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Accuracy of learning goals and academic achievement: a panel study in an online course

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Abstract

Goal setting is widely used in online education and is considered a factor contributing to student motivation and academic performance. However, existing research often overlooks how accurately students formulate their goals and how this accuracy relates to prior learning experience. This study investigates the relationship between goal-setting accuracy and academic performance, as well as the factors associated with setting realistic or unrealistic goals. The analysis draws on panel data from an online preparatory course (N = 426), where students set grade goals before each test. The theoretical framework combines Goal-Setting Theory and Calibration Theory. Random effects panel logistic regression models were used in the analysis. Results show that students who formulate specific grade goals tend to perform better on average. Goal accuracy is positively associated with academic outcomes, while overestimated goals are linked to lower performance and underestimated goals to higher scores. The analysis also reveals that prior knowledge and active course engagement are associated with a lower likelihood of goal overestimation. The paper concludes by emphasizing the need to consider goal accuracy in instructional design and in fostering students' academic self-regulation.

Keywords: goal setting, accuracy of goals, academic performance, calibration, online education

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Точность учебных целей и академическая успешность: панельное исследование на онлайн-курсе

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Резюме

Постановка учебных целей является распространенной практикой в онлайн-обучении и рассматривается как один из факторов, способствующих учебной мотивации и успешности. Однако в существующих исследованиях нередко остаются вне внимания такие аспекты, как точность формулируемых целей и ее связь с предшествующим опытом обучающегося. В статье приводятся результаты исследования, направленного на установление характера взаимосвязи между точностью постановки обучающимися учебных целей и их академической успешностью, а также факторами, ассоциированными с формированием реалистичных или нереалистичных целей. Представлены панельные данные, собранные в рамках онлайн-курса (N = 426), где обучающимся предлагалось формулировать цели в виде ожидаемых баллов перед каждым тестом. Теоретической рамкой послужили теория постановки целей и теория калибровки, в анализе использовались панельные регрессионные модели со случайными эффектами и бинарная логистическая регрессия. Результаты показывают, что обучающиеся, формулирующие цели в балльной форме, в среднем демонстрируют более высокие тестовые результаты. Точность целей положительно связана с академической успешностью, тогда как переоценка — с ее снижением, а недооценка — с более высокими результатами. Выявлена также связь между точностью целеполагания и предшествующим опытом: более высокая учебная активность и уровень знаний по претесту ассоциированы с меньшей вероятностью переоценки. Сделаны выводы о необходимости учитывать точность целей в педагогическом дизайне и развитии учебной самостоятельности обучающихся.

Ключевые слова: целеполагание, точность целей, академическая успешность, калибровка, онлайн-обучение

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Introduction

Learners in online environments face a number of challenges that are less typical of traditional education (Broadbent, 2017; Lee et al., 2019), including decreased motivation and difficulties with self-regulation (Hew, Cheung, 2014; Wong et al., 2019). This makes it important to identify methods for supporting learning activity, with goal-setting practice emerging as one of the promising approaches (Beckman et al., 2021; Clark et al., 2020). According to Goal-Setting Theory (GST), formulating specific and sufficiently challenging goals enhances motivation, focuses effort, and promotes the adoption of effective learning strategies (Locke, Latham, 2002, 2013). The effectiveness of this practice has been confirmed by a number of studies demonstrating its positive impact on academic outcomes (Alessandri et al., 2020; Dekker et al., 2024; Morisano et al., 2010).

Goal setting as a psychological phenomenon is analyzed within different theoretical frameworks. Self-Determination Theory (Deci, Ryan, 2000), self-regulation theory (Zimmerman, 2000), and Expectancy-Value Theory (Wigfield, Eccles, 2000) emphasize the importance of motivational and cognitive factors but pay less attention to the formal characteristics of the goal itself — its specificity, difficulty, and realism. In Russian psychology, goal setting is considered a conscious and metacognitive process (Galperin, 2002; Rubinstein, 2002; Talyzina, 1998); however, these approaches do not provide operational tools for empirical analysis of goals. In this context, Goal-Setting Theory is the most applicable, as it directly links goal parameters with learners' performance outcomes.

