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INTEREST, INCOME, AND THE WAY WE ASK: A MIXED-METHODS STUDY OF CAREER DECISION-MAKING AMONG SENIOR HIGH SCHOOL STUDENTS IN ALMATY, KAZAKHSTAN

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Abstract: *While in Kazakhstan students must choose an area of study before leaving school, the process is little researched. This study sampled 188 tenth and eleventh-grade students from Almaty and interviewed two focus groups, one from a public school (n = 13) and one from a private school (n = 9), in order to see how students consider the factors of family, income, interest, and peer influence. The focus groups were split into segments where they would discuss the issues freely or would be prompted to speak, and those strands would be brought together through a joint display. The survey showed that interest (M = 3.67) and income (M = 3.49) surpassed the middle of the scale and did not differ from each other significantly while family (M = 2.55) and peers (M = 2.08) were below it. Eleventh-grade students gave interest lower scores than tenth-grade students (d = 0.45), and boys reported stronger peer influence than girls (|d| = 0.42). The focus groups confirmed that students saw their choice as independent while their parents usually left it to the students. At the same time, income rarely arose spontaneously. Out of 25 income segments found, 2 came up voluntarily and distinctly. Students experienced indecision because of an abundance of options in one case and inability to express their decisions in the other case. Despite that, students agreed with income when prompted about it without much hesitation. Therefore, research based on rating scales or ranks could exaggerate the role of monetary factors in youths' choices.*

IndexTerms *- career decision-making; secondary school students; social cognitive career theory; mixed methods; focus groups; Kazakhstan*

I. INTRODUCTION

Unlike many other international education systems, in Kazakhstan, students need to specify the area of their future academic study before entering higher education, and in a stricter and more formal way. University admission is determined by Unified National Testing (UNT) examination, which consists of two profile subjects, related to a certain group of degree programs, with state grant distribution (National Testing Center, n.d.). Therefore, students need to make their choice of academic direction long before finishing high school.

However, such choices often appear to be unstable ones. According to a national survey conducted among 1,000 Grade 9 and 11 students, 84.5% changed their career preferences during the last three years, mostly because of the changes in labor market and recommendations from family and friends, while only 3% used the advice of school career counselors (Shnarbekova, 2025). Moreover, qualitative research shows that young people in Kazakhstan are unprepared for such choices (Bidanov, 2017), and that mainstream public schools rarely offer structured career counseling (Rysbergen, 2017).

General international literature describes a usual set of determinants of career choices of young people, such as personal interests, skills, income expectation and social networks (Akosah-Twumasi et al., 2018). However, most studies use one-method design and do not consider the impact of the instrument design on students' answers. As question wording creates systematic bias for self-reports (Schwarz, 1999), and the same time focus group data is produced through the interaction between moderator and participants, the Likert scale item about salary and moderator's question about acceptance of lower payment level introduces financial motivation into discussion. In case students accept the salary primarily after being asked, the apparent importance of such factor may be the result of methodology, but not independent thinking.

In order to overcome this limitation, we used convergent mixed-method design. First, we conducted a survey and measured the influence of four major factors on the career choices of senior high school students from Almaty. Then, two focus groups studied

the underlying rationale of these choices, tracking how each factor appeared in discussion as an organic part of students' choice or was introduced by the moderator. The following research questions were explored:

RQ1. How do senior high school students rate the relative influence of family, income, personal interest and peers on their career decisions?

RQ2. Do these ratings differ by grade level, sex and career decidedness?

RQ3. How do students in a public-school and a private-school focus group describe these influences, and how do the two groups differ?

RQ4. How far do the two strands agree, and does the salience of each factor depend on whether it is volunteered or prompted?

II. LITERATURE REVIEW

2.1 Theoretical Framework

According to the Social Cognitive Career Theory (SCCT), career choices develop through an aggregate effect of personal dispositions and environment (Lent et al., 1994). Individual interests and outcomes form goals to pursue, while environmental supports and barriers - in terms of family assets and social and economic situation - determine the possibility of realizing these interests (Lent et al., 2000). In the current research, the four variables are associated with SCCT elements, namely, interests and income are connected to interests and outcome expectations, while family and peers belong to contextual factors. According to the Circumscription and Compromise theory by Gottfredson (1981), the developmental approach to career choice means that people give up on their favorite options and opt for more realistic ones when time comes to make a choice. Given that choosing the UNT profile determines a future specialization in Grade 11 in Kazakhstan, the theory indicates that students facing a choice will pay more attention to practical issues.

2.2 Interest, Income, Family and Peers

Personal preferences and expected incomes turn out to be the main predictors of the career choices of adolescents in different cultures. In their systematic review of the existing literature, Akosah-Twumasi et al. (2018) showed that both these variables always affect decision-making among adolescents. Motivation research offers two relevant lenses: expectancy-value theory, in which choices reflect both the intrinsic value of an activity and its utility value, including future pay (Eccles & Wigfield, 2002), and self-determination research, which distinguishes intrinsic from extrinsic goals (Kasser & Ryan, 1996; Ryan & Deci, 2000). The problem is especially pronounced in Kazakhstan as shown by the results of national surveys on priorities of the country's teenagers to seek both security and professional satisfaction (Shnarbekova, 2025). However, the way in which young people in Kazakhstan resolve the conflict in their motivations is unclear.

Family influence varies in form. Parents may direct choices, support exploration while granting autonomy, or stay uninvolved (Keller & Whiston, 2008; Whiston & Keller, 2004), and these behaviours have different links with adolescents' career exploration (Dietrich & Kracke, 2009). In situations where there are fast changes in the labour market, it is possible that the parents feel inadequate in giving guidance specific to the situation (Shnarbekova, 2025). Peers are seen as less influential than the family or even personal factors (Kniveton, 2004); however, whether peers shape choices in less visible ways, for example as sources of information, remains an open question.

2.3 Career Indecision

Career decision-making problems include lack of readiness, lack of information, and inconsistency of information (Gati et al., 1996). Too many alternatives can make the decision-making process more complex; the greater number of alternatives can reduce motivation to make a choice and satisfaction from making it (Iyengar & Lepper, 2000; Schwartz, 2004). By extension, students whose families can fund a wider range of study options may face fewer constraints but more alternatives to choose between, a possibility this study explores.

