

Career Self-Determination among University Students in Moscow: A Mixed-Methods Study of Locus of Control, Professional Identity, and Career-Choice Configurations

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ABSTRACT

Career self-determination in higher education involves students' perceived agency and the development of a professional identity; however, the relationship between these dimensions remains unclear in Russian university contexts. This study examined the association between locus of control and professional identity and explored how both constructs were expressed in students' accounts of their career choices. A partially explanatory sequential mixed-methods design was used. Stage 1 comprised 141 students from five Moscow higher education institutions who completed locus of control and professional identity measures. Stage 2 comprised a separately recruited sample of 64 Physical Education students who completed the same measures and participated in semi-structured narrative interviews. In Stage 1, internality was positively associated with the continuous professional identity score, $r(139) = .42$, $p < .001$, and identity coefficient, $r(137) = .38$, $p < .001$. Thematic analysis of the Stage 2 interviews identified four provisional career-choice configurations: Called (48.4%), Pragmatist (20.3%), Seeker (15.6%), and Random/Externally guided (15.6%). Participant-level integration showed that the Called configuration combined the highest mean internality with narratives of agency and commitment. The Random/externally guided configuration showed the lowest mean internality and the greatest emphasis on circumstances. The intermediate configurations indicate that external influence and uncertainty can coexist with reflection and personal engagement. The findings show that perceived control and professional identity are related but distinct dimensions of career self-determination. These configurations may help educators and career advisers develop differentiated, reflective, and context-sensitive career support systems.

Keywords: *career self-determination, locus of control, professional identity, career-choice configurations, mixed methods, university students.*

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INTRODUCTION

The transition from education to employment remains uncertain for many young people.¹ The International Labour Organization reported that 20.4% of those aged 15–24 were not in employment, education, or training in 2024.² The PISA 2022 data similarly indicate that approximately two in five 15-year-olds across OECD countries have no clear career plans.³ These patterns should not be interpreted as evidence that educational institutions primarily produce career uncertainty. However, they highlight the potential role of higher education in helping students develop the reflective, informational, and decision-making resources required to navigate education-to-work transitions.⁴

Within Russian psychological and educational research, professional self-determination is generally conceptualised as an ongoing developmental process rather than a single occupational decision.⁵ A recent bibliometric review of Russian scholarship identified the psychological, educational, and social dimensions of professional self-determination and indicated continuing interest in students' readiness to make and revise professional choices across educational stages.⁶ Higher education is an important setting for this process because students must relate their professional intentions to their academic experiences, practical opportunities, anticipated employment, and developing sense of professional self.⁷ In this study, conscious career choice is used as an interpretive umbrella construct referring to the extent to which career decisions are accompanied by reflective awareness, perceived agency, and professional commitment. It is examined through locus of control, professional identity, and students' narrative accounts of their career choice.

¹ International Labour Organization, *World Employment and Social Outlook: Trends 2025*, 1st ed. (ILO, 2025), <https://doi.org/10.54394/IZLN1673>; OECD, *Teenage Career Uncertainty: Why It Matters and How to Reduce It?*, OECD Education Spotlights no. 16, vol. 16, OECD Education Spotlights (2024), <https://doi.org/10.1787/e89c3da9-en>; Petar Stanimirović et al., "School-to-Work Transition: The Role of Life Satisfaction, Risk Perception, and Resilience in Youth Career Decision-Making," *PloS One* 20, no. 12 (2025): e0339485, <https://doi.org/10.1371/journal.pone.0339485>; Haydn Morgan et al., "Sport-Based Interventions as Non-Formal Education: Enabling the Education to Employment Transition for Young People," *Social Sciences* 14, no. 5 (2025): 278, <https://doi.org/10.3390/socsci14050278>.

² International Labour Organization, *World Employment and Social Outlook*.

³ OECD, *Teenage Career Uncertainty*, vol. 16.

⁴ Brooke Harris-Reeves et al., "From Uncertainty to Clarity: A Career Plan Task Empowering First-Year University Students," *Journal of Teaching and Learning for Graduate Employability* 16, no. 1 (2025): 127–44, <https://doi.org/10.21153/jtlge2025vol16no1art2131>; Michael Tomlinson and Denise Jackson, "Professional Identity Formation in Contemporary Higher Education Students," *Studies in Higher Education* 46, no. 4 (2021): 885–900, <https://doi.org/10.1080/03075079.2019.1659763>.

⁵ S. V. Chebrovskaya, "Professional Self-Determination as a Phenomenon: Psychological Content, Structure, Development Conditions," *Современные Наукоемкие Технологии (Modern High Technologies)*, no. 9 (2022): 224–28, <https://doi.org/10.17513/snt.39337>; Ksenia Sukonnova and Nadezhda Kapustina, "Professional Self-Determination in the Context of Continuing Education," *Russian Journal of Resources, Conservation and Recycling* 10, no. s2 (2023), <https://doi.org/10.15862/12FAOR223>; A. I. Selezneva et al., "Personal Professional Self-Determination: Bibliometric Analysis of Russian Research," *Psychological Science and Education* 30, no. 5 (2025): 142–55, <https://doi.org/10.17759/pse.2025300509>.

⁶ Selezneva et al., "Personal Professional Self-Determination."

⁷ M. V. Klementyeva and V. A. Rodonich, "Profession & Career & Vocation: A View Through the Prism of Identity Development Among Students," *Humanities and Social Sciences. Bulletin of the Financial University* 15, no. 2 (2025): 16–23, <https://doi.org/10.26794/2226-7867-2025-15-2-16-23>; E. N. Korchagin and A. V. Lobanova, "Professional Identity of Students of the Psychological and Pedagogical Direction of Education," *Journal of Modern Foreign Psychology* 14, no. 1 (2025): 45–56, <https://doi.org/10.17759/jmfp.2025140105>.

One construct relevant to this process is the locus of control. Rotter conceptualised locus of control as a generalised expectancy concerning whether outcomes are perceived as contingent primarily on one's own behaviour or on external circumstances.⁸ Internal control beliefs have been associated with several work-related outcomes, although such associations do not establish a causal relationship.⁹ For example, Judge and Bono's meta-analysis reported positive relationships between internal locus of control and both job satisfaction and job performance.¹⁰ More recently, a meta-analysis of 71 samples identified the locus of control as a strong personality correlate of career exploration.¹¹ Within Russian psychology, the Level of Subjective Control questionnaire developed by Bazhin et al. remains an important primary operationalisation of internality and externality across life domains, including work.¹² Contemporary Russian research continues to examine the locus of control in student populations, including its relationship with coping and adaptation patterns.¹³

Professional identity is the second relevant construct. In Russian psychology, Shneider conceptualised professional identity as a developing system of self-perceptions in relation to professional roles and activities.¹⁴ From a broader developmental perspective, Marcia's identity-status model differentiates between achieved identity, moratorium, foreclosure, and diffusion according to exploration and commitment.¹⁵ Recent Russian scholarship likewise treats professional identity as a dynamic phenomenon associated with education, academic motivation, practical participation and reflection.¹⁶ Research on Russian university students further links professional identity formation with career planning and the perceived meaningfulness of professional life.¹⁷ International evidence similarly positions professional identity as developing through interactions between higher education, anticipated employment, social relationships, and students' cultural and institutional resources.¹⁸

The theoretical framework of this study integrates three complementary perspectives. Rotter's social learning theory provides a basis for examining perceived personal control in

⁸ Julian B. Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement.," *Psychological Monographs: General and Applied* 80, no. 1 (1966): 1–28, <https://doi.org/10.1037/h0092976>.