According to GST, a goal is a conscious representation of a desired outcome that directs behavior and mobilizes effort (Locke, Latham, 2013). Specific, measurable, and sufficiently challenging goals are considered effective because they activate sustained learning motivation and goal-directed actions (Dobronyi et al., 2019; Morisano, 2013; Van Lent, Souverijn, 2020). Specific goals (e.g., "score 85 points" instead of "prepare for the exam") help learners focus on relevant actions and optimize effort (Clark et al., 2020). Optimally challenging goals stimulate overcoming difficulties, whereas goals that are too easy do not increase motivation, and excessively difficult ones induce anxiety and undermine productivity (Morisano et al., 2010). Goals may be set by the teacher, the learner, or collaboratively (Wood, Locke, 1987); however, research shows that self-set goals have the strongest effect, as they are more closely linked to intrinsic motivation and effort regulation (Bipp et al., 2015; Saks, 2024).

The theory distinguishes different types of goals: task goals, process goals, and score-based goals (Morisano, 2013; Heintalu et al., 2025). The first two types help structure behavior and foster stable learning habits (Clark et al., 2020; Li et al., 2024); however, in the context of this study, score-based goals are of greatest interest, as they are specific, easily comparable with outcomes, and well measurable. According to a meta-analysis by Richardson et al. (2012), setting such goals is one of the most reliable predictors of academic success among non-cognitive factors.

Despite the proven effectiveness of goal-setting practices, a number of interventions show that their impact varies across groups of learners. Possible reasons include differences in motivation (Van Lent, Souverijn, 2020), prior prepara-

tion (Islam et al., 2020; Islam et al., 2024), and environmental conditions (Morisano, 2013). One of the key yet insufficiently studied explanations appears to be variability in metacognitive skills, particularly the ability for accurate goal setting.

Calibration Theory (Calibration Theory; Bol, Hacker, 2012; Winne, Jamieson-Noel, 2002) explains such differences through the degree of correspondence between subjective judgments of knowledge and objective performance. Learners with high metacognitive calibration accuracy (alignment between perceived and actual knowledge levels) are aware of their strengths and weaknesses, which helps them formulate realistic goals and use effective strategies (Hadwin, Webster, 2013; Stone, 2000). Insufficient metacognitive calibration leads to inadequate preparation, poor task selection, and lower academic performance (Dunlosky, Rawson, 2012). Overconfidence or underestimation may hinder appropriate goal setting, reducing the effectiveness of goal-setting practices.

Importantly, metacognitive calibration is not a fixed personality trait but a dynamic characteristic shaped by learning experience and feedback (Hacker et al., 2008; Osterhage et al., 2019). Thus, prior performance and activity (e.g., watching lectures) may contribute to more accurate self-assessment and, consequently, improve goal-setting accuracy (Knight et al., 2022). A well-calibrated learner is able to formulate goals that match task difficulty, leading to higher performance (Hadwin, Webster, 2013).

This study integrates the principles of Goal-Setting Theory (Locke, Latham, 2013) and Metacognitive Calibration Theory (Bol, Hacker, 2012). The former emphasizes the importance of specific and attainable goals for learning success, while the latter highlights the role of accurate self-assessment as a condition for formulating such goals. Combining these approaches makes it possible to consider score-based goal setting as a behavioral indicator of learning self-regulation, and goal setting accuracy as an operationalized measure of metacognitive calibration.

The focus of this study is the relationship between goal setting accuracy, academic performance, and learners' prior learning experience. Based on the integrated theoretical framework, it is assumed that goal accuracy is associated with test performance, while its formation depends on prior achievement and learning activity. Thus, goal setting is conceptualized as a dynamic process embedded in a sequence of learning actions and feedback.

Analyzing such relationships requires a research design that accounts for changes in the behavior of the same learner over time and the influence of prior experience on subsequent decisions and outcomes. Accordingly, this study uses panel data, which makes it possible to track the dynamics of goal setting and its accuracy across tests. The aim of this study is to examine the relationship between goal setting accuracy and academic performance, as well as the factors associated with the formation of realistic or unrealistic goals. The study addresses the following research questions:

- How is the act of setting a score-based goal for a test related to the results of the current test?
- How is goal setting accuracy in score-based goals related to the results of the current test?
- How are prior test results and instances of goal setting related to goal setting accuracy in score-based goals?

