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MAKHAMETOVA ZAKHIDA^{1*}, TOXANBAYEVA NURGUL²,
MYRZABEKOV YERZHAN¹

¹Academician A. Kuatbekov Peoples' Friendship University (Shymkent, Kazakhstan)

²Al-Farabi Kazakh National University (Almaty, Kazakhstan)

*Address of correspondence: Makhametova Zakhida, Academician A. Kuatbekov Peoples' Friendship University, 32 Tole Bi Street, Shymkent, 160011, Republic of Kazakhstan,
<https://orcid.org/0009-0002-5609-1637>, E-mail address: sabira71711@gmail.com/+77715661471

Psychological and Pedagogical Significance of Factors Influencing Self-Esteem of Students

Abstract

Introduction. In contemporary education, self-esteem is widely recognized as an important psychological and pedagogical factor associated with students' academic functioning, learning motivation, and social adaptation. As a multifaceted component of self-consciousness, self-esteem functions as an internal regulatory mechanism shaping emotional stability, goal-setting processes, and self-regulated learning behaviors. From this perspective, self-assessment contributes to learners' ability to critically evaluate and manage their educational outcomes, thereby supporting the development of autonomous and reflective individuals within modern educational systems. **Methodology and Methods.** The study employed a quantitative, cross-sectional correlational design. The participants were 171 first- to fourth-year students aged 19–22 years who were enrolled in pedagogy and psychology programs at two universities in Kazakhstan. Self-esteem was assessed using the Rosenberg Self-Esteem Scale, while psychological well-being was measured using the shortened SPWB-18 scale. Social comparison and problematic digital use were examined through a separate set of questions. The data were analyzed using descriptive statistics and Pearson correlation analysis. **Results.** Most participants demonstrated medium (43.9%) or high (42.1%) levels of self-esteem, while 14.0% were classified as having a low level. Self-esteem was positively associated with psychological well-being ($r = .52$) and negatively associated with social comparison ($r = -.46$) and problematic digital use ($r = -.41$). Social comparison was also negatively associated with psychological well-being ($r = -.39$), whereas problematic digital use showed a negative association with psychological well-being ($r = -.44$). **Scientific novelty.** The study provides empirical evidence on the relationships between self-esteem, psychological well-being, social comparison, and problematic digital use among university students in Kazakhstan. By examining these variables within the same student sample, the findings contribute to a more integrated understanding of the psychological and digital factors associated with students' self-esteem. **Practical significance.** The findings may be useful in developing psychological and pedagogical support practices for university students, particularly those aimed at strengthening reflective skills, promoting responsible digital behavior, and supporting psychological well-being.

Keywords: self-esteem, self-assessment, self-regulated learning, motivation, pedagogical psychology, educational process, reflection.

Introduction. Self-esteem is an important aspect of students' psychological development in the educational environment. It reflects how individuals perceive their own value, abilities, and competence. University students regularly face academic demands, new social relationships, and changes related to their personal and professional development. These experiences

can influence how they see themselves and how they respond to difficulties during their studies. Students with a more positive sense of self tend to report better psychological well-being and emotional adjustment and may cope more effectively with academic and social challenges. For this reason, self-esteem can be considered not simply as a component of self-perception,

but as an important psychological resource related to students' adaptation to university life (Ismailova et al., 2025).

At the same time, self-esteem and self-assessment should not be treated as identical concepts. Self-esteem concerns a person's general sense of self-worth, whereas self-assessment in education refers mainly to students' evaluation of their own learning and academic performance. When students assess their own work, they have an opportunity to consider what they have achieved, recognize difficulties, and decide what needs to be improved. In this sense, self-assessment becomes part of the learning process rather than simply a way of judging results. Studies in higher education have shown that formative assessment and well-organized self-assessment can encourage reflection and support self-regulated learning (Parmigiani et al., 2024; van der Linden et al., 2023). Although self-esteem and self-assessment are different constructs, reflective assessment practices may therefore help students become more aware of both their learning processes and their own capabilities.

The role of self-esteem becomes especially noticeable during the university years, when students take on greater academic responsibility and gradually develop their personal and professional identities. How students perceive their own competence may also be related to their willingness to participate actively in learning and work toward academic goals. Ullah et al. (2024), for example, reported a significant relationship between academic motivation and self-esteem among university students, although this relationship differed across dimensions of motivation. This suggests that self-esteem should be considered together with motivational factors when examining how students adapt to and engage in higher education.

The President of the Republic of Kazakhstan, K.K. Tokayev, in his address of September 1, 2021, entitled "Unity of the People and Systemic Reforms - a Solid Foundation for the Future", noted: "The education system needs high-quality specialists. Increasing the effectiveness of teacher retraining and strengthening the requirements for pedagogical higher education

institutions are urgent issues" (Tokayev, 2021). In this regard, it is clearly seen that, in addition to the professional competence of a teacher, his personal qualities and level of self-esteem also affect the quality of education.