⁹ Timothy A. Judge and Joyce E. Bono, "Relationship of Core Self-Evaluations Traits—Self-Esteem, Generalized Self-Efficacy, Locus of Control, and Emotional Stability—with Job Satisfaction and Job Performance: A Meta-Analysis.," *Journal of Applied Psychology* 86, no. 1 (2001): 80–92, <https://doi.org/10.1037/0021-9010.86.1.80>.

¹⁰ Judge and Bono, "Relationship of Core Self-Evaluations Traits—Self-Esteem, Generalized Self-Efficacy, Locus of Control, and Emotional Stability—with Job Satisfaction and Job Performance."

¹¹ Samuel D. Lee et al., "Personality Predictors of Career Exploration: A Meta-analysis," *The Career Development Quarterly* 71, no. 1 (2023): 41–55, <https://doi.org/10.1002/cdq.12315>.

¹² E. F. Bazhin et al., "Metod issledovaniya urovnya sub'ektivnogo kontrolya [Method for studying the level of subjective control],," *Psikhologicheskii Zhurnal* 5, no. 3 (1984): 152–62.

¹³ Alena V. Kibalnik et al., "Specifics of Coping Strategies of Students with Different Kinds of Locus of Control," *Russian Journal of Education and Psychology* 15, no. 4 (2024): 400–416, <https://doi.org/10.12731/2658-4034-2024-15-4-609>.

¹⁴ Shneyder L. B., "ПРОФЕССИОНАЛЬНАЯ ИДЕНТИЧНОСТЬ [Professional Identity]" (Monograph, Moscow Open Social University, 2021), <https://psychlib.ru/inc/absid.php?absid=15490>.

¹⁵ James E. Marcia, "Development and Validation of Ego-Identity Status.," *Journal of Personality and Social Psychology* 3, no. 5 (1966): 551–58, <https://doi.org/10.1037/h0023281>.

¹⁶ Korchagin and Lobanova, "Professional Identity of Students of the Psychological and Pedagogical Direction of Education."

¹⁷ Klementyeva and Rodonich, "Profession & Career & Vocation."

¹⁸ Camilla Sanna et al., "Investigating Patterns of Identification and Commitment in Students' Professional Becoming," *Journal of Further and Higher Education* 50, no. 7 (2026): 1159–76, <https://doi.org/10.1080/0309877X.2026.2655411>; Tomlinson and Jackson, "Professional Identity Formation in Contemporary Higher Education Students."

career-related decisions;¹⁹ Marcia's identity-status paradigm foregrounds exploration and commitment;²⁰ and Super's life-span,²¹ life-space approach situates vocational development within broader life roles and developmental circumstances. These perspectives do not imply that the locus of control determines professional identity. Rather, they support the more limited proposition that perceived agency and professional identity may represent related dimensions of how students interpret and organise their career choices. Super's formulation is particularly relevant because it locates occupational choice within changing educational, social, and personal contexts rather than treating it as an isolated decision, a contextual view that is also reflected in contemporary systems-oriented career research.²²

The relationship between locus of control and professional identity remains plausible but insufficiently established. Locus of control has been associated with career exploration, which may provide opportunities for students to consider alternatives and clarify their preferences.²³ More direct evidence is mixed: professional identity was associated with membership in different career locus-of-control profiles among undergraduate students,²⁴ whereas another study found no significant relationship between locus of control and professional identity.²⁵ Research on professional identity emphasises reflection, practical engagement, social interaction, and institutional experience.²⁶ Russian evidence also suggests that a more established professional identity may be associated with a reflective evaluation of career possibilities and greater meaningfulness attributed to professional life.²⁷ Taken together, these findings suggest a possible relationship between perceived control and identity formation, but do not support a simple or universal causal account. External influence may represent a constraint in some circumstances, while in others, it may reflect social support, guidance, or mentoring that can contribute to professional identity development.²⁸

This qualification is particularly important in the Russian context. Professional self-determination may be shaped by labour market conditions, perceived occupational attractiveness, family resources, and other social factors.²⁹ Russian scholarship has also drawn

¹⁹ Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement."

²⁰ Marcia, "Development and Validation of Ego-Identity Status."

²¹ Donald E. Super, "A Life-Span, Life-Space Approach to Career Development," *Journal of Vocational Behavior* 16, no. 3 (1980): 282–98, [https://doi.org/10.1016/0001-8791\(80\)90056-1](https://doi.org/10.1016/0001-8791(80)90056-1).

²² Mary McMahon and Peyman Abkhezr, "Career Adaptability and Career Resilience: A Systems Perspective," *International Journal for Educational and Vocational Guidance*, ahead of print, April 30, 2025, <https://doi.org/10.1007/s10775-025-09739-1>.

²³ Lee et al., "Personality Predictors of Career Exploration."

²⁴ Jianhui Wang et al., "Latent Profiles of Career Locus of Control and Associated Factors among Undergraduate Nursing Students in China: A Cross-Sectional Study," *BMC Nursing* 25, no. 1 (2026): 469, <https://doi.org/10.1186/s12912-026-04748-z>.

²⁵ Edina Kozmannová and Katarína Baňasová, "Vzťah Lokalizácie Kontroly a Pracovnej Identity u Vysokoškolských Študentov," *Pomáhajúce Profesie* 7, no. 2 (2024): 60–69, <https://doi.org/10.17846/PP.2024.7.2.60-69>.

²⁶ Korchagin and Lobanova, "Professional Identity of Students of the Psychological and Pedagogical Direction of Education"; Tomlinson and Jackson, "Professional Identity Formation in Contemporary Higher Education Students."

²⁷ Klementyeva and Rodonich, "Profession & Career & Vocation."

²⁸ Guangqiang Wang et al., "How Does Social Support Promote Professional Identity among University Students? A Moderated Mediation Model of Self-Esteem and Self-Efficacy," *Humanities and Social Sciences Communications* 12, no. 1 (2025): 872, <https://doi.org/10.1057/s41599-025-04857-1>.

