, we have identified that the gifted school and university learning environments, as well as the influence of key people (parents, peers, teachers), play crucial roles in facilitating or impeding gifted school graduates' sense of self-determination and, consequently, their adjustment and achievement in higher education settings. Another contribution of the study is that the understanding of giftedness in the context of Kazakhstan, which is strongly associated with students' continuous success and future contributions to the development of the country's economy, as well as competition and comparison between the students, also make unique contributions to the adjustment of gifted students to university settings.

The findings from this study should be viewed with caution due to several limitations. The sample used in the study may not represent the gifted student population in other universities, as the universities chosen for conducting this study are highly selective. Future research should examine the adjustment experiences of students admitted to nonselective universities in Kazakhstan, paying particular attention to how such institutions are able to support the needs for competence, relatedness, and autonomy. Also, while the participants of the current study are the graduates of a network of special schools for gifted children, the gifted graduates of other schools might have different adjustment experiences at the university level. Moreover, the students who participated in the study were those students who willingly replied to the invitation to contribute to study. Therefore, it is possible that the students who chose not to participate differ in some ways from the volunteering students and have different experiences and perceptions of adjustment. Nevertheless, the findings of this study suggest that higher education administrators working elsewhere with gifted students must look beyond academic performance outcomes and pay close attention to motivation patterns behind these outcomes.

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