The issues of improving the quality of the educational process, the enhancement of the social status of teachers, and the improvement of methods of assessing the achievements of the training are the key directions of the state policy in Kazakhstan. At the plenary session of the August Conference named "Education of the Future: Honest Citizen, a Professional," in the presence of the educationists from all regions of Kazakhstan, the Head of State stated important priorities and directions that should be considered to improve the quality of education and increase the significance of the teachers' role and their social status. In particular, the issues concerning the role of teachers as the main driver of the education system, the vital importance of schools in society, the provision of high-quality education, and the development of the teaching profession and its social importance were mentioned. Also, the quality of education in the country and the development and upbringing of children should be highlighted (Tokayev, 2024).

The psychological and pedagogical analysis of self-esteem factors is relevant precisely in this reform context, since:

- self-esteem indirectly and directly determines learning motivation, academic achievement, and social adaptation;
- a teacher's professional reflection and professional self-esteem contribute to the quality of teaching through the teacher's stability, professional growth, and self-efficacy;
- in an environment with an established assessment culture, a student develops self-assessment skills and adapts to managing learning outcomes.

In Kazakhstan, educational quality is addressed not only through teaching standards but also through a system of monitoring and assessment. Article 55 of the Law "On Education" provides the legal basis for this process, stating that education quality management forms part of the national quality assessment system. The same

article also identifies educational monitoring as a means of collecting indicators used in both internal and external evaluation of educational quality (Qazaqstan Respublikasy, 2007).

In addition, Government Resolution No. 249 dated March 28, 2023, “On approval of the concept on the development of preschool, secondary, technical and vocational education in the Republic of Kazakhstan for 2023-2029,” provides information on the development strategy for the organization and control over the educational process (Qazaqstan Respublikasy Ukimeti, 2023).

The criteria used to evaluate educational organizations are further specified in Order No. 486 of the Minister of Enlightenment of the Republic of Kazakhstan, adopted on December 5, 2022. The document sets out the main requirements for evaluating educational organizations and also provides a regulatory framework for the self-assessment of their educational activities (Qazaqstan Respublikasy Oqu-agartu ministriligi, 2022). These documents indicate the increased requirements for a culture of evaluation and reflective practice in managing the quality of education, and one of the psychological foundations of this is the self-assessment of the individual.

These circumstances increase the relevance of studying the self-assessment of the individual. On the one hand, although there is high scientific interest in this issue, on the other hand, there is a lack of research that comprehensively and systematically considers the psychological and pedagogical factors that influence the formation of self-assessment. Given the current scenario where the digital landscape is growing larger and social comparison is increasing, coupled with changes in evaluation methods in education, it becomes necessary to revisit the matter from a modern point of view. The findings of numerous international studies have shown that there is always a connection between self-esteem and academic success. In fact, several meta-analyses have brought to light additional links between self-esteem and various other matters. (Gholizade et al., 2024).

Simultaneously, despite the obvious necessity and relevance of research into the role of self-

esteem in modern scientific literature, the issue has not been investigated from the point of view of identifying psychological and pedagogical factors promoting self-esteem development on a comprehensive level. There is a pressing need to find effective methods and pedagogical conditions conducive to self-esteem formation. This confirms the relevance of the research topic.

The present study examines how university students’ self-esteem is related to psychological well-being, social comparison, and problematic digital use. It also considers the psychological and pedagogical relevance of these relationships within the university educational environment.

Based on this purpose, the study addresses the following research question: How is university students’ self-esteem related to psychological well-being, social comparison, and problematic digital use?

It was hypothesized that higher self-esteem would be positively associated with psychological well-being and negatively associated with social comparison and problematic digital use.

The scientific significance of the study is determined by the careful consideration of self-esteem as an indicator of personal development, a key factor in learning motivation, and a component of a teacher’s professional reflection. The practical significance is characterized by the fact that it allows for developing recommendations aimed at improving the culture of assessment in educational organizations and developing students’ self-esteem and self-regulation skills.

Materials and Methods. The empirical part of the study was designed as a quantitative, cross-sectional correlational study. It focused on the relationships between university students’ self-esteem, psychological well-being, social comparison, and problematic digital use. Before the empirical analysis, relevant psychological and pedagogical studies were reviewed to provide a theoretical basis for the research and to identify the main factors that may be related to students’ self-esteem.

In modern psychological and pedagogical science, a person’s self-esteem is considered an important determinant of personal

development, psychological well-being, and academic and professional success. In domestic and foreign studies published in recent years, the interrelationship of social, pedagogical, and digital factors contributing to the formation of self-esteem has been comprehensively studied.

The interconnection between self-esteem and psychological well-being has already been empirically tested in other studies. According to A. Ismailova's work, psychological well-being is linked with self-esteem among students (Ismailova, 2025). Based on the author's claims, if there is a negative influence of high levels of social comparisons on the psychological condition of an individual, then self-esteem and communication skills can be considered key factors responsible for the improvement of a person's well-being. Thus, the given assumption proves the importance of self-esteem as a key psychological resource.

Similar results were obtained in Kazakhstani studies. N. Auyelbekova's scientific research considers self-esteem in relation to socio-psychological factors such as anxiety level, feeling of social support, and feeling of loneliness (Auyelbekova et al., 2025). It was shown that people with low self-esteem usually have poor mental health, and this demonstrates the preventive function of self-esteem.