²⁹ Nataliia E. Melnikova, "Social Factors of Senior School Students' Professional Self-Determination in Regional Schools," *Теория и Практика Общественного Развития*, no. 12 (January 2026): 67–75, <https://doi.org/10.24158/tipor.2025.12.7>.

attention to changes associated with the digitalisation of work, including uncertainty, multiple career scenarios and changing forms of professional recognition.³⁰ Therefore, career choice should not be reduced to individual psychological dispositions. Internality and externality are more appropriately considered within the wider educational, social, and institutional conditions that may expand, structure, or constrain the options available to students.

Methodologically, this complexity supports the combination of standardised measures with accounts of subjective experience.³¹ Quantitative indicators can identify patterns of internality and professional identity but provide more limited access to how students interpret family influence, uncertainty, turning points, and commitment. Recent Russian narrative research demonstrates the value of narrative and autobiographical accounts in examining reflection, meaning-making, and professional development.³² Narrative interviews in the present study were therefore used not to validate questionnaire scores directly but to explore how students construct meaning around their career choices. This approach enables the integration of quantitative and qualitative evidence while recognising their distinct contributions to understanding the phenomenon.³³

Against this background, the intersection between the locus of control and professional identity warrants more direct examination within Russian higher education. Although Russian research has addressed professional self-determination, personal agency, and professional identity across several thematic strands, their integration within the same student samples and expression in career-choice narratives remain comparatively underexplored.³⁴ This study addresses this narrower problem using a sequential mixed-methods design that combines psychological measures with narrative accounts. It also extends previous quantitative work on professional identity by integrating questionnaire profiles with qualitative material and developing provisional configurations of professional self-determination for interpretive rather than diagnostic purposes.³⁵

Accordingly, this study aims to examine the association between locus of control and professional identity among university students and explore how these constructs are reflected in students' interpretations of career choice. Two hypotheses were tested.

³⁰ Y. P. Zverovskaya and O. B. Krushelnitskaya, "Socio-Psychological Mechanisms for the Formation of Professional Identity of Young People in the Context of Digitalization of Labor," *Social Psychology and Society* 17, no. 2 (2026): 53–70, <https://doi.org/10.17759/sps.2026170204>.

³¹ Sigrun K. Ertesvåg et al., "Integrating Data in a Complex Mixed-methods Classroom Interaction Study," *British Educational Research Journal* 47, no. 3 (2021): 654–73, <https://doi.org/10.1002/berj.3678>; Michael D. Fetters et al., "Achieving Integration in Mixed Methods Designs—Principles and Practices," *Health Services Research* 48, no. 6pt2 (2013): 2134–56, <https://doi.org/10.1111/1475-6773.12117>.

³² Svetlana V. Velieva et al., "Narrative Approach as a Tool for Forming Professional Motivation of Young Teachers: A Theoretical and Empirical Analysis," *Russian Journal of Education and Psychology* 16, no. 4 (2025): 535–53, <https://doi.org/10.12731/2658-4034-2025-16-4-828>.

³³ Ertesvåg et al., "Integrating Data in a Complex Mixed-methods Classroom Interaction Study"; Fetters et al., "Achieving Integration in Mixed Methods Designs—Principles and Practices."

³⁴ Selezneva et al., "Personal Professional Self-Determination."

³⁵ Sharova and Rusanova. "Sravnitel'nyi analiz professional'noi identichnosti studentov fizkul'turno-sportivnogo profilya i drugikh napravlenii podgotovki [Comparative Analysis of Professional Identity of Students of Physical Education and Sports Profile and Other Fields of Study]." *Vestnik MGPU «Estestvennye nauki» [MCU Journal of Natural Sciences]*, no. 2(62) (2026): 227–39. <https://doi.org/10.24412/2076-9091-2026-262-227-239>.

- a. H₁: an internal locus of control is positively associated with professional identity, as represented by the continuous MIPI score and identity coefficient.
- b. H₂: higher internality is expected to be associated with career-choice narratives characterised by greater reflection, perceived agency, and ownership than those associated with lower internality.

By integrating locus of control, professional identity, and narrative accounts, this study seeks to clarify the heterogeneity in students' patterns of agency, exploration, and professional commitment. The resulting configurations are intended as a provisional analytical framework for informing discussions of differentiated and context-sensitive career support rather than as a basis for diagnostic classification or immediate intervention.

METHOD

1. Study Design and Participants

This study employed a partially explanatory sequential mixed-methods design comprising three stages, consistent with approaches that integrate quantitative and qualitative evidence to develop a more comprehensive interpretation of the research problem.³⁶ Stage 1 examined the association between locus of control and professional identity in a core quantitative sample ($N = 141$). Exploratory interviews conducted during this stage informed the refinement of the subsequent qualitative enquiry. Stage 2 involved a separately recruited Physical Education mixed-methods subsample ($n = 64$), whose members completed the same quantitative measures and participated in semi-structured narrative interviews. Stage 3 integrated the questionnaire profiles and interview narratives of the 64 participants through participant-level linkage and a joint display, an approach that enabled the examination of convergence and complementarity across quantitative and qualitative evidence. Although quantitative data were available for 205 participants across the two samples, the samples were not pooled for primary inferential analyses; hypothesis testing was based on the Stage 1 core sample only.

The Stage 1 sample comprised 141 convenience-sampled students from five Moscow higher education institutions: Moscow International University, Moscow State University of Psychology and Education, MIREA–Russian Technological University, Moscow University of Finance and Law, and Synergy University. The participants represented Psychology ($n = 45$), Pedagogical Education ($n = 30$), Civil Law ($n = 25$), Mathematical Modelling ($n = 22$), and Chemistry of Hybrid Polymer Systems ($n = 19$). More than 30 exploratory interviews were conducted in Stage 1. Seventeen interviews were retained because they addressed all interview questions, contained substantive responses, lasted at least 15 minutes, and had adequate recording quality. These interviews were used to refine the interview guide and

³⁶ Feters et al., "Achieving Integration in Mixed Methods Designs—Principles and Practices"; V. N. Nosulenko, "Integration Issues of Qualitative and Quantitative Methods in Psychological Research," *Experimental Psychology (Russia)* 14, no. 3 (2021): 4–16, <https://doi.org/10.17759/exppsy.2021140301>.

provide cross-disciplinary contextualisation but were not included in the derivation or frequency estimates of the final qualitative configurations.

The Stage 2 subsample comprised 64 Physical Education students from the Moscow Pedagogical State University. Approximately 120 students were invited through an academic colleague, and 64 voluntarily completed the questionnaires and interviews. Participants were aged 18–23 years ($M = 19.5$); 58% were female, and 42% were male. They represented all four undergraduate years of study. Because convenience sampling was used and the qualitative component was concentrated within one disciplinary field, the Stage 2 group was treated as an interpretive mixed-methods subsample, rather than as an independent validation sample.

