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Examining Learning Achievement among Secondary School Students.
Student and Teacher Feedback on Academic Success

Thesis Booklet

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Introduction

The progressive social changes of the present age demand the development of flexible learning abilities. Therefore, it is of particular importance that students at all levels of the educational system are aware of their strengths, weaknesses, and learning habits, as these factors can significantly contribute to their academic success. Effective learning requires the development of essential basic skills, the establishment of appropriate learning habits, and the application of concrete learning techniques and methods. These should be integrated into everyday learning processes, as poorly structured acquisition procedures have been shown to be associated with declining academic performance (Habók, 2004).

Since learning occupies a considerable portion of students' lives, academic success is generally highly valued by both students and their families. Nevertheless, not all students achieve satisfactory academic results, nor do all of them enjoy this compulsory and structured activity (Csíkszentmihályi & Larson, 1984). Parents, and often even teachers, may feel uncertain when facing cases where a child struggles with learning. For a long time, the true causes of these difficulties were neglected, as it was widely assumed that the primary role of schools was to ensure access to learning opportunities. This led to the belief that "everyone learns, because they attend school, and learning is what happens there." Dissatisfaction with school and student dropout, however, are not exceptional phenomena; they pose significant challenges for most countries, including Hungary (González-Rodríguez, Vieira & Vidal, 2019).

Supporting students' motivation and fostering enjoyment in the learning process should therefore be a priority for school leaders, teachers, and educational theorists alike (Ranson & Martin, 1996). The transition from primary to secondary school represents a particularly vulnerable stage, often marked by a decline in learning motivation and academic performance (Eccles, 2004). Comparative analyses have shown that high-achieving students are more likely to adapt to school expectations and remain committed to their studies compared to their lower-achieving or at-risk peers (Finn & Rock, 1997).

It is thus of critical importance to understand the mechanisms that can protect adolescents from dropout during these pivotal educational transitions. Early school leaving not only affects individuals' future opportunities but also has negative economic and social consequences (Degroote, Demanet & van Houtte, 2019). Successful adaptation to new educational environments facilitates participation in higher education and increases the likelihood of improved employment opportunities after obtaining a degree (Upadyaya & Salmela-Aro, 2013).

The Topic and Structure of the Dissertation

Schools play a central role in adolescent development, functioning as the primary workplace for this age group. Similar to adult work environments, schools are characterized by expectations such as tolerance for monotony, adherence to deadlines, commitment to tasks, and the emphasis on individual responsibility (Samdal et al., 2004). Just as adults encounter challenges in their workplaces, adolescents face impressions and demands at school that may induce anxiety or stress, thereby influencing their school-related well-being, typically in a negative direction. The extent to which young people are able to adapt during educational transitions has long-term positive effects both on their academic performance and their mental health.

The aim of this dissertation is to examine, in a complex manner, the factors that influence academic achievement among secondary school students. The research seeks to ensure the appropriate theoretical grounding of contemporary concepts in learning theory and,

based on this foundation, to interpret the mechanisms of the learning environment. One of the primary objectives is the development of a multidimensional empirical measurement system (test battery), which includes the Hungarian adaptation of the SPOCQ (Students' Perceptions of Classroom Questionnaire) and the TPOCQ (Teachers' Perceptions of Classroom Questionnaire). These instruments enable the parallel exploration of student and teacher perceptions, thereby contributing to a comprehensive evaluation of classroom quality. Furthermore, the study aims to explore the relationship between teacher perspectives and student outcomes in terms of classroom environment quality. This focus may serve a gap-filling role, offering a more precise understanding of the effectiveness of pedagogical practices, with particular attention to teaching strategies that support learning and their student-level evaluation.

The theoretical section of the dissertation introduces how the concept of learning has transformed in the 21st century, highlighting the paradigm shift of recent decades and examining how constructivist pedagogical principles align with the notion of self-regulated learning. In the discussion of student-directed learning, the dissertation presents its interpretive framework in a comprehensive manner, alongside a detailed account of its key characteristics. The work also addresses how school organization and classroom climate influence academic achievement. The theoretical framework further includes the exploration of students' psychological aspects, with particular emphasis on various forms of anxiety. A thorough analysis is provided of trait anxiety, test anxiety, and school-related forms of anxiety more broadly, offering an integrated picture of the factors that shape students' learning processes and academic success.