In the contemporary educational environment, the influence of the digital context on personal development requires particular attention. A study carried out among high school students by B. Idrees and colleagues indicated that there is a correlation between technology addiction and life stressors as well as low self-esteem (Idrees et al., 2024). Such results imply that, in the absence of proper regulation, the technological space might pose a threat to self-esteem.

The impact of the digital environment on adolescent behavior and self-esteem is also addressed in pedagogical research by Kazakh scholars. A. Turysbayeva, A. Zhumabaeva, K. Yesenova, T. Bainazarova, and S. Maigeldieva demonstrate that students' self-assessment skills develop through the use of formative assessment methods, thereby emphasizing the importance of a pedagogically well-structured digital and evaluative environment (Turysbayeva et al.,

2023). In addition, researchers have found that the systematic use of formative assessment, feedback, and self-assessment methods increases students' self-reflection and learning responsibility (Turysbayeva et al., 2023). This study allows us to consider self-assessment as a pedagogical tool and demonstrates the importance of pedagogical support and a culture of assessment in the formation of self-esteem.

The analysis of the literature showed that self-esteem is a multifaceted psychological and pedagogical phenomenon. Its formation is influenced by social comparison, the digital environment, pedagogical support, and personal resources. Foreign, Russian, and Kazakhstani studies prove that self-esteem is an important indicator of psychological well-being and an object of targeted pedagogical influence that requires development in the educational process.

In this regard, a systematic analysis of the factors of a person's self-esteem forms the scientific basis for improving the culture of psychological support and assessment in educational organizations.

The logic of the study was based on careful consideration of students' self-esteem, with personal and social factors presented in modern psychological and pedagogical works (Ismailova, 2025; Idrees et al., 2024).

The study involved students of higher education institutions studying in the educational program of pedagogy and psychology. The empirical study was conducted at Zh.A. Tashenev University and Academician A. Kuatbekov Peoples' Friendship University. The study sample included students of the 1st–4th year of the mentioned universities ($N = 171$). The age of the participants ranged from 19 to 22 years.

The selection was voluntary, and informed consent was obtained from all participants during the study.

Methods and techniques used

1. Determining the level of self-esteem of students. The Rosenberg Self-Esteem Scale (RSES) was used to measure self-esteem. This method has been widely used in working with students and has been revalidated in recent years.

Scale characteristics:

- consists of 10 statements;
- 4-point Likert scale;
- determines the level of overall self-esteem.

The psychometric basis of the method has been confirmed in recent studies:

The scale has shown high internal reliability and factor structure in a cohort of students and young people (Moksnes et al., 2024; Ghasempour et al., 2025).

2. Measuring psychological well-being

A shortened SPWB-18 scale based on the Ryff model was used to assess the psychological well-being of students. This version is convenient to use with a large number of students and has been validated in several countries in recent years.

The dimensions assessed are:

- self-perception;
- meaning of life;
- autonomy;
- quality of social relationships;
- personal development.

The validity and reliability of the SPWB-18 scale have been proven in recent studies (Garcia et al., 2023; Tibubos et al., 2025).

3. Social comparison and digital environment factors

A block of questions based on problematic technology use and social comparison indicators was used to assess the behavior of students in the digital environment and the level of social comparison.

This block was developed based on the methodological approaches used in the study by B. Idris and colleagues and included the following aspects:

- frequency of comparing oneself with others on social networks;
- screen time;

- emotional reactions in the digital environment.

Ethical consideration. Participation in the study was voluntary, and informed consent was obtained from all participants before data collection. The students were informed about the purpose of the research and were free to withdraw from the study at any stage without any consequences. No personally identifying information was included in the analysis, and the collected data was used only for research purposes. As the study was based on non-invasive questionnaire procedures, participation did not involve any experimental intervention. Formal institutional ethical approval had not been obtained before the data was collected. For this reason, particular care was taken to ensure voluntary participation, informed consent, anonymity, confidentiality, and the protection of participants' personal information throughout the research process.

Data processing methods. The data obtained was processed using the following statistical methods:

- descriptive statistics (means, percentages);
- grouping by level of self-esteem (low, medium, high);
- correlation analysis (Pearson r) - to identify the relationships between self-esteem and psychological well-being, social comparison, and digital factors.

This approach allows for a comprehensive analysis of the factors affecting students' self-esteem.

Results. The results of the study allowed us to identify the relationships between the level of self-esteem of students, psychological well-being, and digital environment factors (Table 1).

Table 1

Distribution of Students by Self-Esteem Level (N = 171)

Self-esteem level	n	(%)
High	72	42.1
Moderate	75	43.9
Low	24	14.0
Total	100	100.0

During the description of the research results, the percentage distribution of the self-esteem levels of the students was determined. According to the data received, moderate (43.9%) and high (42.1%) levels of self-esteem were observed in the majority of

participants, and a low level was observed in 14.0% of students. These indicators show that self-esteem is sufficiently developed in most students. The percentage distribution of students across the three self-esteem levels is presented in Figure 1.