2. Measures

Professional identity was assessed using the associative version of Shneider's Professional Identity Status Questionnaire.³⁷ Participants selected 76 words that they considered relevant to themselves and their professional lives. The procedure produced three indicators: a continuous professional identity score based on the total number of selected words; an identity coefficient, calculated as the ratio of selected professional to non-professional characteristics; and one of five instrument-specific identity classifications: achieved positive, moratorium, premature, diffuse, or pseudo-positive. Two participants selected no non-professional characteristics, making the coefficient undefined; these cases were excluded only from the coefficient-based analyses. The five Shneider classifications were treated as instrument-specific categories rather than direct equivalents of Marcia's (1966) four identity statuses,³⁸ which are conceptually differentiated by crisis/exploration and commitment. Binary-coded item responses produced acceptable internal consistency (Cronbach's $\alpha = .79$).

Locus of control was measured using the Russian-language Level of Subjective Control questionnaire,³⁹ an instrument grounded in the broader internal–external control tradition introduced by Rotter.⁴⁰ The 44 items are rated on a six-point scale from –3 to +3 and assess perceived control across several life domains.⁴¹ General internality was the principal variable used in the correlational analyses, with higher scores indicating stronger perceived personal controls. Internality and externality profiles were retained for descriptive interpretation and mixed-methods integration. Contemporary Russian research continues to employ locus of control distinctions when examining psychological functioning among university students.⁴² The internal consistency for general internality in the present sample was acceptable (Cronbach's $\alpha = .82$).

³⁷ Shneyder L. B., "ПРОФЕССИОНАЛЬНАЯ ИДЕНТИЧНОСТЬ [Professional Identity]."

³⁸ Marcia, "Development and Validation of Ego-Identity Status."

³⁹ Bazhin et al., "Metod issledovaniya urovnya sub'ektivnogo kontrolya [Method for studying the level of subjective control]."

⁴⁰ Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement."

⁴¹ Bazhin et al., "Metod issledovaniya urovnya sub'ektivnogo kontrolya [Method for studying the level of subjective control]."

⁴² Kibalnik et al., "Specifics of Coping Strategies of Students with Different Kinds of Locus of Control."

3. Procedure and Data Analysis

Data were collected between May 2025 and February 2026. Stage 1 participants completed the USK and MIPI electronically using Google Forms in a single 15–20-minute session. Of the 200 initial responses, 38 incomplete questionnaires, eight duplicates, and 13 cases showing invalid response patterns, including straightlining, were excluded, consistent with recommendations to identify potentially careless responses in survey data.⁴³ This screening resulted in 141 valid stage 1 cases.

Stage 2 participants completed the same measures and subsequently participated in interviews lasting approximately 25 min. The interviews addressed career-choice motives, sources of influence, uncertainty, professional aspirations, meanings of professionalism, and perceived university contributions to professional development. They were conducted in Russian, audio-recorded with consent, transcribed verbatim, and linked to the questionnaire data through pseudonymised participant codes. Selected quotations were translated into English and checked by an English-language instructor, recognising that translation in qualitative research requires attention to the preservation of participants' intended meanings.⁴⁴

Quantitative analyses were conducted using SPSS version 25. Descriptive statistics and two-tailed Pearson correlations were used to test H_1 . Internality was correlated with the continuous MIPI score ($N = 141$) and identity coefficient ($n = 139$). Statistical significance was set at $p < .05$, and 95% confidence intervals were reported. Assumptions were examined using Shapiro–Wilk tests for normality,⁴⁵ visual inspection of scatterplots for linearity, and Breusch–Pagan tests for homoscedasticity,⁴⁶ and no substantial violations were identified.

Qualitative analysis followed Braun and Clarke's six-phase thematic analysis framework.⁴⁷ The principal investigator conducted coding inductively, supported by a reflexive journal. An independent qualitative researcher re-analysed 13 transcripts (approximately 20%). The percentage agreement was 87%, and disagreements were used to refine the coding framework. This agreement was treated as a supplementary consistency check rather than as evidence of objective coding validity, recognising that coding reliability is not a universal criterion of quality in thematic analysis.⁴⁸ The final qualitative configurations were derived exclusively from 64 Stage 2 interviews.

Mixed-methods integration involved the refinement of the interview guide, participant-level linkage, and comparison of qualitative configurations with quantitative profiles in a joint

⁴³ Adam W. Meade and S. Bartholomew Craig, "Identifying Careless Responses in Survey Data," *Psychological Methods* 17, no. 3 (2012): 437–55, <https://doi.org/10.1037/a0028085>.

⁴⁴ Fenna Van Nes et al., "Language Differences in Qualitative Research: Is Meaning Lost in Translation?," *European Journal of Ageing* 7, no. 4 (2010): 313–16, <https://doi.org/10.1007/s10433-010-0168-y>.

⁴⁵ S. S. Shapiro and M. B. Wilk, "An Analysis of Variance Test for Normality (Complete Samples)," *Biometrika* 52, nos. 3–4 (1965): 591–611, <https://doi.org/10.1093/biomet/52.3-4.591>.

⁴⁶ T. S. Breusch and A. R. Pagan, "A Simple Test for Heteroscedasticity and Random Coefficient Variation," *Econometrica* 47, no. 5 (1979): 1287, <https://doi.org/10.2307/1911963>.

⁴⁷ Virginia Braun and Victoria Clarke, "Using Thematic Analysis in Psychology," *Qualitative Research in Psychology* 3, no. 2 (2006): 77–101, <https://doi.org/10.1191/1478088706qp0630a>.

⁴⁸ Virginia Braun and Victoria Clarke, "One Size Fits All? What Counts as Quality Practice in (Reflexive) Thematic Analysis?," *Qualitative Research in Psychology* 18, no. 3 (2021): 328–52, <https://doi.org/10.1080/14780887.2020.1769238>.

display. These procedures correspond to the established strategies for building, connecting, and integrating quantitative and qualitative evidence in mixed-methods research.⁴⁹ Quantitative scores supported the interpretation but were not used to assign qualitative configuration membership.

4. Ethical Considerations

This study was conducted in accordance with the ethical principles of the Russian Psychological Society and the Helsinki Declaration. The study received departmental approval from the Moscow International University (Protocol No. 5, January 2025). Participation was voluntary, and all the participants provided informed consent. The interview participants provided additional consent for recording, transcription, and anonymised quotations. Data were pseudonymized, stored in encrypted password-protected files accessible only to the principal investigator, and will be destroyed five years after publication.

RESULTS AND DISCUSSION

Results

Of the 200 survey responses initially collected in Stage 1, 38 incomplete questionnaires, eight duplicate responses, and 13 cases with invalid response patterns were excluded. The final core quantitative sample comprised 141 participants and was used for the primary correlational analyses.

A separately recruited Stage 2 subsample of 64 Physical Education students completed the same quantitative measures and participated in semi-structured interviews. Their questionnaire and interview data were linked for mixed-methods integration but were not pooled with the 141 Stage 1 cases for inferential testing. Quantitative data were available for 205 participants across the two samples, and the primary hypothesis tests were conducted using the Stage 1 core sample ($N = 141$). The 17 exploratory interviews conducted during Stage 1 informed the refinement of the qualitative enquiry but were not included in the derivation or frequency estimates of the final typology.