The empirical phase of the research involved the collection of quantitative data, which was analyzed using statistical methods. In the first step, descriptive statistical indicators were calculated to provide an initial insight into the distribution and characteristics of the studied variables. Following the discussion of descriptive results, the dissertation presents correlation patterns and ANOVA findings, thereby uncovering the statistical interrelationships among the key psychological variables under investigation—such as different strategies and motives of self-regulated learning, test anxiety and its subscales, trait anxiety, classroom climate, and the factors of classroom quality.

The Defining Theoretical Pillars of the Research Topic

The theoretical foundation of this dissertation is grounded in the historical and paradigm-shifting interpretations of the concept of learning, which have evolved from traditional knowledge-transmission models toward a constructivist perspective. The historical overview and the approaches of various disciplines—psychology, pedagogy, and cognitive sciences—highlight that 21st-century conceptions of learning no longer define it merely as knowledge reproduction, but rather as an active process of meaning-making and interpretation. One of the central pillars of this paradigm shift is constructivist pedagogy, which holds that learners construct their own knowledge through active experiential processes, while the learning environment and social interactions play a decisive role. The constructivist approach directly connects to the theory of self-regulated learning, which emphasizes the learner's active participation, as well as their ability to plan, monitor, and evaluate their learning. Presenting the multidisciplinary frameworks and models of self-regulated learning, along with its associated positive and negative aspects, underlines that effective learning requires the integration of not only cognitive, but also motivational and emotional factors.

Another major theoretical pillar of the dissertation is the body of motivational theories, particularly the interpretation of the relationship between learning motivation and self-regulated learning. Motivation not only determines the direction and intensity of learning but also defines students' perseverance and their ability to cope with obstacles.

Psychological challenges closely related to learning, particularly school-related and test anxiety, also represent a crucial dimension of the theoretical framework. Defining the concept of anxiety, reviewing its school-related forms, the symptoms and measurement tools of test anxiety, as well as the possible strategies for its alleviation, all contribute to a more comprehensive understanding of academic performance.

Finally, learning cannot be fully understood without considering the complex and multifaceted system of the learning environment. Examining the characteristics of school, classroom, and instructional climate, along with the instruments developed to measure them, reveals that learning outcomes are closely tied to teacher support, the quality of the classroom community, and the psychosocial factors of the learning environment.

The theoretical foundations of the dissertation thus integrate modern constructivist and self-regulated perspectives on learning, the defining role of motivation and psychological factors, as well as the complex dynamics of the learning environment—together ensuring the scientific grounding of the research.

Hypotheses and Research Questions

Hypotheses related to the student sample:

H1: Women are generally characterized by higher levels of test anxiety compared to men (Embse et al., 2018), and this finding has also been confirmed in adolescent populations (Devine et al., 2012). Accordingly, it was expected that female students participating in the research would display higher levels of test anxiety than their male peers.

H2: Correlations between state anxiety in evaluative situations and trait anxiety indicate that higher test anxiety is often associated with elevated levels of trait anxiety (Liu et al., 2025). It was hypothesized that students with higher levels of test anxiety would also score higher on measures of trait anxiety.

H3: Previous studies have demonstrated that students' anxiety levels are closely related to the learning environment, which influences social interactions and students' self-esteem. Trait anxiety, as a more stable form of anxiety, is particularly sensitive to changes in the learning environment. Research has shown that students struggling with anxiety experience increased levels of distress and reduced academic performance in negative classroom climates, such as those characterized by excessive competition or a lack of support (Fallah & Ghara, 2015; Alnuzaili & Uddin, 2020). It was therefore hypothesized that students who reported negative classroom experiences and indicated a lack of enjoyment in attending school would display higher levels of both trait and test anxiety.

H4: Academic achievement is positively related to self-regulated learning, particularly metacognitive strategies such as monitoring and planning (Dent & Koenka, 2016). It was hypothesized that within the sample, students would score highest on the strategies of monitoring and planning compared to other self-regulated learning strategies, and that these students would more frequently report average or above-average levels of academic achievement.

H5: Students with weaker academic performance are more prone to procrastination and tend to attribute poor results to external factors (Yu, 2022). We assumed that those who perceive their performance as below average would use procrastination more frequently. We further hypothesized that procrastination is not a dominant learning strategy in itself but is primarily linked to weaker elements of self-regulation—particularly deficiencies in monitoring and time management.

H6: Students displaying high levels of self-efficacy and curiosity are more likely to perceive and utilize supportive relationships in their environment (Robayo-Tamayo et al., 2020). It was hypothesized that students in the sample would primarily enjoy attending school because of social relationships and a positive classroom climate, and that, consequently, the class community scale of the classroom climate questionnaire would show significantly more positive results than the other scales.