The next section presents the research design and analytical strategy used to address these questions.

Materials and methods

Research design. Metacognitive calibration is understood as the degree of correspondence between subjective judgments of knowledge and actual performance (Bol, Hacker, 2012). In this study, goal setting accuracy is operationalized as the difference between the score-based goal and the actual test result. The smaller this difference, the higher the accuracy, reflecting realistic self-assessment. Large deviations, either overestimation or underestimation, are interpreted as indicators of low metacognitive calibration.

Score-based goals represent a narrow but precise metric that allows for quantitative comparison between intentions and outcomes (Bipp et al., 2015; Moeller et al., 2012). This type of goal is widely used in online courses (Clark et al., 2020; Wong et al., 2019; Wong et al., 2021) and enables a focus on the measurable aspect of goal setting.

To analyze the relationship between prior behavior and goal setting accuracy, panel data collected in five waves were used. At each stage, learners set a goal for an upcoming test, then participated in learning activities over the course of a month (webinars, assignments), after which they completed the test.

Course description. The study was conducted in a six-month online course preparing students for the Unified State Exam in literature. The course was fee-based and took place outside the formal school curriculum. It included 67 webinars (three per week) covering key exam topics.

Goal setting was implemented as follows: after completing each practice test, learners were prompted to set a target score they aimed to achieve on the next test. This prompt appeared in their personal account within the Learning Management System (LMS) as an automated notification: “What goal would you like to set for the next test?” The learner independently entered a numerical value from 0 to 100, which was stored in the system and displayed upon subsequent logins until the next test was taken. Thus, the set goal remained constantly visible and could serve as a reference point during preparation.

Goal setting was not mandatory: learners could choose not to set a goal without any penalties or reminders. Course instructors deliberately did not intervene in this process — they did not provide recommendations on setting realistic or ambitious goals and did not comment on the chosen values. The entire procedure was designed to ensure maximum learner autonomy, eliminating external pressure or adjustment to perceived instructor expectations. This approach made it possible to collect data on spontaneous, uninstructed goal setting, reflecting individual strategies and subjective self-assessment.

The goal was recorded once between two tests and could not be changed after submission. This ensured measurement stability and eliminated the effect of “retrospective adjustment”. All goals were automatically stored in the LMS database alongside test scores and other learning activities.

Sample. The study included 426 learners enrolled in the online course. The sample consisted of 92% female and 8% male participants. Learners’ ages ranged from 16 to 18 years. Upon enrollment, all participants signed a consent form allowing their LMS data to be used for analysis and publication within the study and were

included in the sample. The data were anonymized and structured in panel format with five waves of observation, corresponding to five completed tests and the preceding preparation periods.

Variables. Academic performance was measured by test score (0–100), and initial proficiency by a pretest score. Goal-setting behavior was a binary variable ("yes" / "no"). Goal setting accuracy was defined as a categorical variable with three values: "accurate" (within ±10 points of the actual score); "underestimation" (goal < result by more than 10 points); "overestimation" (goal > result by more than 10 points). This approach preserved the direction of error, which is not possible when using the absolute value of the difference. A single participant could fall into different categories across waves. Prior behavioral variables included: previous test score, goal-setting on the previous test, and the percentage of webinars watched (calculated as the proportion of viewed webinars out of those available between two tests). Descriptive statistics for the variables used in the study are presented in Table 1.

Analytical strategy. Since the study focuses on the dynamics of goal-setting practices and their relationship with prior learner behavior, the primary method of analysis is panel regression with random effects. This model was chosen because it allows for the simultaneous consideration of between-individual differences (differences across learners) and within-individual changes (changes within the same learner across observation waves). This is critically important when studying variables such as goal setting and its accuracy, which may vary for the same learner from test to test (Baltagi, 2021; Hacker et al., 2008).