2.4 How Questions Shape Reported Reasons

Self-reported measures are very sensitive to questionnaire construction and social settings. The fact is shown by Schwarz (1999) and Tourangeau et al. (2000) that context effects, including question phrasing, scale, and ordering of questions can generate systematic biases in the respondents' answers. In addition, according to Krumpal (2013), social desirability effect is exacerbated in cases where respondents are not totally anonymous or under observation while answering. Focus groups involve the interaction not only with the facilitator but with other subjects as well, thus allowing for the development of group norms in the process of communication (Kitzinger, 1994; Smithson, 2000). In career research, it therefore remains unclear whether the reasons students report are motives they would raise themselves or motives they accept once a factor is named for them.

Based on SCCT, we expected interest and income to be rated above family and peers. Following Gottfredson (1981), we expected Grade 11 students to give less weight to interest and more to income than Grade 10 students. These were theory-informed expectations for an exploratory study rather than preregistered hypotheses.

III. METHOD

3.1 Design

The study adopted a convergent mixed methods approach where data from the survey and focus group sessions were gathered concurrently, separately analyzed, and then integrated (Creswell & Plano Clark, 2018; Fetters et al., 2013). Each element used the four factors in a similar way hence providing a common basis for the integration process (see Figure 1). This was a student-led study: student-researchers from the two participating schools developed the focus group protocol and collected the data under the supervision of the senior author, who conducted the statistical and qualitative analysis.

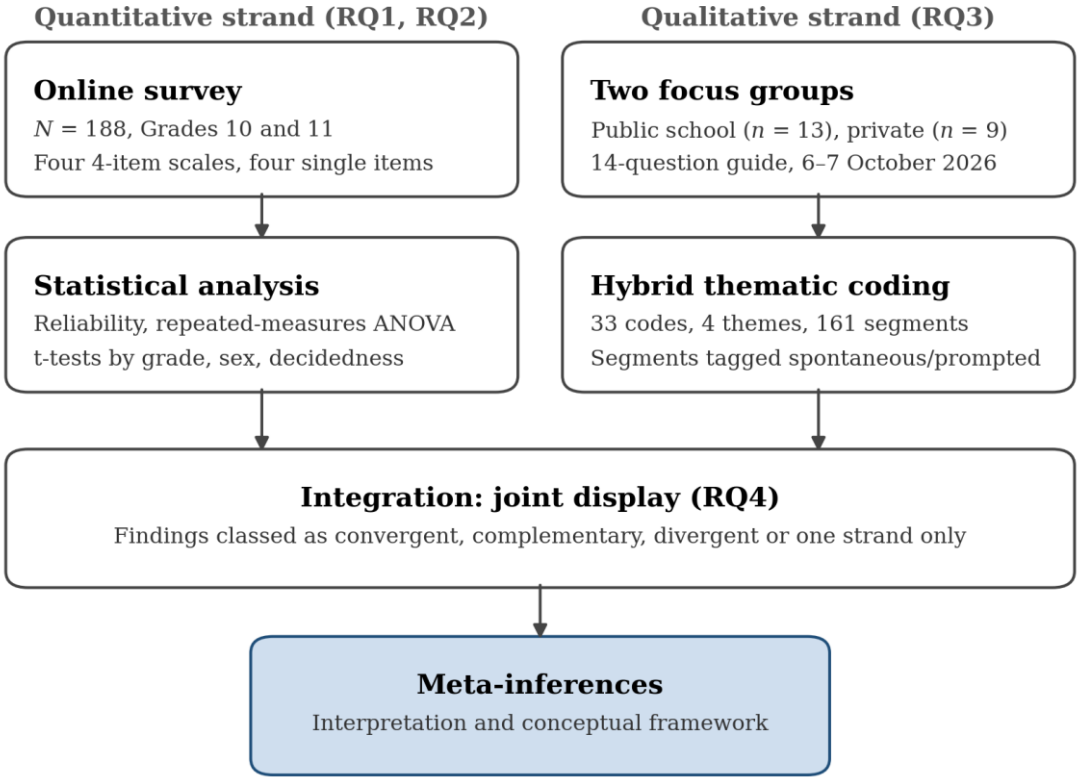

Fig. 1: Convergent mixed-methods design

Note. RQ = research question.

Summary. The survey and focus groups were collected and analysed independently and brought together only at the interpretation stage, so that each strand could test the other.

3.2 Survey

Participants and procedure. The survey link was shared through class group chats of students in grades 10 and 11 from different schools of Almaty, and it is a convenience sampling method that allowed wide dissemination but prevented the calculation of the response rate. The survey was opened from 15 September to 5 October 2026 and included students of School No. 38 and Tamos Education International, as well as several other schools of Almaty that were not identified individually. The answers were collected using a web form, and Google Apps Script was used to move every submission into Google Sheets and store it there as the raw data file. Among 205 responses, 17 were deleted: nine respondents did not fall within the eligible age range of 14-18 years, six responses repeated another response, and two answers were the result of testing of the form during its creation and were marked by a specific pattern of 1-2-3-4-5 answers. This resulted in 188 students (Table 1). Six of those retained submitted identical answers to all 16 questions; they were retained because excluding them changed none of the findings, and the grade and sex effects remained. The form did not collect school affiliation, and thus all quantitative analyses were conducted on the aggregated sample.

Table 1: Survey participants by grade level (N = 188)

Variable	Category	Total *n* (%)	Grade 10 *n* (%)	Grade 11 *n* (%)	χ^2 (*df*)	*p*	*V*
Sex	Female	112 (59.6)	42 (75.0)	70 (53.0)	7.88 (1)	.005	.20
	Male	76 (40.4)	14 (25.0)	62 (47.0)			
Career decided	Yes	118 (62.8)	27 (48.2)	91 (68.9)	7.78 (2)	.020	.20
	No	21 (11.2)	10 (17.9)	11 (8.3)			
	Undecided	49 (26.1)	19 (33.9)	30 (22.7)			

Note. Column percentages. Grade 10 n = 56; Grade 11 n = 132. χ^2 tests of independence with grade level; V = Cramér's V. All expected cell counts exceeded 5.

Summary. The sample consisted of more females than males. In comparison to Grade 10 students, Grade 11 students had a slightly higher likelihood to be males and to be more career-decided; however, both associations were of minor magnitude.

Instrument. A questionnaire was created and included four four-item subscales measuring family influence (Q1–Q4), income potential (Q5–Q8), personal interest (Q9–Q12), and peer influence (Q13–Q16). Four single items measured a global factor (Q17–Q20) that exerted the strongest influence. All the items were based on the five-point Likert scale (1 = strongly disagree, 5 = strongly agree), with accompanying demographic questions regarding sex, grade level, and career decidedness. The survey was delivered in Russian (n = 137) and English (n = 51). The items were composed in English and translated into Russian using an AI language model (Claude, Anthropic), followed by an expert review of the translation versus the source text.