H7: Students' perceptions of the quality of classroom work (SPOCQ) are strongly associated with their academic motivation and self-esteem (Wang & Eccles, 2013). It was hypothesized that students' results would reflect significant positive associations between their scores on the *meaningfulness* and *autonomy* subscales of the SPOCQ and their levels of test anxiety.

Research questions related to the teacher sample:

Q1: How do Hungarian secondary school students relate to techniques employed in teaching that affect the quality of classroom work (motivation, challenge, choice, meaningfulness, self-efficacy), and to what extent do these perceptions differ from motivational constructs as assessed by teachers? To what degree, and in what ways, are the defining elements of classroom work interconnected in the Hungarian student sample?

Q2: What is the relationship between teacher-related factors (teacher motivation, challenge, choice, meaningfulness, teacher self-efficacy) and students' experiences in the Hungarian educational context, particularly in light of findings that teacher factors often display strong negative correlations with student experiences?

Q3: How does the teacher's pedagogical approach—such as an overly directive style compared to an autonomy-supportive strategy—affect students' intrinsic motivation and learning experience in Hungary?

Description of the Nature and Methodology of the Research

The examination of learning effectiveness represents one of the most complex and timely fields of educational research, as the factors influencing students' performance are multifaceted and mutually interrelated. Investigating these determinants requires a complex and interdisciplinary approach, particularly in the case of secondary school students, where psychological, pedagogical, and social effects are especially pronounced.

The aim of the present exploratory study is to address these factors comprehensively, both theoretically and empirically, while taking into account the dynamics of the learning environment and the interactions between students and teachers. The empirical research focused on those educational situations and school-related factors that significantly shape students' attitudes toward learning, their self-regulated learning strategies, and their anxiety-related reactions in performance situations—especially examination contexts. The study also sought to

identify the underlying interrelations that, to varying degrees, influence students' beliefs about academic success.

At the start of the research, no measurement tool was available in Hungary that could assess school effectiveness as a complex construct, encompassing the combined effects of multiple factors. The primary aim of the research was therefore to provide a solid theoretical foundation for the description of contemporary concepts of learning, while also accounting for the progressive changes that impact students' lives. Following the development of the theoretical framework, the empirical phase focused on identifying and adapting a measurement tool with adequate reliability to assess secondary school students' and their teachers' perceptions of classroom work quality. Alongside the SPOCQ and TSPOCQ instruments, additional questionnaires with validated Hungarian adaptations and robust psychometric properties were employed.

Accordingly, learning effectiveness was examined in terms of self-regulated learning, anxiety — particularly test anxiety — as well as classroom climate and the quality of classroom work, supplemented with relevant background variables. The aim of the study was thus to fill a research gap, while its expected contribution is a reliable Hungarian-language measurement package capable of exploring learning effectiveness from both student and teacher perspectives.

From the viewpoint of capturing teacher perceptions and comparing them with student outcomes, this research may hold unique significance in the field. The studies presented in this dissertation focus on everyday school-related influences that shape student performance, thereby impacting attitudes toward learning, anxiety in high-stakes situations, and the domain of self-regulated learning. The questionnaire package assessed students' personal opinions through both closed- and open-ended questions, while teachers responded using five-point Likert-scale items. The application of a mixed-methods approach aimed to provide a more nuanced and multi-perspective analysis of the results. The instruments also included background variables that either facilitated national and international comparisons or contributed to testing specific hypotheses.

The use of a mixed-methods design (quantitative and qualitative) allowed for a comprehensive analysis of student and teacher perspectives, grounded in the realities of everyday pedagogical practice. Thus, the study not only introduces new measurement tools but also employs them to reveal everyday school factors that fundamentally shape attitudes toward learning, anxiety responses, and levels of self-regulation — thereby contributing to a deeper understanding and enhancement of educational effectiveness.

Data were recorded in Excel, and statistical analyses were conducted using SPSS 30 for Windows. Each analysis began with a test of normality, based on which parametric or non-parametric methods were applied. Group differences were assessed using independent-sample t-tests, associations between variables were examined using Spearman's rank correlation, while linear regression analyses were employed to evaluate predictive relationships.