Random-effects models allow for correct estimation of relationships between key variables in the presence of unobserved individual heterogeneity — stable characteristics such as self-regulation tendencies, overall motivation level, thinking style, etc., which could bias results in standard regression models. Unlike fixed-effects models, random-effects models allow for generalization to the population level and retain between-participant variation (Hsiao, 2007). The analysis was organized in three stages corresponding to the three research questions.

To address the first research question — whether the act of goal setting is asso-

Table 1

Descriptive statistics

Numerical variables	N	Mean	St. dev.	Min.	Max.
Current test score	1198	45,4	23,5	0	100
Pretest	1745	33,7	19,6	0	85
Percentage of viewed webinars	1704	45,8	41,0	0	100
Categorial variables	**N**	**Share of total observations, %**			
Goal setting: yes	1026	48			
Goal setting: no	1104	52			
Goal setting accuracy: underestimated	237	28			
Goal setting accuracy: estimated correctly	267	31			
Goal setting accuracy: overestimated	357	41			

ciated with current test performance — a linear random-effects regression model was used:

• *Current test score (0–100) ~ goal-setting (yes/no) + pretest score (0–100) + percentage of webinars viewed (0–100%)*

This model allows coefficients to be interpreted both as differences between learners who tend to set goals and those who do not, and as within-individual changes in performance when the same learner starts or stops setting goals.

The second model tests the hypothesis that goal setting accuracy is associated with performance. A linear random-effects regression was also used, with goal setting accuracy as the key predictor:

• *Current test score (0–100) ~ goal setting accuracy (accurate — reference category, overestimation, underestimation) + previous test score (0–100) + prior goal-setting (yes/no) + pretest score (0–100) + percentage of webinars viewed (0–100%)*

This specification accounts for prior performance and activity, which may be related both to goal setting and subsequent outcomes.

The third research question examines the reverse direction: whether prior experience (performance, activity, goal setting) is associated with how accurately learners formulate subsequent goals. Since the dependent variable (goal setting accuracy) is categorical with three values, two separate binary logistic random-effects models were estimated:

• *Goal setting accuracy (probability of overestimation vs. accurate) ~ previous test score (0–100) + prior goal-setting (yes/no) + percentage of webinars viewed (0–100%) + pretest score (0–100)*

• *Goal setting accuracy (probability of underestimation vs. accurate) ~ previous test score + prior goal-setting + percentage of webinars viewed (0–100%) + pretest score (0–100)*

This approach allows each type of deviation to be analyzed separately, which is important because overestimation and underestimation may have different psychological origins and consequences for learning behavior and motivation (Dunning et al., 2003; Ng, Earl, 2008). Splitting the analysis into two models enables precise interpretation of which behavioral or performance-related factors are associated with each type of goal-setting error, avoiding information loss inherent in a single multinomial model with a common baseline category. This analytical approach makes it possible not only to identify stable relationships between variables but also to clarify the direction of these relationships: from behavior to goals and from goals to outcomes. This provides a deeper understanding of the mechanisms through which goal setting may both facilitate and hinder academic success.

Thus, the analytical strategy is directly aligned with the logic of the research questions: first, the relationship between goal-setting behavior and performance is assessed; second, the role of goal setting accuracy is examined; and finally, the reverse relationship is analyzed — the influence of prior experience on the formation of goal accuracy. The next section presents the results of the sequential testing of these models.

Results

How is participation in goal-setting practice related to current test performance?

The results of the first stage of analysis showed that the act of setting a score-based goal is a significant predictor of the current

test score (Table 2). Specifically, participation in goal-setting practice was associated with an average increase of 6,55 points in test performance ($p < 0,001$). In addition, a one-point increase in the pretest score was associated with a 0,39-point increase in the current test score ($p < 0,001$). Finally, a one-percentage-point increase in the share of viewed webinars was associated with a 0,18-point increase in the current test score ($p < 0,001$). Importantly, these results hold both for comparisons between groups of learners (those who set goals vs. those who did not, on average) and for within-individual comparisons across observation waves.

How is goal setting accuracy in score-based goals related to current test performance?