Analysis. The reliability was assessed using Cronbach's alpha for each language version. Groups of languages were compared in demographics and construct means. The construct means were subjected to the analysis of variance (repeated measures) (with Greenhouse-Geisser correction), one-sample t-test versus the scale midpoint (3.00), and Bonferroni-corrected paired t-test between adjacent ranks (α = .017). Differences between subgroups based on grade level, sex, and career decidedness were assessed using independent samples t-tests with Welch correction in case of the violation of the assumption of equal variances due to the result of Levene's test (Bonferroni-corrected α = .0125 per grouping variable). Due to the correlation between grade level and sex, a multiple

regression with both variables was performed to assess whether grade-level difference in personal interest could be explained by differences in sex composition. 95% confidence intervals (CIs) for mean differences and effect sizes were provided. The sensitivity analysis revealed the power to detect effects of d ⩾ 0.50 with 80% probability at the corrected alpha level, which means a possible non-detection of smaller effects. Primary analyses were performed in Microsoft Excel for Microsoft 365 (2026 release), while effect-size CIs and sensitivity analyses were calculated in Python (SciPy).

3.3 Focus Groups

Participants and setting. Students participated in two focus groups conducted on 6 and 7 October 2026 (Table 2): one in a public school (S1-PUB; School No. 38) and one in a private school (S2-PRI; Tamos Education International). Group S1-PUB involved 13 students of the final year (Grade 11), while group S2-PRI involved nine students of Grade 10 and Grade 11, who were gender-mixed. Anonymity of the participants was guaranteed by letters in the S1-PUB group and by numbers in the S2-PRI group. The physical and social settings were quite different: S1-PUB was conducted in the large hall with an audience of teachers and peers with the use of a microphone, while S2-PRI was conducted privately in the classroom with only the research team. Since the type of school was confounded with such settings and moderator probing, the cross-group comparisons should be interpreted as group-level patterns but not as effects of the institutional type.

Table 2: Focus group sessions

Characteristic	S1-PUB	S2-PRI
School	School No. 38 (38th Gymnasium), public	Tamos Education International, private
Date, duration	6 Oct 2026, about 45 min	7 Oct 2026, about 50 min
Venue and seating	Main hall, audience-style	Classroom, U-shaped
Participants	13, Grade 11 (9 spoke)	9, Grades 10–11 (all spoke)
Others present	7 attendees, 3 teachers, technician	Moderator, 2 assistants
Participant turns / coded segments	84 / 82	49 / 79

Summary. The two sessions differed in more than school type: the public-school group met in a large hall before an audience, the private-school group in a small classroom, and only 9 of the 13 public-school students spoke.

Procedure. As directed by the principal researcher, student researchers created an interview protocol containing 14 semi-structured questions. Interview protocol included questions related to the subject areas such as career goals, family, salary (whether participants would agree to have a low salary job), interests, friendships, and finally what was the most significant factor that influenced the subjects. Interviews were carried out in English and participants had the choice to opt for Russian language anytime; the answers in Russian were then translated into English. Interviews were audio recorded and transcribed, with the help of the field note taker (Krueger & Casey, 2015). Each transcribed answer was then confirmed against the audio recordings.

Analysis. Hybrid thematic analysis was used, combining deductive coding for the four pre-set factors and inductive coding based on the data (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006). The final codebook contained 33 codes grouped into four themes with the participant turn being the unit of analysis. Each coded turn was additionally categorized as either spontaneous (mentioned by the student) or prompted (mentioned first by the moderator). The initial coding was done on the first 10 turns and verified by the senior author before coding the whole dataset. An AI language model (Claude, Anthropic) aided the coding process under the close supervision of the senior author according to the codebook and cross-verified against raw transcripts all quotations extracted. To ensure the trustworthiness, an extensive audit trail was kept showing all multi-coded segments, alternative codes that were not accepted, and the resolution of 39 low-confidence turns as well as eight unclear turns that needed independent verification (Lincoln & Guba, 1985; Appendix Table A2). Reliability was checked by having a second researcher – a PhD candidate of Almaty Management University – independently coding a random sample of 20% of the transcripts within four main themes. Initial inter-coder agreement was substantial providing the pooled Cohen's κ of .78 (Landis & Koch, 1977). All discrepancies were reconciled to form the final dataset. As the reliability was assessed at the level of thematic framework rather than the level of 33 codes, the metrics only validate the former. Therefore, frequencies of codes are provided only for the sake of description.

3.4 Integration and Ethics

Both quantitative and qualitative strands were integrated using a joint display (Guetterman et al., 2015) with findings categorized as convergent, complementary, divergent, or unique to each individual strand (O'Cathain et al., 2010). Since school affiliation is not collected in the survey, any comparison between schools is made based on focus group data alone.

Approval was received both verbally and in written form from the administration of School No. 38 and Tamos Education International in September 2026. Written or digital informed consent was received from a parent or legal guardian, along with students' assent from those under 18 years old, while those 18-years old gave their informed consent directly. Participation was completely voluntary, and all data were de-identified and stored according to the Law of the Republic of Kazakhstan on Personal Data and Their Protection (No. 94-V, 2013).

IV. RESULTS

4.1 Survey Findings

Measurement quality. The reliability coefficients were acceptable to good (α = .74–.84) for all four measures, and there was no need to delete any items in order to improve reliability (Table 3). Skewness and kurtosis coefficients did not exceed ±1. The reliability was acceptable for the Russian language sample (α = .75-.87); in the smaller English subsample, alpha fell below .70 for family (.68) and, more markedly, for interest (.64), so English-version results for interest should be read with caution. There was no difference between the two groups in terms of grade, sex, or construct means (all $p \geq .12$; all $|d| \leq 0.26$), which provided additional justification for pooling of the data. The deletion of the 17 responses did not change any construct means by more than 0.04 and did not change their ordering (Appendix Table A1).

Table 3: Reliability and distribution of the construct scales (N = 188)

Construct	Items	α	α Russian	α English	Item–total *r*	Skew	Kurtosis
Family	Q1–Q4	.74	.75	.68	.45–.65	0.32	0.03
Income	Q5–Q8	.82	.83	.78	.61–.66	−0.00	−0.62
Interest	Q9–Q12	.79	.82	.64	.58–.65	−0.34	−0.23
Peers	Q13–Q16	.84	.87	.76	.63–.76	0.86	0.24

Note. Russian n = 137; English n = 51. Item–total r = range of corrected item–total correlations.

Summary. All four scales were reliable in the full sample and in the Russian version; two scales were slightly below .70 in the small English subsample.