1. Quantitative Findings

Within the Stage 1 core sample, the mean general internality score was 9.3 ($SD = 4.4$), and the mean descriptive externality score was 12.1 ($SD = 4.0$). The mean continuous MIPI professional identity score was 6.0. Externality was used descriptively and was not included as an independent variable in the primary correlation analyses. Diffuse and premature identity were the two most frequent professional identity classifications, together accounting for 63.8% of the core sample. Achieved positive identity and moratorium each characterised 14.2% of the participants.

⁴⁹ Fetters et al., "Achieving Integration in Mixed Methods Designs—Principles and Practices"; Nosulenکو, "Integration Issues of Qualitative and Quantitative Methods in Psychological Research."

Table 1. Distribution of Professional Identity Statuses in the Stage 1 Core Sample ($N = 141$)

Identity status	<i>n</i>	%
Diffuse	60	42.55
Premature	30	21.28
Moratorium	20	14.18
Achieved positive	20	14.18
Pseudo-positive	11	7.80

Associations Between Internality and Professional Identity

Assumption checks indicated no substantial violations of the conditions required for the Pearson correlation. Normality was assessed using the Shapiro–Wilk test, linearity through visual inspection of scatterplots, and homoscedasticity using the Breusch–Pagan test. General internality was moderately and positively associated with the continuous professional identity score, $r(139) = .42, p < .001, 95\% \text{ CI } [.27, .55]$. Internality was also positively associated with the identity coefficient, $r(137) = .38, p < .001, 95\% \text{ CI } [.23, .51]$. The latter analysis was based on 139 participants because the identity coefficient was undefined for two cases in which no non-professional characteristics were selected.

Table 2. Associations Between Internality and Professional Identity

Analysis	<i>n</i>	<i>r</i>	<i>df</i>	<i>p</i>	95% CI
Internality–professional identity score	141	.42	139	< .001	[.27, .55]
Internality–identity coefficient	139	.38	137	< .001	[.23, .51]

These findings were consistent with H_1 : higher internality was associated with stronger professional identity indicators in the Stage 1 core sample. The observed relationships were correlational and did not establish directionality or causation.

2. Qualitative Findings

A Provisional Typology of Professional Self-Determination

The thematic analysis of the 64 Stage 2 Physical Education interviews identified four recurring configurations of career-choice narratives: *Called*, *Pragmatist*, *Seeker*, and *Random/externally guided*. These labels summarise patterns of perceived agency, external influence, exploration, and commitment and are used as interpretive categories rather than as diagnostic classifications.

The *Called* configuration was the most frequent, comprising 31 participants (48.4%). These students generally described their field and anticipated profession as personally meaningful and presented themselves as active participants in the choice process. Their accounts commonly referred to long-standing involvement in sports, intrinsic interest, and a comparatively clear sense of professional direction. The *Pragmatist* configuration comprised 13 participants (20.3%). Their accounts acknowledged substantial influence from coaches, family members, or other significant figures, but this influence was generally described as accepted and incorporated into the participants' decisions rather than being experienced as wholly imposed.

Table 3. Distribution of the Provisional Professional Self-Determination Configurations (n = 64)

Configuration	n	%	Principal narrative pattern
<i>Called</i>	31	48.4	Self-directed commitment and intrinsic professional interest
<i>Pragmatist</i>	13	20.3	External influence accepted and incorporated into the choice
<i>Seeker</i>	10	15.6	Exploration, uncertainty, and reappraisal
<i>Random/externally guided</i>	10	15.6	Choice shaped primarily by circumstances or available opportunities

Ten participants (15.6%) were classified as *seekers*. Their narratives emphasised the continuing exploration, uncertainty, and reconsideration of professional goals. Some described injury, disappointment, or other disruptive experiences as occasions for reassessing their future directions. Although several accounts retrospectively described greater ownership of career choice, the cross-sectional interviews could not establish an actual temporal transition in the locus of control. The remaining 10 participants (15.6%) formed the *random/externally guided* configuration. Their accounts emphasised admission circumstances, examination outcomes, available opportunities and other situational factors. These narratives contained comparatively less evidence of sustained exploration or of clearly articulated professional commitment. The term Random reflects participants' descriptions of chance-related choices and is not intended as a deficit label. The four configurations were derived exclusively from the 64 Stage 2 interviews. Stage 1 exploratory interviews were not used to determine category membership or type frequencies.

3. Mixed-Methods Integration

The mixed-methods integration compared narrative configurations with the quantitative profiles of the same 64 Physical Education participants. The patterns showed broad interpretive correspondence between the two data sources, although questionnaire scores were not used to determine the qualitative configuration membership.

Table 4. Joint Display of Quantitative Profiles and Qualitative Configurations in the Stage 2 Subsample

Configuration	n (%)	Internality M (SD)	Externality M (SD)	Predominant identity status	Narrative emphasis
<i>Called</i>	31 (48.4)	12.8 (3.9)	8.1 (3.7)	Achieved positive (71%)	Calling and intrinsic motivation
<i>Pragmatist</i>	13 (20.3)	9.5 (3.2)	11.3 (3.5)	Premature (62%)	External influence accepted
<i>Seeker</i>	10 (15.6)	10.2 (4.1)	10.8 (4.0)	Moratorium (60%)	Exploration, uncertainty, and reappraisal
<i>Random/externally guided</i>	10 (15.6)	7.8 (3.5)	14.2 (3.8)	Diffuse (80%)	Circumstantial or chance-related choice

The *Called* configuration showed the highest mean internality and the largest proportion of achieved positive identity, alongside narratives emphasising personal commitment and perceived agency. The *Random/externally guided* configuration showed the

lowest mean internality, highest descriptive externality, and predominance of diffuse identity. The *Pragmatist* and *Seeker* configurations occupied intermediate quantitative positions but differed in narrative emphasis: the former centred on accepted external influence, whereas the latter emphasised exploration and reconsideration.

These correspondences support an interpretive reading of the four configurations. In particular, *seeker* narratives are compatible with an exploratory position, but the cross-sectional data cannot demonstrate longitudinal movement from externality towards internality. The identity status distribution also differed between the two analytical samples. Approximately 34% of the Stage 2 Physical Education participants had achieved a positive identity (22 of 64), compared with 14.2% of the Stage 1 core sample. Therefore, the Stage 2 subsample had a more favourable professional identity profile.

4. Hypothesis Findings

The quantitative findings were consistent with H₁: higher internality was associated with both the continuous professional identity score, $r(139) = .42, p < .001$, and identity coefficient, $r(137) = .38, p < .001$. The integrated qualitative and quantitative patterns were also consistent with H₂ at the interpretive level. Narratives in the *Called* configuration, which had the highest mean internality, were characterised by greater reflection, perceived agency, and ownership of their career choice. In contrast, the *random/externally guided* configuration, which had the lowest mean internality, placed greater emphasis on circumstantial or external influences. The *Pragmatist* and *Seeker* configurations demonstrated that external influence and uncertainty could coexist with varying degrees of reflection and personal engagement. Therefore, these findings support the anticipated pattern without constituting a formal statistical test of H₂.