Description of the Questionnaires Used in the Study

Empirical research exploring students' learning experiences, classroom practices, motivation, and psychological state requires the use of carefully selected and validated measurement instruments. All questionnaires applied in this study contained closed-ended questions, which participants rated on four- or five-point Likert scales. In addition, the questionnaire package included two open-ended questions, allowing for a more in-depth and nuanced understanding of students' opinions. In these, students were asked to describe in a few sentences why they enjoy or do not enjoy attending school. Responses to the open-ended items were categorized deductively and subsequently analyzed. The results were also processed in light of background variables, which included gender, age, grade level, and class specialization.

Further aspects considered were type of residence, parents' educational attainment, and students' self-assessment of their academic performance.

Test Anxiety Inventory; TAI-H (Sipos, Sipos, & Spielberger, 1988).

According to Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, and McCann (2005), the Test Anxiety Inventory (TAI) is the most widely used instrument for measuring test-related anxiety in high school and college students. Respondents indicate on a Likert scale how often they experience specific symptoms of anxiety before, during, and after test situations. The TAI employs a four-point Likert scale (1 = almost never, 4 = almost always) and consists of 20 items. The TAI not only measures individual differences in test anxiety across various exam situations, but through its subscales, it also evaluates the main components of test anxiety: worry and emotionality.

Self-Regulated Learning Questionnaire: MSLQ (D. Molnár, 2013).

The Motivated Strategies for Learning Questionnaire (MSLQ), originally developed by Pintrich et al. (1991), was adapted into Hungarian by D. Éva Molnár (2013). The instrument is based on scales assessing learning strategies. It includes eight scales with a total of 25 items, except for time management, which consists of four items; the remaining scales contain three items each. Participants rate each statement on a five-point Likert scale (1 = not at all true of me, 5 = very true of me).

Classroom Climate Questionnaire (Eder & Mayr, 2000).

To explore classroom climate—particularly class cohesion and observable peer relationships—the German-origin School and Classroom Climate Questionnaire was used. This instrument contains 24 items, each rated on a five-point Likert scale (1 = not at all true of me, 5 = very true of me). The questionnaire provides a comprehensive overview of various aspects of classroom climate and their potential impact on students' learning experiences and performance.

Student Perceptions of Classroom Quality (SPOCQ; Gentry & Owen, 2004).

The SPOCQ consists of 38 items, assessed on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). It evaluates students' perceptions of strategies that may enhance academic success and their capacity to implement these strategies during classroom work. The instrument distinguishes five subscales: perceived meaningfulness, usefulness, and manageability of the material; individual experience of challenge; opportunities for choice (including post-learning representation methods); self-efficacy and its development; and freedom of expression. These constructs are critical for learning outcomes and highlight the relevance of curricular and instructional differentiation, including efforts aimed at improving gifted students' learning experiences (Renzulli, Leppien, & Hays, 2000). The questionnaire was translated into Hungarian prior to use, and its factor structure and psychometric properties were examined.

Teacher Perceptions of Classroom Quality (T-POCQ; Seward, 2016).

Teachers' views on classroom quality, particularly as assessed through the T-POCQ, are essential for improving the learning environment and educational outcomes. Research indicates

that the quality of teacher–student interactions strongly influences learning processes. Hamre et al. (2013) emphasized the developmental significance of such interactions. Thus, teachers’ perspectives are indispensable for optimizing learning processes. The T-POCQ parallels the SPOCQ, containing 38 items that are reformulated from the student questionnaire to capture teachers’ viewpoints regarding classroom climate in their student groups. Like students, teachers rated items on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Description of the Research Sample

A total of 583 secondary school students from various schools in Csongrád-Csanád County participated in the study. The sample included 269 grammar school students and 314 vocational school students, representing grades 9 through 12. Students were analyzed by gender, grade level, and type of residence. Most lived in the county seat, with smaller proportions from towns and villages.

Family background was examined with particular focus on parents’ educational attainment, as international studies confirm its significant impact on student performance and attitudes toward learning (OECD, 2019). Most parents held a college or university degree, though vocational school qualifications were still common in grades 9–11. Lower educational levels (<10%) appeared infrequently, while “I don’t know” responses were most frequent among grade 9 students.

The teacher sample consisted of 53 educators teaching across different grade levels. Gender distribution was 58.5% male and 41.5% female. In terms of teaching experience, the majority had 11–15 years, while the proportions of novice teachers (<5 years) and very experienced teachers (>20 years) were smaller.

Summary of the Most Important Research Findings

The primary aim of the study was to explore the factors influencing high school students’ test anxiety, self-regulated learning strategies, motivation, and perceptions related to the learning environment. Seven hypotheses were examined, addressing both individual psychological characteristics and the effects of the learning environment.