Relative influence of the four factors (RQ1). Students' ratings formed two clear tiers (Table 4). Personal interest and income were both rated well above the neutral midpoint, with medium-to-large effects, whereas family and peer influence were rated below it. The four means differed substantially, $F(2.79, 522.17) = 149.70$, $p < .001$, partial $\eta^2 = .44$. The results of the pairwise comparison showed that there is a large difference between the higher and lower levels (income versus family: $d_z = 0.84$, 95% CI [0.67, 1.01]), and the smaller difference was found on the lower level (family versus friends: $d_z = 0.48$). However, when examining the higher level, no significant difference was found between the two variables of interest and income (mean difference: 0.18; 95% CI [−0.01, 0.38], $d_z = 0.14$, $p = .061$). The single overall items reproduced the same order. Most students agreed that interest had the strongest influence on their choice (63.8%), about half said the same of income (50.5%), and few named family (18.1%) or friends (8.5%). Each single item correlated strongly with its scale (r = .55–.69), supporting the convergent validity of the scales.

Table 4: Construct means compared with the midpoint and with adjacent ranks (N = 188)

Comparison	*M* (*SD*)	95% CI of *M*	*t*(187)	*p*	*d* [95% CI]
Panel A: versus midpoint (3.00)					
Interest	3.67 (0.87)	[3.55, 3.80]	10.57	< .001	0.77 [0.61, 0.93]
Income	3.49 (0.92)	[3.36, 3.62]	7.28	< .001	0.53 [0.38, 0.68]
Family	2.55 (0.86)	[2.42, 2.67]	−7.28	< .001	−0.53 [−0.68, −0.38]
Peers	2.08 (0.97)	[1.94, 2.22]	−13.04	< .001	−0.95 [−1.12, −0.78]
Panel B: adjacent ranks (M_{diff}, SD_{diff}, d_z)					
Interest − Income	0.18 (1.34)	[−0.01, 0.38]	1.88	.061	0.14 [−0.01, 0.28]
Income − Family	0.95 (1.13)	[0.78, 1.11]	11.52	< .001	0.84 [0.67, 1.01]
Family − Peers	0.47 (0.98)	[0.33, 0.61]	6.55	< .001	0.48 [0.33, 0.63]

Note. Scale: 1–5. Panel A contains results from one-sample t-tests where d = (M − 3)/SD. Panel B contains results from paired t-tests where dz = Mdiff/SDdiff with Bonferroni adjusted α = .017. A corrected repeated-measures ANOVA (ε = .93) yielded a significant main effect on the factors of interest, $F(2.79, 522.17) = 149.70$, $p < .001$, partial η2 = .44.

Summary. It can be concluded that personal interest and financial gains turned out to be the predominant factors which could not be distinguished from each other while family and peer influences were less pronounced and even lower than the midpoint of the scale with peers having the lowest average rating among all four factors.

Grade, sex, and decidedness (RQ2) differences. The most significant differences within subgroups appeared to be grade differences. Specifically, Grade 10 students reported a significantly higher level of personal interest compared to Grade 11 students; the obtained difference represented a moderate effect (d = 0.45, 95% CI [0.14, 0.77]; see Table 5) and was found significant after Bonferroni correction. In a regression controlling for sex, the grade effect held at p < .05 (b = −0.33, p = .018). While the difference in income potential was reported in favor of Grade 11 students, it was still very small (d = −0.27, 95% CI [−0.58, 0.04]) which can serve as an indication of the erosion of intrinsic interests and no shift to extrinsic financial reasons. With respect to sex, boys had a significantly higher level of peer influence (d = −0.42, 95% CI [−0.71, −0.13]) while girls rated personal interest higher (d = 0.36, 95% CI [0.07, 0.66], p = .015), but this difference did not survive Bonferroni correction. No significant differences were found between decided and undecided students on any of the factors. Since these differences are insignificant ($|d| \leq 0.29$) and even smaller than the minimal detectable effect size of the study ($d \approx 0.50$–0.54), they are considered inconclusive.

Table 5: Construct means by grade, sex and career decidedness

Construct	Group 1 *M* (*SD*)	Group 2 *M* (*SD*)	*t*	*p*	*d* [95% CI]
Panel A: Grade 10 (n = 56) vs. Grade 11 (n = 132)					
Interest	3.95 (0.75)	3.56 (0.90)	2.83	.005†	0.45 [0.14, 0.77]
Income	3.32 (0.83)	3.56 (0.95)	−1.69	.093	−0.27 [−0.58, 0.04]
Family	2.58 (0.72)	2.53 (0.91)	0.41	.681	0.07 [−0.25, 0.38]
Peers	2.02 (0.92)	2.10 (0.99)	−0.54	.587	−0.09 [−0.40, 0.23]
Panel B: Female (n = 112) vs. male (n = 76)					
Interest	3.80 (0.85)	3.49 (0.88)	2.45	.015	0.36 [0.07, 0.66]
Income	3.53 (0.97)	3.44 (0.86)	0.65	.517	0.10 [−0.19, 0.39]
Family	2.48 (0.90)	2.64 (0.79)	−1.31	.190	−0.20 [−0.49, 0.10]
Peers	1.92 (0.94)	2.32 (0.98)	−2.83	.005†	−0.42 [−0.71, −0.13]
Panel C: Decided (n = 118) vs. not decided (n = 70)					
Interest	3.73 (0.91)	3.58 (0.81)	1.11	.268	0.17 [−0.13, 0.46]
Income	3.39 (0.91)	3.66 (0.93)	−1.92	.057	−0.29 [−0.59, 0.01]
Family	2.48 (0.86)	2.66 (0.85)	−1.43	.155	−0.22 [−0.51, 0.08]
Peers	1.99 (0.99)	2.22 (0.92)	−1.58	.117	−0.24 [−0.53, 0.06]

Note. *df* = 186. Student's *t*-tests were performed; Levene's tests did not show significance for all comparisons. ^{†} Indicates significance at Bonferroni-corrected alpha of .0125. Confidence intervals for Cohen's d are approximations. Not decided includes No (*n* = 21) and Still undecided (*n* = 49).

Summary. There were two strong subgroup differences: Grade 10 respondents found their personal interests more influential than Grade 11 respondents, and boys felt that peers had more influence on their decisions than girls. Career decidedness showed no statistically significant differences. All in all, from the survey results, one can conclude that the dominant self-guided career development model is based on personal interests and expected income; the role of family and peers is secondary; intrinsic interest declines with approaching graduation.