Figure 1

Percentage Distribution of Students by Self-Esteem Level

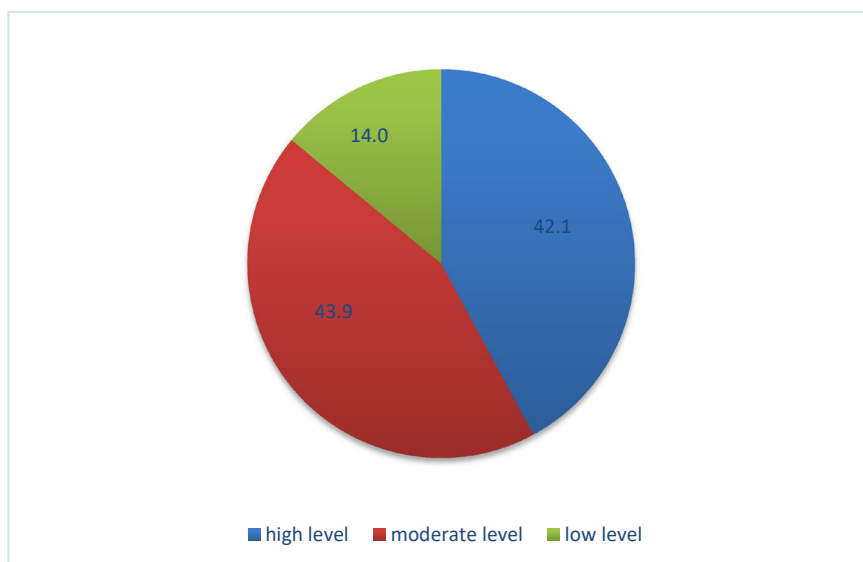


Figure 1 shows the percentage distribution of students' self-esteem levels. According to the results, it can be seen that the average and high levels of self-esteem prevail. In addition,

in the course of the study, a correlation analysis was conducted in order to determine the interrelationships between the variables (Table 2).

Table 2

Correlations Between Self-Esteem, Psychological Well-Being, Social Comparison, and Digital Factors
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Variables	r^2	(%)
Self-esteem – Psychological well-being	.52	27
Self-esteem – Social comparison	-.46	21
Self-esteem – Problematic digital use	-.41	17
Social comparison – Psychological well-being	-.39	15
Digital use – Psychological well-being	-.44	19
Social comparison – Digital use	.49	24

The correlation analysis showed clear relationships among the variables examined in the study. Self-esteem was positively related to psychological well-being ($r = .52$), with the two variables sharing approximately 27% of their variance. In other words, students who reported higher self-esteem generally also reported higher psychological well-being.

A different pattern was observed for social comparison and problematic digital use. Self-esteem was negatively related to social comparison ($r = -.46$), accounting for approximately 21% shared variance. The relationship between self-esteem and problematic digital use was also negative ($r = -.41$), with about 17% shared variance. Students

who reported more frequent social comparison or greater problematic digital use therefore tended to have lower self-esteem.

The remaining correlations followed a similar pattern. Social comparison was negatively related to psychological well-being ($r = -.39$), as was problematic digital use ($r = -.44$). At the same time, social comparison and problematic digital use were positively related ($r = .49$). Taken together, these results show that self-esteem and psychological well-being were positively connected in this sample, whereas both tended to be lower among students reporting greater social comparison and problematic digital use.

Discussion. The results of this study show that self-esteem is related to several aspects of students' psychological and social experience. Students with higher self-esteem generally reported better psychological well-being, while those who engaged more frequently in social comparison or reported greater problematic digital use tended to have lower self-esteem. This pattern suggests that self-esteem cannot be considered separately from the wider context in which students study, communicate, and evaluate themselves. Similar relationships between self-evaluation, psychological well-being, and students' social experiences have also been reported in recent research (Ismailova et al., 2025).

One of the clearest relationships found in the study was between self-esteem and psychological well-being ($r = .52$). Students who viewed themselves more positively also tended to report better psychological well-being. Ismailova et al. (2025) reported a comparable pattern among university students, identifying self-esteem as a significant positive predictor of psychological well-being. Cui et al. (2024) reached a similar conclusion in their cross-sectional study of 689 Chinese university students, where self-esteem and mental well-being were positively correlated ($r = .60$). The association in their study was somewhat stronger than the one found here ($r = .52$), but the overall pattern is similar: in both samples, more positive self-evaluation was linked with better psychological well-being.

Evidence from longitudinal research provides another perspective on this relationship. Gao et

al. (2022) followed Chinese college students over four academic years and found that higher self-esteem was associated with lower levels of depression, with the relationship also observed over time. Depression is not the same construct as the psychological well-being examined in the present study, so the findings cannot be compared directly. Even so, the longitudinal results are relevant because they show that self-esteem remains connected with students' psychological adjustment across different stages of university study.