The second stage of analysis showed that goal setting accuracy is a significant predictor of the current test score (Table 3). Compared to the reference group of learners who accurately assessed their expected results, those who tended to overestimate their goals scored on average 19,26 points lower ($p < 0,001$). Conversely, learners who tended to underestimate themselves scored on average 16,50 points higher than the reference group ($p < 0,001$). Learners' prior knowledge and course activity also played an important role. A one-point increase in the pretest score was associated with a 0,25-point increase in the current test score ($p < 0,001$). Similarly, a one-percentage-point increase in webinar viewing was associated with a 0,07-point increase in the test score ($p < 0,001$). Prior behavior also mattered: a one-point increase in the previous test score was associated with a 0,22-point increase in the current test score ($p < 0,001$). In addition, learners who set a score-based goal for the previous test achieved significantly higher results, scoring on average 2,82 points higher on the current test than those who did not set a goal in the previous wave ($p < 0,05$). These results are also consistent both across groups and within individuals across observation waves.

How are prior test result and goal-setting behavior related to goal setting accuracy in score-based goals?

For learners who either overestimated their goals or assessed them accurately, the previous test score was a significant predictor of goal setting accuracy, whereas prior goal-setting behavior was not (Table 4). A one-point increase in the previous

Table 2

Estimates of a linear random effects regression model of the relationship between fact of goal setting and current test scores

Dependent variable — current test score		
Variable	**Estimate**	**Standard errors**
Goal setting: yes	6,55***	(1,56)
Pretest	0,39***	(0,04)
Percentage of viewed webinars	0,18***	(0,02)
Estimate	12,43***	(2,18)
Скорректированный R^2 / Adjusted R^2	0,157	

Note: *** — *p*-value < 0,001.

Table 3

Estimates of a linear random effects regression model of the relationship between goal setting accuracy and current test scores

Dependent variable — current test score		
Variable	**Estimate**	**Standard errors**
Goal setting accuracy: overestimated	–19,26***	(1,29)
Goal setting accuracy: underestimated	16,50***	(1,38)
ПPretest	0,25***	(0,03)
Percentage of viewed webinars	0,07***	(0,02)
Previous goal setting: yes	2,82*	(1,11)
Previous test score	0,22***	(0,22)
Intercept	25,19***	(2,15)
Adjusted R^2	0,531	

Note: *** — *p*-value < 0,001; * — *p*-value < 0,05.

test score was associated with an increase of 0,018 in the log-odds of overestimating the goal (compared to accurate estimation) (p < 0,001). Prior knowledge and learning activity also played an important role. A one-point increase in the pretest score was associated with a decrease of 0,020 in the log-odds of overestimation (compared to accurate estimation) (p < 0,001), and a one-percentage-point increase in webinar viewing was associated with a decrease of 0,012 in the log-odds of overestimation (p < 0,001).

At the same time, for learners who either underestimated their goals or assessed them accurately, neither prior goal-setting behavior nor the previous test score were significant predictors of goal setting accuracy. The only statistically significant independent variable associated with goal

Table 4

Estimates of a linear random effects regression model of the relationship between prior learning behavior and goal setting accuracy

Dependent variable — goal setting accuracy		
Variable	**Model 1. Estimated accurately VS overestimated**	**Model 2. Estimated accurately VS underestimated**
Previous goal setting: yes	–0,349	–0,170
	(0,222)	(0,227)
Previous test score	0,018***	0,001
	(0,007)	(0,006)
Pretest	–0,020***	–0,002
	(0,008)	(0,007)
Percentage of viewed webinars	–0,012***	0,008*
	(0,003)	(0,004)
Intercept	1,397***	–0,564
	(0,405)	(0,442)

Note: standard errors are shown in brackets; *** — *p*-value < 0,001; * — *p*-value < 0,05.

setting accuracy was the share of viewed webinars. On average, a one-percentage-point increase in webinar viewing increased the log-odds of underestimation by 0,008 ($p < 0,05$).

The presented results confirm that goal setting accuracy plays an independent role in academic performance and is shaped by prior experience. For a deeper understanding of the observed patterns, it is necessary to consider them in the context of Goal-Setting Theory and Metacognitive Calibration Theory, as well as to compare them with findings from previous research.