4.2 Focus Group Findings

The number of coded segments was 161 (82 in S1-PUB, 79 in S2-PRI; see Table 6). While the total amount of codable talk in groups was about the same, the students'-initiated communication was different: 37% of the coded segments in S1-PUB were spontaneous, while only 23% in S2-PRI. Four thematic categories are described below, along with their segment frequency and, if applicable, number of participants contributing to those segments.

Table 6: Coded segments by focus group, with spontaneous/prompted split

Code	Name	S1-PUB *n* (S/P)	S2-PRI *n* (S/P)
Theme 1: Primary career drivers			
PCD-1	Income and financial return	11 (4/7)	14 (2/12)
PCD-2	Intrinsic interest and passion	13 (8/5)	10 (2/8)
PCD-3	Comfort and personal space	0	4 (1/3)
PCD-4	Self-assessed ability and opportunity	1 (1/0)	3 (2/1)
PCD-5	Affordability of study	2 (0/2)	0
PCD-6	Lifestyle and geographic fit	2 (1/1)	2 (0/2)
PCD-7	Prosocial purpose	2 (1/1)	0
PCD-8	Income–interest tension	6 (3/3)	4 (0/4)
PCD-9	Unarticulated choice	5 (2/3)	0
PCD-10	Indecision and choice overload	1 (0/1)	9 (6/3)
Theme 2: Social and environmental influences			
SEI-1	Family business continuation	0	3 (1/2)
SEI-2	Parental role-modelling	2 (1/1)	3 (0/3)
SEI-3	Parental autonomy-granting	4 (0/4)	2 (0/2)
SEI-4	Family deliberation and disagreement	7 (1/6)	3 (0/3)
SEI-5	Peers as sounding board	4 (1/3)	0
SEI-6	Peer boundary-setting	2 (0/2)	0
SEI-7	Institutional guidance	1 (1/0)	0
SEI-8	Materialist socio-economic climate	0	2 (0/2)
Theme 3: Future external disruptors			
FED-1	AI as professional enabler	1 (0/1)	1 (0/1)
FED-2	AI scepticism	0	1 (0/1)
FED-3	AI as career-guidance tool	2 (2/0)	0
FED-4	Technology as career destination	0	2 (1/1)
FED-5	Labour-market competition	1 (1/0)	0
Theme 4: Methodological and interactive dynamics			
MID-2	Forced-choice and ranking framing	2 (0/2)	6 (0/6)
MID-6	Echo agreement	1 (0/1)	2 (0/2)
MID-7	Opinion shift under pressure	6 (1/5)	2 (0/2)
MID-8	Reticence and audience effects	2 (0/2)	2 (0/1)[a]
MID-9	Language switching	4 (2/1)[a]	4 (3/1)

Note. Counts refer to code-turn occurrences (turn × code) rather than unique participants. S/P stands for spontaneous versus prompted codes. Five codes regarding moderator behavior (MID-1, MID-3, MID-4, MID-5, and MID-10) were not included, since counts were relevant to participant turns only. \({}^{a}\) Observer notes lacking prompt codes.

Summary. Personal interest and potential earnings proved to be the strongest motivations among all students; however, interest was the only one of them consistently brought up by students themselves, while indecision related to career issues gathered among private school students and peer influence happened only during the public school session (6 segments).

Theme 1: Interest is volunteered, income is endorsed. While interest and income turned out to be the most popular codes among both groups, they entered into discourse in different ways. In S1-PUB, personal interest was the single most frequent code (13 segments among 7 participants); most of them were volunteered (8 of 13). Students saw interest as the primary reason to engage in the chosen occupation throughout their whole life: "I think personal interest comes first … you'll work for your whole life in this occupation, so you have to be prepared" (Subject Y, S1-PUB). Meanwhile, in S2-PRI income was the most popular code (14 segments among 6 participants); yet, only 2 of those 14 mentions were voluntary. Interestingly, the most obvious endorsement of money-first strategy repeated almost literally the moderator's question about salary being important in future career: "I think my future salary is the most important aspect of my future job, and money really matters" (Subject 2, S2-PRI). A common rhetoric trick, used ten times in both sessions, provided an answer to this contradiction: if a person follows his/her personal interests, he/she will earn a lot of money: "if you take your personal interest in this sort of occupation, then you can find or even create yourself a company which would pay you good money" (Subject P, S1-PUB).

Since the moderator raised financial aspects through probes, the sensitivity check was done to the income-code count (see Figure 2). Leaving out segments that were coded as income solely on the grounds that students considered money in relation to personal interest reduced the total number of income segments from 25 to 15. Keeping only volunteer mentions left just two segments from the single participant who chose architecture as his/her profession due to "artistic creativity … and easy money" (Subject 5, S2-PRI).

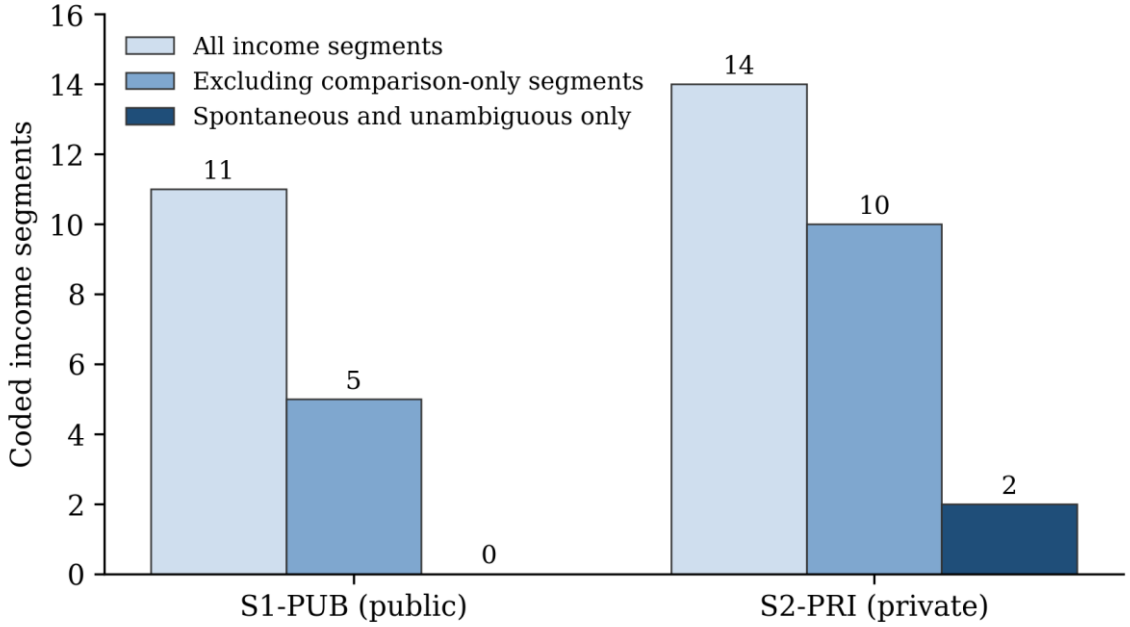

Fig. 2: Income segments under three counting conventions

Note. Middle bars exclude those segments coded as income solely based on income-interest comparison. The darkest bars keep only those spontaneous segments that are not marked as low confidence.