Differences in the strength of these relationships across studies may be related to the populations studied, cultural settings, or the measures used to assess self-esteem and psychological well-being. Despite these differences, the pattern found among the Kazakhstani students in the present study is broadly consistent with findings from other university populations. This similarity should still be interpreted with caution. The present study was cross-sectional and correlational; therefore, the positive relationship observed between self-esteem and psychological well-being cannot establish that higher self-esteem leads to better psychological well-being (Cui et al., 2024; Ismailova et al., 2025).

Rosenthal and Tobin (2023) offer a related example from a sample of 437 U.S. college students. They found that higher self-esteem was associated with fewer depressive symptoms, while longer daily social media screen time was linked to greater odds of reporting depressive symptoms. Although their study focused on depressive symptoms rather than psychological well-being, it points to the relevance of both self-esteem and digital behavior when considering students' psychological adjustment.

Rehman et al. (2023) reported a comparable relationship among university students. In their study, self-esteem was positively related to psychological well-being and also served as a mediator between mindfulness and psychological well-being. Their analysis involved a different set of variables from those examined here, but the general pattern is similar: students' perceptions of themselves appear to be closely connected with their psychological well-being.

Social comparison showed a different relationship with self-esteem in the present study. The correlation was negative ($r = -.46$), meaning that students who compared themselves with others more often generally reported lower self-esteem. This pattern has also been observed in studies of social comparison in digital settings (Ismailova et al., 2025). For example, Zuo and Zan (2025) studied 500 Chinese college students and found that cyber upward social comparison was negatively related to self-esteem. They also found that self-esteem mediated the relationship between cyber upward social comparison and well-being.

Servidio et al. (2024) reported similar results in a sample of 256 Italian university students. Social comparison was negatively correlated with self-esteem ($r = -.26, p < .001$), although this relationship was weaker than the one found in the present sample ($r = -.46$). The direction of the association, however, was the same in both studies. Servidio et al. also found a positive relationship between social comparison and problematic social media use ($r = .30$) and a negative relationship between self-esteem and problematic social media use ($r = -.21$). This combination of findings is useful for interpreting the present results, as it suggests that social comparison, self-esteem, and problematic digital behavior are connected aspects of students' experience rather than entirely separate processes.

The way social comparison occurs may also matter. R  ther et al. (2023) examined this issue experimentally in a sample of 231 female university students. Exposure to positively biased images posted by social media influencers encouraged upward comparison, which was subsequently linked to lower state self-esteem. This result helps to interpret the present findings from a broader perspective. The relationship between social comparison and self-esteem may depend not only on how often students compare themselves with others, but also on whom they compare themselves with and the type of digital content they encounter.

Taylor and Armes (2024) approached the issue by examining the direction of comparison on Instagram. They found that self-esteem and

body-esteem increased following exposure to downward-comparison images. Upward comparison, in contrast, was followed by a significant decrease in body-esteem, but not in self-esteem. This distinction is relevant to the negative correlation found in the present study ($r = -.46$). It suggests that different forms of comparison may not have the same relationship with self-evaluation and that the outcome may also depend on whether general self-esteem or a more specific aspect, such as body-esteem, is being considered.

The differences in the strength of associations reported across studies may be related to the characteristics of the samples, the sociocultural settings in which the research was conducted, and the measures used to assess social comparison and digital behavior. There are also differences in how social comparison itself has been defined. Zuo and Zan (2025), for instance, focused specifically on upward comparison in online environments, while the present study examined a broader tendency to compare oneself with others. Future studies could distinguish more clearly between upward and downward comparison and explore whether these forms are related to self-esteem in different ways across online and offline settings (Servidio et al., 2024; Zuo & Zan, 2025).

Problematic digital use was also related to self-esteem in the present sample. The association was moderately negative ($r = -.41$), with students reporting greater problematic digital use generally showing lower self-esteem. Idrees et al. (2024) observed a similar relationship among high school students, where problematic technology use was associated with lower self-esteem. Yang et al. (2024) reported the same direction of association in a cross-sectional sample of 806 undergraduate students, although the correlation between self-esteem and problematic mobile phone use was weaker ($r = -.24, p < .001$) than the one found here ($r = -.41$). The difference may be related to the way problematic digital use was measured, as well as to differences in the samples and sociocultural settings. Yang et al. (2024) also found that fear of missing out partly mediated the relationship between self-esteem and problematic mobile

phone use. This may offer one explanation for how students' self-evaluation and problematic patterns of digital use become connected.

A broader picture emerges from the systematic review by Sánchez-Fernández and Borda-Mas (2023), which covered 117 studies of university students. Their review linked problematic smartphone and Internet use with a range of psychological factors, while also drawing attention to substantial differences in how problematic digital behavior has been defined and measured across studies. Such variation may help explain why the strength of reported associations is not always consistent. The present findings should nevertheless be interpreted within the limits of the research design. Since the data were collected at one point in time and analyzed correlationally, they do not establish whether problematic digital use contributes to lower self-esteem, whether lower self-esteem is related to greater problematic digital use, or whether other factors are involved (Idrees et al., 2024; Yang et al., 2024).

Chen et al. (2023) provide another useful comparison. In their study of 694 college students, self-esteem was negatively related to mobile phone addiction, while social avoidance and peer relationships were identified as possible mediating mechanisms. Their results suggest that the connection between self-esteem and problematic digital behavior may involve students' interpersonal experiences as well as individual psychological characteristics.