Discussion

The analysis showed that learners who formulate specific score-based goals demonstrate higher performance both in current and subsequent tests. These findings are consistent with the propositions of Goal-Setting Theory, which emphasizes the importance of specific, measurable, and optimally challenging goals (Locke, Latham, 2013; Moeller et al., 2012). From the perspective of the cultural-historical and activity-based paradigm, this finding can be explained by the fact that setting a specific goal facilitates the internalization of the learning task and the formation of personal meaning in action (Galperin, 2002; Talyzina, 1998), which increases the intentionality and effectiveness of learning behavior. Thus, the goal-setting practice implemented in the course is indeed associated with academic success.

The relationship between overestimation of goals and lower performance appears logical and aligns well with calibration theory, which posits that inaccurate calibration may lead to overestimation of one's abilities and result in poorer outcomes due to the selection of inappropriate learning strategies (Alexander, 2013; Hattie, 2013; Winne, Jamieson-Noel, 2002). Our data confirm that this mechanism extends to goal-setting practices: learners who overestimate their abilities tend to set overly ambitious goals that not only fail to enhance motivation but also prove unattainable, negatively affecting their performance (Dunlosky, Rawson, 2012; Hadwin, Webster, 2013; Karaca et al., 2023; Muis et al., 2016). The observed relationship between accuracy and performance is consistent with the idea that calibration has a distinct metacognitive basis influencing strategy selection and effort allocation, rather than being reducible to "general ability" or motivation (Behrendt et al., 2024). From the perspective of the theory of step-by-step formation of mental actions, such overestimation may indicate an underdeveloped orienting basis, where the learner lacks a complete understanding of the task and the conditions for its successful completion (Galperin, 1985; Podolsky, 2017; Talyzina, 1998). In this case, the goal is not supported by an adequate internal plan, which undermines the effectiveness of action.

At the same time, the observed positive relationship between goal underestimation and higher performance raises more questions and requires a more nuanced explanation. According to classical views within calibration theory, underestimation should lead to lower academic performance (Hattie, 2013). One possible explanation is that underestimation reflects a mature metacognitive stance characterized by caution and self-monitoring. This is consistent both with international research emphasizing the compensatory nature of underestimation (Hadwin, Webster, 2013) and with Russian perspectives that view developed reflexivity as a condition for

voluntary regulation (Glazunov, Sidorov, 2017; Rubinstein, 2002). Moreover, in line with the ideas of Tikhomirov and Rubinstein, moderate underestimation may reflect a reflective control orientation, in which the individual does not rely on intuitive judgments but actively monitors both the process and the outcome of actions, thereby ensuring their reliability.

It is important to note that a common practice in the instructional design of online courses is to encourage learners to set ambitious and high goals in order to increase motivation and academic achievement (Lent, 2019; Morisano et al., 2010; Van Jaarsveld et al., 2025). However, the results of this study suggest that such an approach may not meet expectations and may even be counterproductive for some learners. The formation of an adequate goal requires engaging the learner in full-fledged learning activity, where the goal is not externally imposed but emerges as an internally appropriated motive (Leontiev, 2001; Talyzina, 1998). Therefore, simply adopting "high" goals without proper awareness of one's capabilities cannot be effective. These findings highlight the importance of developing and implementing interventions aimed at fostering accurate self-assessment and appropriate calibration of goals, as well as teaching effective goal-setting strategies.

The relationship between learners' prior behavior and goal setting accuracy was also analyzed. The model in which the dependent variable was goal setting accuracy with the categories "accurate" and "overestimation" produced results substantially different from the model comparing "accurate" and "underestimation." Specifically, the first model shows that a high score on the previous test increases the likelihood of goal overestimation, whereas course activity (measured by webinar viewing) and a high level of prior knowledge (pretest score) reduce this likelihood. At the same time, the fact of having set a goal for the previous test was not a significant predictor of overestimation. This pattern may reflect a disruption of reflective control following situational success. According to Talyzina (1998), excessive confidence combined with insufficient awareness may distort the internal model of the task and lead to inadequate goal setting.

These results suggest that past success may generate unwarranted confidence, which can lead to insufficient preparation for subsequent tests (Hattie, 2013; Ng, Earl, 2008). However, the mitigating effect of prior knowledge and course activity on goal overestimation indicates that active engagement in learning and a higher level of prior knowledge can help counteract the tendency to overestimate goals. This suggests that even learners with high academic performance benefit from actively monitoring their learning process and adjusting their expectations based on concrete evidence (Dinsmore, Parkinson, 2013).