Summary. The apparent significance of expected income is highly sensitive to coding conventions: the most stringent criteria reduced 25 income segments to 2.

Theme 1 (continuation): Two types of not knowing. The manifestation of career uncertainty differed in two sessions. In S2-PRI, two undecided participants contributed nine segments on their uncertainty (6 spontaneous): "I have too many options of what I can do, and I can't choose" (Subject 3). On the contrary, the final-year students in S1-PUB gave virtually no examples of explicit indecision (1 segment). In turn, there were two participants who had already chosen the field, yet they could not give the reasons for their choice (5 segments): "I don't know why, it's just, I just can't explain" (Subject G, translation from Russian). The secondary motivators also differed by session: comfort and autonomy came up only in S2-PRI, whereas affordability of education and prosocial goals only in S1-PUB.

Theme 2: Independence at home, boundaries with friends. Participants viewed parents mostly as sources of independence (6 segments) and as discussion partners (10 segments), but not as dictators. Parental influence came mostly through example, especially through entrepreneurial fathers: "My dad... has his own company... I'd like to be like him as I grow up" (Subject F, S1-PUB). Though family business succession came up only in S2-PRI, it turned out to be less significant than it seemed: one student really wanted to enter the parent's firm, but another one agreed only after the moderator said that "every one of you" wants to do so, despite announcing the intention to study architecture. The peer influence came up only in S1-PUB, and here participants made the clear-cut distinction between the career discussion and the decision making. Friends played the role of a sounding board ("with friends you can talk freely," Subject M), but they did not participate in making decisions ("friends should not take part in the choice of my future career," Subject H). Two students in S2-PRI treated the money as something much broader, a necessity of society rather than a personal ambition: "At the moment, in our world, money is something like a church" (Subject 7).

Theme 3: Technology as the tool, destination, and the source of risks. Even though artificial intelligence (AI) did not appear in the interview guide, participants mentioned it independently in both sessions (4 segments per session). Students viewed it at the same time as a tool to align the career, as the potential major, and as an untrustworthy adviser: "I don't know whether you'd trust the AI with that task because it makes mistakes" (Subject 5, S2-PRI). Though it was a minor theme quantitatively, it emerged from the initiative of participants.

Theme 4: Variability depending on prompts and social situation. The prompts asking to rank the items three times more often occurred in S2-PRI than in S1-PUB (6 versus 2 segments) and visibly shifted the priorities of participants; in one case of three-item ranking, a participant moved down the concern about personal comfort mentioned before. The opinion changes due to social or moderator pressure took place in S1-PUB (6 segments in total from 3 participants). Two Grade 11 students who initially prioritized interest changed their opinions in favor of income after the moderator presented the scenario with the lower pay and the binary prompt. Another student moderated her initial prioritization of income after the argument from a peer. Public situation influenced also the participation level: two S1-PUB participants refused to speak, and the switch to Russian language indicated the lack of involvement in S1-PUB, whereas it helped to enrich the discussion in S2-PRI.

4.3 Integrated Findings

Table 7 compares survey agreement levels with the mention frequencies in focus groups in regard to all four factors. Interest comes first in both measures. Though the other three factors were mostly introduced by the moderator, they showed different cross-strand patterns: family and peer influences got little support both in the survey and in the focus groups, whereas the expected income got almost equal support with interest. Thus, income shows the largest difference between the quantitative endorsement and spontaneous mentions—a gap that represents the key meta-inference of this study.

Table 7: Survey endorsement and focus group volunteering by factor

Factor	Survey *M* [95% CI]	Single item % agree	Focus group segments	% volunteered
Interest	3.67 [3.55, 3.80]	63.8	23	43 (10 of 23)
Income	3.49 [3.36, 3.62]	50.5	25	24 (6 of 25)
Family	2.55 [2.42, 2.67]	18.1	24	13 (3 of 24)
Peers	2.08 [1.94, 2.22]	8.5	6	17 (1 of 6)

Note. Family segments integrate codes SEI-1 to SEI-4; peer segments integrate SEI-5 and SEI-6. Volunteered indicates spontaneous mentions.

Summary. Personal interest affected endorsement and spontaneous mention both in quantitative and qualitative research. Expected income received almost as high quantitative endorsement as personal interest, but had significantly lower frequency of being spontaneously mentioned, leading to the largest difference between endorsement and volunteering of the four studied factors.

Table 8 integrates the findings of mixed-method research. The two approaches coincided on general hierarchy of motivators and supportive but not directive behavior of the parents and differed dramatically concerning expected income. Data obtained during focus groups helped to explain three survey results: low evaluation of peer motivation, weakening of personal interest in Grade 11 and absence of relationship between decisiveness about one's career and factors' rating. Furthermore, family business succession and artificial intelligence were mentioned only during focus groups, while the sex difference regarding peer motivation occurred only in the survey. Figure 3 combines all the dynamics in one conceptual model.

Table 8: Joint display of survey and focus group findings

Issue	Survey	Focus groups	Fit	Meta-inference
Hierarchy	Interest and income above midpoint; family and peers below	Interest and income most coded; peers in one group only	Convergent	Choice is experienced as largely self-directed
Interest vs. income	No significant difference (d_z = 0.14)	Interest volunteered in 43% of segments, income in 24%; 2 income segments under strictest count	Divergent	Income is endorsed when offered but rarely volunteered
Family	Below midpoint	Parents grant autonomy, discuss, model careers	Convergent	Influence is supportive rather than directive
Peers	Lowest rated	Friends consulted but excluded from the decision	Complementary	Low ratings reflect a boundary, not absence
Grade	Grade 11 lower on interest (d = 0.45)	Grade 11 students moved toward income under a lower-pay probe	Complementary	Interest yields to practical pressure near the decision
Decidedness	No reliable differences in factor ratings	Choice overload; choices without stated reasons	Complementary	Indecision lies in the process, not in what students value
Sex	Boys higher on peer influence	Sex not linked to speakers	Survey only	Needs qualitative follow-up
Family business, AI	Not measured	Raised without prompting	Focus groups only	Future instruments should include them

Note. Fit categories follow O'Cathain et al. (2010).

