

Internationalisation Through the Eyes of International Students: Wellbeing Challenges and Resources at a STEM-Focused University

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Abstract

International students represent a group of university students with increased vulnerability to stress and mental burden, particularly due to relocation to a new country and the process of acculturation. This paper presents a qualitative study focused on the wellbeing of international STEM students at a university of technology in Slovakia. Using the participatory visual method of PhotoVoice, we investigated how students visually and narratively perceive their own wellbeing in connection with the international dimension of the university. Analysis of the photographs and accompanying narratives revealed the key role of interpersonal relationships, a culturally diverse environment, and physical spaces in enhancing feelings of belonging and mental wellbeing. The findings emphasize the importance of social networks and community-building activities as protective factors in the context of the internationalisation of higher education.

Keywords: *Wellbeing; international students; internationalisation; relationships; PhotoVoice.*

1. Introduction

During their university studies, students face a range of challenges both within and beyond the academic environment. These include high-performance demands, an unstructured work environment, limited social support, and difficulties with time management. Students' ability to cope with these challenges affects the duration of their studies and the likelihood of dropping out (Martín-Arbós et al., 2024). Given these general challenges faced by the student population,

it is important to recognise that some groups may be particularly vulnerable to stress and psychological strain, among them international students.

The international students may be particularly vulnerable to experiencing stress and developing mental illness as a result of the challenges associated with relocation and acculturation (Xiong et al., 2024; Skromanis et al., 2018; Prado et al., 2024). They frequently face obstacles that hinder academic success and harm their health. These obstacles include language barriers, cultural differences, administrative hurdles, difficulties in communicating with teachers, and social isolation—factors that can negatively affect mental health, wellbeing, and academic performance (Xiong et al., 2025). However, international students often demonstrate lower levels of awareness and engagement in seeking mental health support compared to domestic students (Han et al., 2025; Hyun et al., 2007). International studies also highlight burdens associated with mismatches between expectations and lived reality, institutional heterogeneity, language problems, inadequate preparation for study and daily life, the financing of studies, career prospects, and experiences of social isolation and segregation. These factors contribute to sustained stress and emotional strain (SVR – Forschungsbereich, 2017).

With the increasing internationalization of higher education, the number of international students is rising both globally (Riaño & Piguet, 2016) and in Slovakia (Šrívánková & Turnerová, 2024). Globally, the number rose from approximately 2 million in 2000 to 6.9 million in 2022 (OECD, 2024), while in Slovakia it increased from 6.6 thousand in 2016 to 19.5 thousand in 2023 (CVTI, 2025). In this context, having a clear institutional strategy is essential, as carefully designed peer learning activities can intentionally support meaningful interaction, allowing home students to be exposed to diverse perspectives, approaches, and experiences (Hlavatá & Simon, 2024).

Understanding the psychological needs of international students is therefore an important but frequently overlooked area. This study responds to this situation by focusing on the wellbeing and experiences of international STEM students using the visual participatory PhotoVoice method. The preliminary findings highlight the importance of interpersonal connections and an international, culturally diverse university environment in supporting student wellbeing. This paper addresses the gaps in the research aimed at wellbeing of foreign STEM students in the context of Central and Eastern Europe.

2. Methodology

The study aims to generate insight into how wellbeing is experienced and made meaningful by international students in an internationalised university setting. This leads to the main research question: How do international students visually and narratively represent the relationship between their wellbeing and the university's international character?

2.1. Participants

The research sample comprised of 50 international first-year students enrolled in cybernetics and computer science programmes at the Slovak University of Technology in Bratislava, Slovakia. The participants' average age was 19.7 years, with a predominance of males ($N = 44$) and students from Ukraine ($N = 40$). The sample also included students from Kazakhstan, Russia, Hungary, Serbia, Spain, Italy, and Vietnam. The substantial representation of Ukrainian students in our sample reflects long-term trends observed in Slovakia. Students from Ukraine constitute the largest national group among international students at Slovak universities, which is partly related to the unfavourable developments in their home country (Šrívánková & Turnerová, 2024). Considering this particular geopolitical context this sample might influence the perception of safety and wellbeing.

2.2. Research Design

For the purposes of this study, a qualitative research design was employed, using the participatory visual PhotoVoice method (Wang & Burris, 1997). PhotoVoice is frequently used to explore empowerment processes within vulnerable communities, including international students (Biber & Brandenburg, 2020; Corcoran, 2018). Photography promotes inclusivity by reducing potential inequalities linked to language or cultural differences (Catalani & Minkler, 2010). The research was conducted between November and December 2025. Students were approached during their English language classes. Participants were introduced to the topic, the research objectives, and the technical and ethical considerations associated with producing photographic material. They were instructed to select two of the photographs they had taken, assign each a title, and justify their choices by responding to the following questions: Why did you choose this particular photo? What do you want to express with it? What message would you like to share with others? What would you like to draw attention to?