Meta-analytic evidence points in the same direction. Ding et al. (2022) combined the results of 56 studies involving 42,300 participants and reported a moderate negative relationship between smartphone addiction and self-esteem ($r = -.25$). This association was weaker than the one observed in the present study ($r = -.41$), but both results show the same general pattern: greater problematic smartphone or digital use tends to be associated with lower self-esteem.

The findings also have relevance for educational practice, although global self-esteem should not be confused with students' self-assessment of their learning. In Kazakhstan, Turysbayeva et al. (2023) showed that the systematic use of formative assessment

techniques can help primary school students develop their self-assessment skills. Their study involved younger learners and focused on academic self-assessment rather than global self-esteem, so a direct comparison with the present results would not be appropriate. Nevertheless, it illustrates how educational practices can create opportunities for students to reflect on their progress and evaluate their own learning. In the present university sample, global self-esteem was related not only to psychological well-being but also to students' social comparison and problematic digital use. These results point to the value of combining reflective learning practices with broader psychological and pedagogical support for students (Turysbayeva et al., 2023).

Taken as a whole, the results show that self-esteem is connected with several aspects of students' experience in higher education. Higher self-esteem was associated with better psychological well-being, while greater social comparison and problematic digital use were associated with lower self-esteem. Looking at these relationships together may provide a more complete picture of how students evaluate themselves within their academic, social, and digital environments. For educational practice, this draws attention to the value of reflective learning, responsible digital behavior, and accessible psychological and pedagogical support. These implications should, however, be considered with caution. Because the study was cross-sectional and correlational, the relationships identified here do not show that one variable causes changes in another. Rather, they identify patterns that can be examined more closely in future longitudinal and intervention-based research.

Several limitations need to be taken into account when interpreting the results of this study. The first concerns the cross-sectional design. Since the data were collected at a single point in time, the study cannot establish the direction of the relationships between self-esteem, psychological well-being, social comparison, and problematic digital use. This is especially relevant because self-esteem may not remain unchanged throughout university

years. Liu et al. (2024), using four waves of longitudinal data from Chinese college students, identified different patterns of self-esteem development over time and found that these trajectories were associated with different psychological outcomes. The present study offers only a snapshot of these relationships and cannot show how they may change as students progress through university.

A second limitation concerns the sample. The participants were 171 pedagogy and psychology students from two higher education institutions in Kazakhstan. The findings therefore should not be generalized to all university students without further evidence. Students from other academic disciplines, institutions, age groups, or sociocultural settings may show different patterns of relationships. A third limitation is the reliance on self-report measures. Students' responses reflect their own perceptions and may be influenced by individual response tendencies.

Future studies could address these limitations by following students over longer periods or by using experimental and intervention-based designs where appropriate. Larger and more diverse samples from different universities and fields of study would also make it possible to examine whether the relationships found here are observed in other student populations. Combining questionnaires with qualitative interviews, behavioral indicators, or other sources of data may provide a fuller understanding of students' experiences. It would also be useful to distinguish between different forms of social comparison and patterns of digital use rather than treating them as broad categories. Such research could clarify how these factors are related to changes in self-esteem and psychological well-being during university education (Liu et al., 2024).

Conclusion. The present study explored how self-esteem is related to psychological well-being, social comparison, and problematic digital use among university students. Self-esteem showed a positive relationship with psychological well-being ($r = .52$), while its relationships with social comparison ($r = -.46$) and problematic digital use ($r = -.41$) were negative. In practical terms, students with

higher self-esteem generally reported better psychological well-being, whereas those who engaged more frequently in social comparison or reported greater problematic digital use tended to have lower self-esteem.

These results place self-esteem within a wider psychological and educational context. Students' perceptions of themselves appear to be connected not only with their psychological well-being but also with the social and digital environments in which they interact. At the same time, these relationships should be interpreted carefully. Since the study was cross-sectional and correlational, it cannot determine whether social comparison or problematic digital use leads to lower self-esteem, or whether students with lower self-esteem are more likely to engage in these behaviors.

The distinction between global self-esteem and academic self-assessment is also important when considering the educational implications of the findings. Formative assessment, constructive feedback, and reflective activities can provide students with opportunities to evaluate their learning and develop greater awareness of their progress. Their direct influence on global self-esteem, however, was not examined in this study. These practices should therefore be viewed as possible elements of broader educational support rather than as interventions whose effects on self-esteem have already been established.

Further research could follow students over time to examine how self-esteem, psychological well-being, social comparison, and digital use change during university education. Studies involving students from different universities and academic disciplines would also help determine whether the relationships observed here are found in other populations. Particular attention could be given to different forms of social comparison and specific patterns of digital use. Longitudinal and intervention-based research may eventually provide a stronger basis for developing educational practices that support students' psychological well-being and adjustment to contemporary university life.

Conflict of Interest: The authors declare that they have no conflicts of interest related to this study.