Discussion

This study examined the association between locus of control and professional identity and explored how these constructs were reflected in students' accounts of their career choices. The findings were consistent with both hypotheses, although they were at different levels of evidence. H₁ received quantitative support: higher internality was moderately associated with both the continuous professional identity score and the identity coefficient in the Stage 1 core sample. H₂ was supported at an interpretive level through the integration of questionnaire profiles and narratives in the Stage 2 Physical Education subsample. Participants in the *Called* configuration, which showed the highest mean internality, described greater perceived agency, reflection, and ownership of career choice, whereas the *Random/externally guided* configuration placed greater emphasis on circumstances and external influences. These patterns are broadly consistent with evidence linking the locus of control to career exploration and with recent findings showing that professional identity varies across career locus-of-control profiles among university students.⁵⁰ They suggested

⁵⁰ Lee et al., "Personality Predictors of Career Exploration"; Wang et al., "Latent Profiles of Career Locus of Control and Associated Factors among Undergraduate Nursing Students in China."

that perceived control and professional identity may represent related dimensions of career self-determination; however, the cross-sectional design did not establish temporal ordering or causal relationships.⁵¹

The association identified for H_1 is broadly consistent with research linking internal control beliefs to career exploration and related career development processes.⁵² This is also compatible with recent Russian research that examines the locus of control as a psychological characteristic associated with students' coping and adaptation.⁵³ However, the magnitude of the correlations was moderate. This is theoretically important because it suggests that the locus of control and professional identity should not be treated as interchangeable constructs. Professional identity appears to reflect a broader combination of reflection, educational engagement, practical experience, social support, and perceived professional opportunities.⁵⁴ Therefore, the present findings support the more limited proposition that perceived agency and professional identity may be interconnected aspects of career self-determination rather than evidence that internality produces a stronger professional identity.

The professional identity profile of the Stage 1 sample further indicates considerable heterogeneity in students' professional self-definitions. Diffuse and premature identity together characterised nearly two-thirds of the core sample, whereas achieved positive identity was considerably less frequent in the sample. This pattern is compatible with Russian scholarship that conceptualises professional self-determination as an ongoing process involving repeated reflection and choice rather than a single decision made before or upon university entry.⁵⁵ Simultaneously, the distribution should not be interpreted as evidence that most participants were developmentally deficient. Identity classifications are better understood as context-sensitive configurations that may change over time and reflect different ways of responding to developmental and educational demands.⁵⁶ Their meaning may also depend on educational experience, opportunities for professional participation, and students' social environments, including the support available to them during the formation of their professional identity.⁵⁷

The qualitative findings add important nuance to the quantitative association because external influence does not function as a simple opposite of agency. The *Called* configuration combined relatively high internality with predominantly positive identity and narratives

⁵¹ Paul E. Spector, "Do Not Cross Me: Optimizing the Use of Cross-Sectional Designs," *Journal of Business and Psychology* 34, no. 2 (2019): 125–37, <https://doi.org/10.1007/s10869-018-09613-8>.

⁵² Lee et al., "Personality Predictors of Career Exploration."

⁵³ Kibalnik et al., "Specifics of Coping Strategies of Students with Different Kinds of Locus of Control."

⁵⁴ Korchagin and Lobanova, "Professional Identity of Students of the Psychological and Pedagogical Direction of Education"; Joram Pach et al., "The Impact of Educational Activities on Professional Identity Formation in Social Sciences and Humanities: A Scoping Review," *Educational Research Review* 48 (August 2025): 100704, <https://doi.org/10.1016/j.edurev.2025.100704>; Tomlinson and Jackson, "Professional Identity Formation in Contemporary Higher Education Students"; Wang et al., "How Does Social Support Promote Professional Identity among University Students?"

⁵⁵ Selezneva et al., "Personal Professional Self-Determination."

⁵⁶ Michael D. Berzonsky and Gerald R. Adams, "Reevaluating the Identity Status Paradigm: Still Useful after 35 Years," *Developmental Review* 19, no. 4 (1999): 557–90, <https://doi.org/10.1006/drev.1999.0495>; Mandy A. E. Van Der Gaag et al., "Understanding Identity Development in Context: Comparing Reflective and Situated Approaches to Identity," *Frontiers in Psychology* 15 (January 2025): 1467280, <https://doi.org/10.3389/fpsyg.2024.1467280>.

⁵⁷ Wang et al., "How Does Social Support Promote Professional Identity among University Students?"

emphasising intrinsic interest and personal commitment. This correspondence is compatible with the interpretation of career choice as relatively self-directed and accords with recent evidence linking intrinsic motivation with professional identification and commitment among university students.⁵⁸ However, this configuration should not be regarded as an ideal or normative endpoint. Identity theory distinguishes commitment following exploration from commitment established without sufficient exploration, indicating that strong commitment alone does not necessarily represent a more adaptive identity position (Marcia, 1966). Moreover, professional commitment and career adaptability are related but distinct career development constructs.⁵⁹ The present study did not assess the adaptability or long-term sustainability of the commitments represented in the *Called* configuration.

The *Pragmatist* configuration particularly qualifies a binary internal–external interpretation. These participants acknowledged substantial influence from coaches, family members, or other significant people but described accepting and incorporating that influence into their decisions. Such accounts suggest that external influences do not necessarily indicate the absence of agency. Rather, career decisions may be constructed relationally through interactions with significant others, including family members, mentors, and other trusted figures.⁶⁰ Evidence from culturally diverse settings likewise indicates that family influence can coexist with active career decision-making and may function as a contextual resource rather than simply a constraint.⁶¹ This interpretation cautions against equating autonomy with independence, particularly in cultural contexts where career decisions may involve collective or relational forms of agency.

The *Seeker* configuration offers a different type of complexity. Participants described uncertainty, reconsideration, and experiences such as injuries or disappointments that prompted reassessment of their professional plans. The predominance of moratorium within this configuration is consistent with the importance of exploration in identity development, as moratorium involves the active consideration of alternatives without settled commitment.⁶² Contemporary research on professional identity formation likewise emphasises exploration, interpretation, and the reworking of professional self-understanding as forms of identity work.⁶³ However, retrospective accounts suggesting increased ownership should not be interpreted as evidence of an actual transition from externality to internality.

⁵⁸ Sanna et al., “Investigating Patterns of Identification and Commitment in Students’ Professional Becoming.”

⁵⁹ Chen Jilong et al., “The Impact of Perceived Work Dirtiness on Nursing Students’ Professional Commitment: The Mediating Role of Career Adaptability and the Moderating Role of Social Support - a Cross Sectional Study,” *BMC Nursing* 23, no. 1 (2024): 304, <https://doi.org/10.1186/s12912-024-01963-4>.