The hypothesis regarding gender differences (H1) was not supported. Although girls showed higher mean scores across all anxiety dimensions, the differences did not reach the level of statistical significance.

The second hypothesis (H2) was confirmed: a strong and significant relationship was found between trait anxiety and test anxiety, mainly along cognitive components (worry, negative self-evaluation, lack of self-efficacy). Regression analyses revealed that trait anxiety is one of the strongest predictors of test anxiety, explaining a substantial proportion of the variance.

The hypothesis concerning the effects of the learning environment (H3) was also supported. The results indicated that a negative classroom climate—particularly classroom stress and rivalry—intensified test anxiety, while supportive factors such as teacher assistance and positive motivation had a mitigating effect. Among the strongest predictors in the hierarchical regression model were mastery motive, negative self-efficacy, classroom stress, and teacher support. Based on the analysis, 63% of the variance in test anxiety was explained, which can be considered an outstanding value in social science research.

The fourth hypothesis (H4) was partially supported. Students’ self-regulated learning strategies were largely reproductive in nature, with memorization being dominant, while metacognitive components—such as planning and monitoring—appeared at a lower level.

Analyses showed that monitoring reduced, whereas memorization increased, the degree of anxiety.

According to the fifth hypothesis (H5), procrastination was present across all grade levels, particularly among 9th- and 12th-grade students. Procrastination negatively correlated with monitoring and time management, reflecting a lack of self-regulation, but it did not show a strong association with academic performance.

The hypothesis concerning community factors (H6) was supported. The classroom community dimension showed significantly higher values than other factors ($F=5.24$; $p<0.001$). The results indicated that positive community experience is an exceptionally important motivational resource, especially among girls and final-year students. Classroom community was strongly associated with teacher support and learning motivation, making it one of the strongest protective factors related to school attendance.

The seventh hypothesis (H7) was only partially confirmed. The SPOCQ dimensions—meaningfulness, autonomy, challenge, and motivation—showed strong interrelations with each other and with other aspects of students' self-evaluation. However, their relationship with test anxiety was weak or nonsignificant. Self-efficacy, however, proved to be the strongest predictor, particularly among grammar school students, who scored significantly higher than students in vocational schools.

Overall, the findings indicate that test anxiety is not primarily determined by gender differences but rather by the cognitive aspects of trait anxiety and the psychosocial factors of the learning environment. Negative self-efficacy emerged as the strongest predictor, highlighting the central role of students' self-concept and sense of competence. Classroom stress and rivalry are strong anxiety-enhancing factors, while supportive teacher presence and a positive classroom community function as protective factors. The current form of student self-regulation appears to be predominantly reproductive, which may contribute to the long-term maintenance of anxiety. The study clearly emphasizes that the development of student motivation, engagement, and self-efficacy, along with a supportive classroom climate and pedagogical practice, is crucial for reducing test anxiety and promoting student achievement.

The Significance of the Dissertation, Lessons of the Research, and Directions for Continuation

The significance of this dissertation lies in its complex examination of secondary school students' learning environment, psychological challenges, motivational factors, and self-regulated learning processes. The findings contribute to a deeper understanding of learning theories, particularly the practical applicability of constructivist pedagogy and self-regulated learning. The novelty of the research is its integrated analysis of students' perceptions, dimensions of test anxiety, and characteristics of classroom climate, highlighting the key role of teacher support, autonomy, and students' self-efficacy in fostering positive learning experiences.

The lessons of the study indicate that teacher support and community building strongly contribute to maintaining student motivation and strengthening self-efficacy, whereas excessive classroom stress and punitive approaches function more as inhibiting factors. The analysis of the SPOCQ scales partly confirmed the initial hypotheses: meaningfulness and autonomy showed strong associations with motivation and student satisfaction, while their relationship with test anxiety remained weak or non-significant. This suggests that in predicting student success, psychological resources (e.g., self-efficacy) play a more decisive role than the mere reduction of anxiety.

Future research directions can be outlined along several dimensions. First, it is advisable to extend the study to other regions and school types in order to strengthen the generalizability

of the findings. Second, longitudinal studies should be conducted to explore the long-term development and interactions of self-efficacy, motivation, and test anxiety. Third, in order to reinforce the practical pedagogical implications, it would be worthwhile to examine intervention programs (e.g., initiatives aimed at enhancing teacher support or developing stress-management strategies) that may effectively foster students' academic achievement.

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