References

- Auyelbekova, N., Canevello, A., Zhigitbekova, B., Boltayeva, A., Khananyan, A., Akhtayeva, N., & Klepikov, D. (2025). The relationship between students' self-esteem and socio-psychological factors. *Health Psychology Research*, 13(2). <https://doi.org/10.14440/hpr.2475586>
- Chen, C., Shen, Y., Lv, S., Wang, B., & Zhu, Y. (2023). The relationship between self-esteem and mobile phone addiction among college students: The chain mediating effects of social avoidance and peer relationships. *Frontiers in Psychology*, 14, 1137220. <https://doi.org/10.3389/fpsyg.2023.1137220>
- Cui, Z., Lin, Z., Ren, J., Cao, Y., & Tian, X. (2024). Exploring self-esteem and personality traits as predictors of mental wellbeing among Chinese university students: The mediating and moderating role of resilience. *Frontiers in Psychology*, 15, 1308863. <https://doi.org/10.3389/fpsyg.2024.1308863>
- Ding, Y., Wan, X., Lu, G., & Huang, H. (2022). The associations between smartphone addiction and self-esteem, self-control, and social support among Chinese adolescents: A meta-analysis. *Frontiers in Psychology*, 13, 1029323. <https://doi.org/10.3389/fpsyg.2022.1029323>
- Gao, W., Luo, Y., Cao, X., & Liu, X. (2022). Gender differences in the relationship between self-esteem and depression among college students: A cross-lagged study from China. *Journal of Research in Personality*, 97, 104202. <https://doi.org/10.1016/j.jrp.2022.104202>
- Garcia, D., Kazemitabar, M., & Habibi Asgarabad, M. (2023). The 18-item Swedish version of Ryff's psychological wellbeing scale: Psychometric properties based on classical test theory and item response theory. *Frontiers in Psychology*, 14, 1208300. <https://doi.org/10.3389/fpsyg.2023.1208300>
- Ghasempour, S., Sharif-Nia, H., Nouri, S., Mirhosseini, S., & Abbasi, A. (2025). Validation of the Rosenberg Self-Esteem Scale among the Iranian adult population: A cross-sectional study. *PLOS ONE*, 20(12), e0336969. <https://doi.org/10.1371/journal.pone.0336969>
- Gholizade, Z., Mirzaei, L., & Mirzaei, M. (2024). Meta-analysis of the relationship between self-esteem and academic achievement. *Journal of Educational Psychology*, 19(70), 200–226. <https://doi.org/10.22054/jep.2024.72276.3790>
- Idrees, B., Sampasa-Kanyinga, H., Hamilton, H. A., & Chaput, J.-P. (2024). Associations between problem technology use, life stress, and self-esteem among high school students. *BMC Public Health*, 24, 492. <https://doi.org/10.1186/s12889-024-17963-7>
- Ismailova, A., Naubayeva, K., Zheldibayeva, R., & Kontrimienė, S. (2025). Self-esteem, social comparison, and interpersonal communication competence as predictors of students' psychological well-being. *Frontiers in Education*, 10, 1679209. <https://doi.org/10.3389/feduc.2025.1679209>
- Liu, X., Yuan, Y., Gao, W., & Luo, Y. (2024). Longitudinal trajectories of self-esteem, related predictors, and impact on depression among students over a four-year period at college in China. *Humanities and Social Sciences Communications*, 11, 615. <https://doi.org/10.1057/s41599-024-03136-9>
- Ministry of Education of the Republic of Kazakhstan. (2022). Bilim beru uiymdaryn bagalau olshemsharttaryn bekitu turaly [On approval of the criteria for evaluation of educational organizations] (Order No. 486, December 5, 2022). <https://adilet.zan.kz/kaz/docs/V2200031053> [in Kazakh].
- Moksnes, U. K., Espnes, G. A., Eilertsen, M. E. B., Bjørnsen, H. N., Ringdal, R., & Haugan, G. (2024). Validation of Rosenberg self-esteem scale among Norwegian adolescents: Psychometric properties across samples. *BMC Psychology*, 12, 506. <https://doi.org/10.1186/s40359-024-02004-0>
- Parmigiani, D., Nicchia, E., Murgia, E., & Ingersoll, M. (2024). Formative assessment in higher education: An exploratory study within programs for professionals in education. *Frontiers in Education*, 9, 1366215. <https://doi.org/10.3389/feduc.2024.1366215>
- Rehman, A. U., You, X., Wang, Z., & Kong, F. (2023). The link between mindfulness and psychological well-being among university students: The mediating role of social connectedness and self-esteem. *Current Psychology*, 42, 11772–11781. <https://doi.org/10.1007/s12144-021-02428-6>
- Republic of Kazakhstan. (2007). Bilim turaly Qazaqstan Respublikasynyn Zany [Law of the Republic of Kazakhstan “On Education”] (No. 319-III, July 27, 2007). <https://adilet.zan.kz/kaz/docs/Z070000319> [in Kazakh].
- Rosenthal, S. R., & Tobin, A. P. (2023). Self-esteem only goes so far: The moderating effect of social media screen time on self-esteem and depressive symptoms. *Behaviour & Information Technology*, 42(15), 2688–2695. <https://doi.org/10.1080/0144929X.2022.2139759>
- Rüther, L., Jahn, J., & Marksteiner, T. (2023). #influenced! The impact of social media influencing on self-esteem and the role of social comparison and resilience. *Frontiers in Psychology*, 14, 1216195. <https://doi.org/10.3389/fpsyg.2023.1216195>