⁶⁰ Susan D. Phillips et al., “Making Career Decisions in a Relational Context,” *The Counseling Psychologist* 29, no. 2 (2001): 193–214, <https://doi.org/10.1177/0011000001292002>.

⁶¹ Shin-ye Kim et al., “Family Influence on Korean Students’ Career Decisions: A Social Cognitive Perspective,” *Journal of Career Assessment* 24, no. 3 (2016): 513–26, <https://doi.org/10.1177/1069072715599403>; Sadia Qazi et al., “Family Collective Agency in Career Decision-Making among Medical and Dental Students: A Qualitative Intersectional Study in Peshawar, Pakistan,” *Frontiers in Medicine* 13 (February 2026): 1755128, <https://doi.org/10.3389/fmed.2026.1755128>.

⁶² Marcia, “Development and Validation of Ego-Identity Status.”

⁶³ Stefanie Reissner and Elizabeth Armitage-Chan, “Manifestations of Professional Identity Work: An Integrative Review of Research in Professional Identity Formation,” *Studies in Higher Education* 49, no. 12 (2024): 2707–22, <https://doi.org/10.1080/03075079.2024.2322093>.

The data capture students' narratives about previous experiences rather than longitudinal change, and recent research indicates that identity development is more appropriately examined through repeated observations over time.⁶⁴ These accounts therefore generate a hypothesis—that uncertainty and reappraisal may accompany changes in perceived agency—that requires prospective longitudinal testing in the future.

Similarly, the *Random/externally guided* configuration should not be interpreted in deficit terms. Although it showed the lowest mean internality and was predominantly associated with diffuse identity, participants referred to admission outcomes, opportunities, examination results, and other situational circumstances. Such patterns may reflect constrained opportunity structures rather than limited motivation, consistent with evidence that economic constraints shape career choices and school-to-work transitions.⁶⁵ Russian research likewise situates professional self-determination within family resources, educational opportunities, and labour market conditions.⁶⁶ The label Random therefore summarises participants' descriptions of chance-related choices rather than judging personal capability.

The mixed-methods findings also require attention to the sample context. The Stage 2 Physical Education subsample had a considerably higher proportion of participants who achieved a positive identity than the Stage 1 core sample. This may partly reflect prior sports experience, practical engagement, and professional socialisation, which can shape professional identity in Physical Education.⁶⁷ Recruitment may also have contributed to this.⁶⁸ Consequently, the four configurations and their frequencies should not be assumed to represent other disciplines or the wider Russian student population in general. Their value remains interpretative rather than classificatory.

⁶⁴ Susan Branje, "Adolescent Identity Development in Context," *Current Opinion in Psychology* 45 (June 2022): 101286, <https://doi.org/10.1016/j.copsyc.2021.11.006>; Kai Hatano et al., "Does Employment Status Matter for Emerging Adult Identity Development and Life Satisfaction? A Two-Wave Longitudinal Study," *Journal of Youth and Adolescence* 53, no. 9 (2024): 2097–107, <https://doi.org/10.1007/s10964-024-01992-x>; Yu Zhang et al., "Longitudinal Study on Professional Identity and Future Self-Continuity of Undergraduate Nursing Students," *BMC Psychology* 14, no. 1 (2026): 721, <https://doi.org/10.1186/s40359-026-04485-7>.

⁶⁵ Ahmet Ayvaz and Nurten Karacan-Özdemir, "The Role of Contextual Predictors and Psychosocial Resources in the School-to-work Transition," *The Career Development Quarterly* 72, no. 4 (2024): 346–65, <https://doi.org/10.1002/cdq.12365>; Julia Buzan and Jennifer Sheehy-Skeffington, "Barriers in the Transition From School to Work: How Student Financial Adversity Predicts Deprioritizing Jobs With the Best Long-Term Career Progression," *Journal of Social Issues* 80, no. 4 (2024): 1460–83, <https://doi.org/10.1111/josi.12658>.

⁶⁶ Melnikova, "Social Factors of Senior School Students' Professional Self-Determination in Regional Schools."

⁶⁷ Catarina Amorim and Elsa Silva, "Can School Placement Foster Professional Identity Formation? A Multiple Case Study," *Journal of Education for Teaching* 51, no. 1 (2025): 46–60, <https://doi.org/10.1080/02607476.2024.2390397>; Ana Luiza Barbosa Anversa et al., "Identidade Profissional de Professores de Educação Física: Uma Revisão Sistemática1," *Educação e Pesquisa* 51 (2025): e288205, <https://doi.org/10.1590/s1678-4634202551288205por>; Yağmur Güler and Semiyha Tuncel, "Professional Identity of Pre-Service Physical Education and Sports Teachers and the Role of Mentor Teachers," *Sport, Education and Society* 31, no. 6 (2026): 943–57, <https://doi.org/10.1080/13573322.2025.2585027>.

⁶⁸ K. Andrew R. Richards and Wesley J. Wilson, "Recruitment and Initial Socialization into Adapted Physical Education Teacher Education," *European Physical Education Review* 26, no. 1 (2020): 54–69, <https://doi.org/10.1177/1356336X18825278>; Michelle Elizabeth Flemons et al., "Recycling and Resistance to Change in Physical Education: The Informal Recruitment of Physical Education Teachers in Schools," *Journal of Teaching in Physical Education* 43, no. 1 (2024): 21–30, <https://doi.org/10.1123/jtpe.2022-0215>.

The theoretical contribution of this study lies in examining the locus of control and professional identity together while retaining their conceptual distinctiveness. Rotter's foregrounded perceived control,⁶⁹ Marcia's emphasised exploration and commitment,⁷⁰ and Super's situated career development within broader life roles and circumstances.⁷¹ The four configurations add an empirical interpretive layer by showing that similar forms of external influence can have different meanings. External guidance may be actively accepted among *Pragmatists*, reconsidered through exploration among *Seekers*, or experienced mainly as a circumstantial constraint in *Random/externally guided* narratives. Career self-determination may therefore be understood as an interaction among agency, identity, relationships, educational experience, and contextual opportunity, consistent with contemporary systems perspectives on career development.⁷²

This study also contributes to educational research and practice by highlighting the heterogeneity in students' agency, exploration, and professional commitment.⁷³ This supports career provision by offering varied opportunities for reflection, exploration, and decision-making, consistent with evidence that university career interventions employ diverse approaches and can strengthen career development skills.⁷⁴ However, the present study did not evaluate an intervention; configuration-linked recommendations therefore remain as provisional design propositions. Students resembling *Called* might be offered deeper professional engagement; *Pragmatist* structured reflection on expectations and personal values; *Seekers* opportunities to explore alternatives; and *Random/externally guided* students structured career information, low-stakes professional experiences, and goal-setting support. Although career interventions can strengthen adaptability-related resources,⁷⁵ whether these approaches improve professional identity, agency, or career adaptability remains an empirical question.