Summary. Of eight integration points, two converge, one diverges, three are complementary and two appear in one strand only; the divergence concerns income.

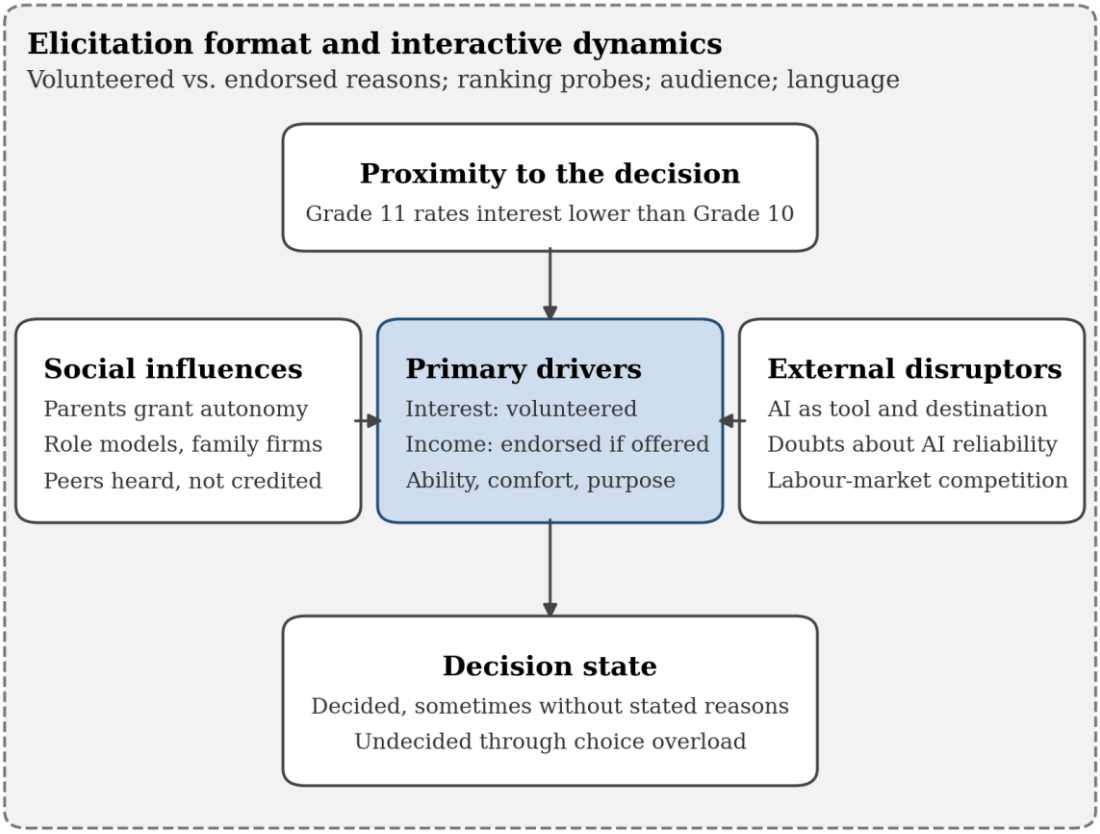

Fig. 3: Integrated framework of influences on career decisions

Note. The arrows indicate suggested links based on the findings integration rather than empirically established causal relationships. The dashed rectangle marks the impact of the elicitation technique on the identification of influences mentioned by students at both levels.

Summary. Personal interest and anticipated income play central roles in the students' career decisions, moderated by social influences, technology, and proximity to graduation, with elicitation methods affecting the prioritization at each level.

V. DISCUSSION

The participants perceived their career decisions as being largely self-directed, driven by personal interest and anticipated income, with family and peers playing more background roles. This finding conforms to the SCCT focus on interests and outcome expectations (Lent et al., 1994) as well as previous Kazakhstani research emphasizing intrinsic and extrinsic motives (Shnarbekova, 2025). Furthermore, the percentage of decided students in our sample (62.8%) is quite close to the national percentage (59.7%) found in Shnarbekova's sample.

Low quantitative values of family influence ratings do not mean parental detachment but rather imply their discussion of options, modeling of the entrepreneurial behavior and occasional invitation to participate in business activities of the family, leaving the final choice to their children—an approach to parenting during career exploration typical for autonomy-supportive parenting style (Dietrich & Kracke, 2009; Keller & Whiston, 2008). In one case, it even turned out that career discussions had been postponed while the family focused on transition of the student's older brother/sister to the university—thus showing how autonomy can occur naturally. Peer influence displayed a similar discrepancy between survey ratings and actual practices, since students openly used friends as their sounding boards while claiming that the latter did not affect their final career decisions. The low survey ratings of peer influence seem to reflect such normative boundary rather than absence of social discussion. Such norm may also explain higher peer influence in boys compared to girls ($|d| = 0.42$). From the SCCT perspective, peers may be viewed as a crucial source of career-related learning for boys (Lent et al., 2000)—an influence that is readily admitted by the students on an anonymous survey but denied in public due to presence of mixed-sex peers and teachers (Krumpal, 2013). Since we could not link the focus-group transcripts to the sex of speakers, it is needed to verify this hypothesis using single-sex focus groups in the future research.

The decline in intrinsic interest among Grade 11 students conforms to Gottfredson's (1981) career compromise theory, implying that as the decisions become imminent, the number of compromises increases—especially in Kazakhstan, where Grade 11 students must choose the subjects of their UNT profiles.

The focus-group conversations suggest a possible mechanism at work in the Grade 11 all-public school sample: students who chose passion as their first criterion moved towards financial stability after being faced with a binary choice where the second option had lower pay. Intrinsic interest did not fade away; it became negotiable. Longitudinal studies will be needed to find out whether this cross-sectional pattern is a genuine compromise.

Career decidedness had no relation to factor ratings, so the focus groups point to differences in the decision process instead. Uncertainty of career decidedness among private school students was associated with multiple options, which is the manifestation of classic choice overload (Iyengar & Lepper, 2000; Schwartz, 2004). On the other hand, some public school students had made a choice of a field but lacked reasons for doing this—behavior that was described by Gati et al. (1996) as low career decision-making readiness hidden under the guise of superficial commitment. In conventional survey items, such students would be considered as "decided", a discrepancy explaining high percentage of major-switching among Kazakhstani young people (Shnarbekova, 2025).