Sánchez-Fernández, M., & Borda-Mas, M. (2023). Problematic smartphone use and specific problematic Internet uses among university students and associated predictive factors: A systematic review. *Education and Information Technologies*, 28, 7111–7204. <https://doi.org/10.1007/s10639-022-11437-2>

Servidio, R., Soraci, P., Griffiths, M. D., Boca, S., & Demetrovics, Z. (2024). Fear of missing out and problematic social media use: A serial mediation model of social comparison and self-esteem. *Addictive Behaviors Reports*, 19, 100536. <https://doi.org/10.1016/j.abrep.2024.100536>

Government of the Republic of Kazakhstan. (2023). Qazaqstan Respublikasynda mektepke deyingi, orta, tehnikalyq zhane kasiptik bilim berudi damytudyn 2023–2029 zhyldarga arналған tuzhyrymdamasyn bekitturaly [On approval of the concept for the development of preschool, secondary, technical and vocational education in the Republic of Kazakhstan for 2023–2029] (Resolution No. 249, March 28, 2023). <https://adilet.zan.kz/kaz/docs/P2300000249> [in Kazakh].

Taylor, J., & Arnes, G. (2024). Social comparison on Instagram, and its relationship with self-esteem and body-esteem. *Discover Psychology*, 4, 126. <https://doi.org/10.1007/s44202-024-00241-3>

Tibubos, A. N., Reinwarth, A. C., Reiner, I., Werner, A. M., Wild, P. S., Münzel, T., König, J., Lackner, K. J., Pfeiffer, N., & Beutel, M. E. (2025). Psychological indicators for healthy aging: Validation of the German short version of Ryff's scales of psychological well-being (SPWB). *Journal of Patient-Reported Outcomes*, 9(1), 25. <https://doi.org/10.1186/s41687-025-00854-9>

Tokayev, K.-Zh. (2021). Halyk birligi zhane zhuyeli reformalar – el orkeninin berik negizi [Unity of the people and systemic reforms – a solid foundation for the nation's prosperity]. <https://www.akorda.kz> [in Kazakh].

Tokayev, K.-Zh. (2024). Bilim keleshegi: Adal azamat, kasibi maman [The future of education: An honest citizen, a professional specialist]. <https://www.akorda.kz/kz/memleket-basshysy-kasym-zhomart-tokaevty-n-bilim-keleshegi-adal-azamat-kasibi-maman-takrybyndagy-tamyz-konferenciya-synyn-plenarlyk-otyrys-syn-soylegen-sozi-1571340> [in Kazakh].

Turysbayeva, A., Zhumabayeva, A., Yessenova, K., Bainazarova, T., & Maigeldiyeva, S. (2023). The impact of formative assessment techniques on students' self-assessment skills. *Journal of Education and E-Learning Research*, 10(4), 657–665. <https://doi.org/10.20448/jeelr.v10i4.5045>

Ullah, H., Shahzada, G., & Khan, H. N. (2024). Does academic motivation contribute to the self-esteem of students at the graduate level? A case study of universities in the southern districts of Khyber Pakhtunkhwa, Pakistan. *Frontiers in Education*, 9, 1337123. <https://doi.org/10.3389/feduc.2024.1337123>

van der Linden, J., van der Vleuten, C., Nieuwenhuis, L., & van Schilt-Mol, T. (2023). Formative use of assessment to foster self-regulated learning: The alignment of teachers' conceptions and classroom assessment practices. *Journal of Formative Design in Learning*, 7, 195–207. <https://doi.org/10.1007/s41686-023-00082-8>

Yang, X., Liu, Q., Gao, L., Wang, G., & Liu, T. (2024). Linking self-esteem to problematic mobile phone use: A moderated mediation model of fear of missing out and ruminative subtypes. *Behavioral Sciences*, 14(8), 683. <https://doi.org/10.3390/bs14080683>

Zuo, F., & Zan, Q. (2025). Cyber upward social comparison and well-being among college students: The chain mediating roles of self-esteem and emotional regulation. *BMC Psychology*, 13, 1202. <https://doi.org/10.1186/s40359-025-03521-2>

Information about the authors:

Makhametova Zakhida, doctoral student, People's Friendship University named after Academician A. Kuatbekov, ORCID ID: 0009-0002-5609-1637, email: sabira71711@gmail.com

Toxanbayeva Nurgul, Doctor of Psychological Sciences, Professor, Al-Farabi Kazakh National University, ORCID ID: 0000-0002-7026-7902, email: n.toksanbaeva@mail.ru

Myrzabekov Yerzhan, PhD, Senior Lecturer, People's Friendship University named after Academician A. Kuatbekov, ORCID ID: 0009-0007-3278-3918, email: erjan987@mail.ru