This distinction is important for the educational interpretation of these findings. The framework may help educators, career advisers, and student-support services consider differentiated ways of understanding students' professional choices, consistent with evidence supporting varied forms of career intervention in higher education.⁷⁶ It is not intended for diagnostic screening, high-stakes classification, or assignment to fixed-career pathways.

⁶⁹ Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement."

⁷⁰ Marcia, "Development and Validation of Ego-Identity Status."

⁷¹ Super, "A Life-Span, Life-Space Approach to Career Development."

⁷² McMahon and Abkhezr, "Career Adaptability and Career Resilience"; Andreas Hirschi and Jessie Koen, "Contemporary Career Orientations and Career Self-Management: A Review and Integration," *Journal of Vocational Behavior* 126 (April 2021): 103505, <https://doi.org/10.1016/j.jvb.2020.103505>.

⁷³ Jiseul Sophia Ahn et al., "Motivational Resources of Agency in Adolescents' Career Development in Postsecondary Transition: More than Being Self-Efficacious," *Journal of Career Development* 52, no. 4 (2025): 449–68, <https://doi.org/10.1177/08948453251351576>; Wang et al., "Latent Profiles of Career Locus of Control and Associated Factors among Undergraduate Nursing Students in China."

⁷⁴ Joana Soares et al., "A Systematic Review on Career Interventions for University Students: Framework, Effectiveness, and Outcomes," *Australian Journal of Career Development* 31, no. 2 (2022): 81–92, <https://doi.org/10.1177/10384162221100460>.

⁷⁵ Hannah Wetstone and Kenneth G. Rice, "Enhancing Career Adaptability Among University Students: An Intervention Study," *Journal of Career Development* 50, no. 6 (2023): 1279–92, <https://doi.org/10.1177/08948453231187910>.

⁷⁶ Soares et al., "A Systematic Review on Career Interventions for University Students."

Rather, its potential lies in supporting reflective, context-sensitive career guidance that recognises variation in agency, exploration, and professional commitment while preserving individual choice.⁷⁷

However, several limitations qualify these conclusions. First, the cross-sectional design limits causal and developmental inferences.⁷⁸ Second, convenience sampling from Moscow institutions limits generalisability, while Stage 2 disciplinary concentration constrains transferability.⁷⁹ Third, quantitative measures were self-reported in the same session, making common method variance and social desirability potential biases.⁸⁰ Fourth, the typology was derived through one researcher's thematic analysis; the 87% agreement from partial re-analysis is better treated as a consistency check than as evidence of classification validity.⁸¹ Finally, translation into English may have reduced the cultural and linguistic nuances.⁸²

Future research should examine the locus of control and professional identity longitudinally,⁸³ replicate the configurations across disciplines, institutions, and Russian regions, and test their stability with independent samples and researchers. Subsequent studies should evaluate differentiated career support approaches using longitudinal, quasi-experimental, or experimental designs, consistent with career adaptability intervention research.⁸⁴ Such work would clarify whether the configurations extend beyond contextual interpretation and whether tailored support contributes to exploration, agency, identity development and career adaptability.

CONCLUSION

This study examined the association between locus of control and professional identity among university students in Moscow and explored how these constructs were reflected in career choice narratives. In the Stage 1 sample, higher internality was moderately associated with both the continuous professional identity score and identity coefficient. The integration of questionnaire profiles and narratives in Stage 2 further indicated variations in how students described agency, external influence, exploration, and professional commitment. Taken together, these findings suggest that perceived control and professional identity are related

⁷⁷ Andronikos Kaliris et al., "Narrative Potential and Career Counseling under Quantity, Quality, and Mixed Interventions: An Emphasis on University Students," *Australian Journal of Career Development* 32, no. 1 (2023): 48–59, <https://doi.org/10.1177/10384162231153530>.

⁷⁸ Julia M. Rohrer, "Causal Inference for Psychologists Who Think That Causal Inference Is Not for Them," *Social and Personality Psychology Compass* 18, no. 3 (2024): e12948, <https://doi.org/10.1111/spc3.12948>.

⁷⁹ Heather Wild et al., "How Representative Are Student Convenience Samples? A Study of Literacy and Numeracy Skills in 32 Countries," *PLOS ONE* 17, no. 7 (2022): e0271191, <https://doi.org/10.1371/journal.pone.0271191>.

⁸⁰ Καλλιόπη Καλτσονούδη et al., "Μεροληψία Κοινής Μεθόδου Στους Ερευνητικούς Σχεδιασμούς Με Τη Χρήση Εργαλείων Αυτοαναφοράς: Βιβλιογραφική Επισκόπηση Και Προτεινόμενες Τεχνικές Αντιμετώπισης," *Psychology: The Journal of the Hellenic Psychological Society* 27, no. 1 (2022): 210–31, <https://doi.org/10.12681/psychps.30843>.

⁸¹ Virginia Braun and Victoria Clarke, "Toward Good Practice in Thematic Analysis: Avoiding Common Problems and Be(Com)ing a Knowing Researcher," *International Journal of Transgender Health* 24, no. 1 (2023): 1–6, <https://doi.org/10.1080/26895269.2022.2129597>.

⁸² Momna Rani, "Understanding Translation and Cultural Meaning-Making in Cross-Language Qualitative Research: Methodological Innovations and Challenges," *Social Science Quarterly* 107, no. 5 (2026): e70183, <https://doi.org/10.1111/ssqu.70183>.

⁸³ Zhang et al., "Longitudinal Study on Professional Identity and Future Self-Continuity of Undergraduate Nursing Students."

⁸⁴ Wetstone and Rice, "Enhancing Career Adaptability Among University Students."

but conceptually distinct dimensions of career self-determination. The four configurations identified in the separately recruited Physical Education sample—*Called*, *Pragmatist*, *Seeker*, and *Random/externally guided*—explain why career choice should not be reduced to a simple internal–external distinction. In particular, the Pragmatist and Seeker configurations indicate that external influence and uncertainty may coexist with reflection, personal engagement, and active meaning-making. Therefore, the configurations should be understood as a provisional interpretive framework rather than as stable psychological types or diagnostic categories.

The educational contribution of this study lies in its highlighting the heterogeneity in students' agency, exploration, and professional commitment. The framework may inform more reflective and context-sensitive approaches to career guidance while recognising that professional choices are shaped by both personal and contextual conditions. However, no intervention was evaluated, and the differentiated support strategies proposed here remain design propositions that require empirical testing. The findings are limited by the cross-sectional design, convenience sampling, self-reported measures, and the disciplinary concentration of the Stage 2 sample. Future research should longitudinally examine these relationships, replicate the configurations across institutions, disciplines, and Russian regions, and evaluate whether differentiated career support approaches improve professional exploration, agency, identity development, and career adaptability.

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