In contrast, the model estimating the probability of goal underestimation compared to accurate goal setting did not reveal significant relationships with prior learner behavior or pretest performance. The only significant predictor of underestimation was the proportion of webinars viewed, which may indicate that active engagement in the learning process contributes to a more conservative and possibly more cautious assessment of one's abilities.

This result for the underestimation model can be explained within calibration theory as follows: underestimation of one's abilities is not necessarily related to the ob-

jective level of knowledge or prior success but may reflect a self-regulation strategy aimed at reducing anxiety and maintaining motivation by setting more attainable goals (Muis et al., 2016). Active participation in learning activities, such as watching webinars, may contribute to the development of a more realistic and possibly more critical self-assessment, leading to lower but more pragmatic goal setting (Hacker et al., 2008). Thus, underestimation may function as an adaptive mechanism that allows learners to maintain motivation and avoid disappointment, even if it is not directly linked to objective indicators of their prior academic performance.

Conclusions

The present study established relationships between goal setting accuracy, learners' prior experience, and their academic performance. The findings confirmed that goal setting accuracy is a significant predictor of academic achievement: overestimation of one's abilities and the setting of excessively ambitious goals are associated with a substantial decrease in test performance. At the same time, learners' prior experience influenced the likelihood of goal overestimation but was not a significant factor associated with the tendency to underestimate goals. These findings are relevant both for researchers in the field of goal-setting theory and practice, highlighting the importance of accurate calibration of one's abilities in the goal-setting process, and for educators and designers of educational interventions aimed at improving the effectiveness of learning.

Limitations. It's important to acknowledge the limitations of this study. Firstly, the research was conducted within the context of a single literature course. While the subject-matter specifics are not expected to significantly impact the goal-setting process within the context of this study, this fact limits the generalizability of the results, and their interpretation should be undertaken with a degree of caution.

Secondly, the sample predominantly consists of female students. This is due to the fact that girls more frequently choose to take the Unified State Exam (EGE) in Literature and, consequently, more often attend preparation courses for this exam (Zamyatnina, 2017). Given the evidence suggesting potential gender differences in goal-setting processes, the obtained results may reflect the specific characteristics of the female student group (Brandts et al., 2021). This imposes limitations on the possibility of generalizing them to a broader context. In light of this, verifying the identified relationships on a more gender-balanced sample represents a promising avenue for future research.

Finally, the study did not consider important psychological factors such as student motivation and self-efficacy, which are traditionally associated with the goal-setting process and can influence its dynamics (Saks, 2024). The decision to forgo the use of survey methods and observations to measure these constructs was a conscious choice, aimed at expanding the sample size and ensuring a robust panel design. That said, the panel regression with random effects accounts for the heterogeneity of unobserved variables, allowing us to omit motivation and self-efficacy in this analysis (Baltagi, 2021). Nevertheless, including these factors in future research could enhance the completeness of our understanding of goal-setting processes.

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Бойцов М.С. — идеи исследования; разработка дизайна исследования; сбор и анализ данных; написание и оформление рукописи.

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Conflict of interest

The authors declare no conflict of interest.

Конфликт интересов

Авторы заявляют об отсутствии конфликта интересов.

Ethics statement

This research is based solely on the analysis of users' digital footprints, i.e., non-reactive information collected automatically. No personal data was collected in the course of the study, and all analyzed information was fully anonymized. In accordance with the internal regulations of HSE University, research that relies exclusively on non-reactive, anonymized data does not require mandatory ethical review.

Декларация об этике

Данное исследование основано исключительно на анализе цифровых следов пользователей, то есть нереактивной информации, собранной в автоматическом режиме. В рамках работы не осуществлялся сбор каких-либо персональных данных, и вся анализируемая информация была полностью анонимизирована. В соответствии с внутренними нормативными документами НИУ ВШЭ исследования, работающие исключительно с нереактивными, анонимизированными данными, не требуют обязательной этической оценки.

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