The major theoretical and methodological contribution of the study consists in expected income. Even though the students rated income almost equally with interest in the survey, they volunteered it in only about a quarter of the related focus-group segments (6 of 25). Family and peers were also rarely volunteered, but both also received low survey ratings; only income combined strong survey endorsement with infrequent spontaneous mention. There may be two explanations for this finding. First, the students may really prioritize income but consider the unprompted discussion of finances as socially undesirable (Krumpal, 2013), thus the moderator's prompts uncover latent priorities. Second, direct questions may inflate the significance of the income via framing effects (Schwarz, 1999). Binary prompts and the prompt to generalize that resulted in endorsing family business as a career choice demonstrate that reactivity did operate. As a result, conventional rating scales and ranking tasks may overestimate the importance of financial motives.

Finally, qualitative analysis uncovered emerging influences missing from the survey, such as family businesses and artificial intelligence (AI). The ambiguous way in which students perceived the latter—as both the means of career matching, major, and unreliable consultant—fits into the existing literature on disruption of the labor market and career guidance by technological development (Hirschi, 2018; OECD, 2020).

5.1 Implications

In particular, the results of this study highlight an important difference between volunteering and endorsing reasons in career studies. Qualitative research should use open-ended questions before listing particular motives and leave forced ranking of motivations till after the student has stated his/her perspective on the matter. It will also be necessary to trace if each motivation stems from the student or from the moderator. In surveys, it will also be possible to separate spontaneous priorities from prompted endorsement by asking open-ended questions before structured rating.

These results imply four recommendations for educational institutions: (1) help students articulate consistent reasons for their choice, (2) provide frameworks for choice exploration for those facing choice overload, (3) encourage early family career conversations before Unified National Testing (UNT) subject choice and (4) allow young people to critically evaluate artificial intelligence (AI)-powered advice tools. This is especially true in light of the finding that only 3% of Kazakhstani students who participated in a national survey credited school career services with shaping their preferences (Shnarbekova, 2025).

5.2 Limitations

There were several limitations to this study. First, the cross-sectional survey was based on a convenience sample recruited in group chats in one city without school identification and thus had no response rate and could be prone to self-selection. Only statistical power sufficient to detect medium effects for subgroups was achieved. The scales used in the survey had demonstrated internal consistency but will require further validation and test for factor structure and cross-linguistic measurement invariance in Russian and English versions. Moreover, single time-point self-report measures were prone to common-method bias (Podsakoff et al., 2003). Second, the qualitative part consisted of two focus groups where the type of the school was confounded with both setting and moderator's style of prompting. Russian utterances were coded in English translation; coding was done using AI; inter-coder agreement was checked only on a thematic level (20% of data was coded) rather than on all 33 codes separately. Besides that, moderator's utterances were not counted, grade level was homogeneous only among public school students and turns were not matched to sex of the speakers. Future research should include longitudinal design tracking the same students in 10th and 11th grades, standardize focus group environment in different schools and experiment with survey framing varying income prompting.

VI. Conclusion

This study explored how senior high school students in Almaty value four important career motives and how the priorities expressed by them depend on the format of elicitation. There were three main conclusions drawn from this study. First, career decisions are seen by the students as largely self-driven: personal interest and expected income are predominant, parental guidance is autonomy-supporting, peers are sounding board and do not participate in making final decision. Second, the importance of personal interest is conditional; it fades in 11th grade in connection with UNT subjects choice that necessitates commitment to the institution, and it is negotiable when students are confronted with concrete trade-offs including lower income. Third, and this is especially important, the importance of expected income is methodologically unique – it is endorsed almost as frequently as personal interest when measured on a scale but hardly ever volunteered without prompting.

Theoretically, these findings add to SCCT framework in showing that even such an objective measure as outcome expectations might be influenced by instrument framing rather than independent student reasoning. Methodologically, tracing the source of each motivation in conversation is a simple and highly productive technique for mixed-method research. Practically, career counseling in Kazakhstan will have to start long before UNT subjects' choice helping students to articulate reasons for their choice, not just rank their options, dealing with two types of uncertainty – choice overload and unwarranted commitment.

Declarations

Ethics. The study was approved by the administrative leadership of School No. 38 and Tamos Education International. Parental consent and student assent procedures are described in Section 3.4.

Use of generative AI. Claude (Anthropic) was used to translate the questionnaire into Russian, to assist qualitative coding (Section 3.3) and to edit the manuscript's language. All outputs were checked by the authors, who take full responsibility for the content.

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Conflicts of interest. The authors declare no conflicts of interest.

Data availability. De-identified data and the codebook are available from the corresponding author on reasonable request.

Author contributions (CRediT). Zhanel Kuanysh (first author): investigation, project administration (coordination of both focus groups), validation (checking transcripts against audio recordings and speaker attribution). **Zhamilya Abdyker**: investigation (survey recruitment). **Ilya Dorofeyev**: investigation (survey recruitment), software (online survey form and data capture), data curation (raw survey data). **Dameli Adilbay**: investigation (survey recruitment), project administration (co-organisation of the Tamos Education International focus group). **Esmira Sadykova**: investigation (survey recruitment). **Innocent Jeff Osiobugie Osigwe-Sal (senior author)**: conceptualisation, data curation, formal analysis, supervision, writing (original draft, review and editing).

All authors spent a substantial period reviewing the manuscript, contributed revisions based on their observations during data collection and the analysis of the results, and agreed on the final version before submission.

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APPENDIX

Table A1: Construct means in the full and cleaned survey samples

Construct	Full sample (N = 205) M (SD)	Cleaned sample (N = 188) M (SD)	Difference
Interest	3.68 (0.86)	3.67 (0.87)	−0.01
Income	3.45 (0.92)	3.49 (0.92)	+0.04
Family	2.58 (0.84)	2.55 (0.86)	−0.04
Peers	2.09 (0.95)	2.08 (0.97)	−0.01

Note. Excluded cases (n = 17) reported higher family influence than retained cases (M = 3.01 vs. 2.55), Welch's t = 3.27, p = .003.

Summary. Data cleaning did not affect the findings: no mean changed by more than 0.04 points and the rank order was unchanged.

Table A2: Coding quality indicators

Indicator	S1-PUB	S2-PRI
Calibration turns	10	—
Turns with no code	29	6
Multi-coded turns	16	22
Alternative codes rejected or queued	16	11
Low-confidence turns	29	10
of which translated from Russian	15	3
transcript markers ([unclear] etc.)	4	2
truncated	4	0
ambiguous meaning	6	5
Flagged for independent review (resolved with second coder)	4	4

Note. Every quotation was verified against the transcript.

Summary. Most low-confidence turns in the public-school group involved translated Russian speech; all such turns were flagged, handled by explicit rules and recorded in the audit trail.