Their responses, along with demographic data, were submitted through an online system. Participants were fully informed about the voluntary nature of their involvement in the research. Ethical approval for the study was granted by the Research Ethics Assessment Commission of the Faculty of Education at Comenius University Bratislava, Slovakia (No. 8/2025).

2.3. Data Analysis

One hundred photographs were analysed by the authors using a combination of inductive and deductive thematic analysis (Braun & Clarke, 2006). Coding was carried out collaboratively, and discrepancies were resolved through discussion. The researchers also integrated reflexive journaling during the analytical process to monitor potential interpretive bias. Microsoft Excel (Microsoft 365 version) was used to support the systematic organization, analysis, and categorization of the visual photographic data, while the cloud-based application Dedoose

(version 10.0.25) was employed for analysing the accompanying narratives. The photographs were examined on two levels. The first level focused on denotation, that is, the literal content depicted in the images. The second level addressed their connotations, or the meanings and interpretations associated with the visual content. Because similar photographs may convey different meanings, examining the participants' explanations for why the photographs were taken is a crucial component of the PhotoVoice methodology. This ensures that researchers balance their own interpretations with those of the participants and remain attentive to the subjective meaning-making processes involved (Tsang, 2020).

3. Results

Based on the denotative level of analysis, the photographs were categorized into seven groups (Table 1). At this level, students' perspectives on wellbeing at an internationally oriented university are visually anchored primarily in social interactions and relationships, in academic life associated with learning and the spaces in which learning takes place, as well as in non-academic and leisure activities. While the photographs depict people and shared activities, the visual data alone do not allow for the identification of social roles or national backgrounds.

Table 1. Frequency of themes in students' photographs at the denotative level

Themes	Number of occurrences	Examples of displayed objects/people
Social interactions, friendship, and group well-being	35	portraits of couples and larger groups, smiles, hugs, gestures of closeness, shared meals, food, and informal gatherings
Collaborative learning and academic life	20	individual or group learning, classrooms and other university facilities
Leisure activities, games, and entertainment	12	informal activities, parties, celebrations, trips, and spending time in nature
Dormitories and life in a university environment	10	exteriors of dormitories and dormitory town, interiors of dormitory rooms
International and cultural context	8	flags, national and supranational symbols, events and organisations with international significance
The city, mobility, and everyday travel	8	transportation, public space
Nature, tranquillity, and the visual environment of the countryside and cities	7	night shots of the city, natural scenery

In the next phase of the study, students' narratives were analysed at the connotative level. The analysis identified four main domains as key determinants of students' wellbeing: (1) interpersonal relationships, (2) the international and culturally diverse environment, (3) physical environments, and (4) academic and institutional factors. The international character of the university was linked almost exclusively to positive associations across all four domains.

Interpersonal relationships were described as playing a central role in this aspect. References were made to friends, roommates, peers, and teachers; people from either the students' home country, host country, or another foreign country were mentioned. The references revealed the importance of everyday social interactions and shared activities. Students emphasized that these social ties provide emotional support, reduce feelings of isolation, and contribute to a sense of security. These relationships were often embedded in informal settings such as shared meals, leisure activities, and social events.

"Spending time together over pizza and drinks makes university life warmer and more comfortable. Moments like this help turn a foreign place into a familiar one." (STUZ102IH)

Within the domain of an international environment, students framed internationalisation not only as exposure to diversity but also as a shared experience of being foreign. Many emphasized that they were not alone as international students, but part of a broader international community. This collective experience was linked to mutual support and a sense of belonging in an unfamiliar environment, all of which positively affect students' wellbeing.

"Seeing students from diverse backgrounds (like Germany and the Philippines) moving in sync enriches my experience and keeps me positive." (STUZ51DK)

The physical environment, which included university premises, student residences, the city, as well as surrounding nature, was frequently depicted in relation to calmness, peace, and tranquillity. Urban and natural landscapes were often described as beautiful and emotionally soothing, contributing to the emotional stability and comfort of the students.

"The beautiful look on the capital of Slovakia from the highest floor of our university brings so much joy and warmth to my heart, the possibilities we get by being here." (STUZ22OP)

Academic and institutional factors were described in connection with both difficulties and support systems. While students acknowledged challenges related to coursework, administrative burden, and new languages, these difficulties were generally viewed as manageable. Supportive social networks and a positive institutional atmosphere appeared to reduce their potential negative impact. In addition, students demonstrated awareness of the impact of institutional and material provisions on their wellbeing. Seemingly small gestures, such as access to student lounges, libraries, snack bars, or seasonal decorations, were interpreted as signals of institutional care.

Overall, there was a high degree of alignment between the visual themes identified at the denotative level and the themes that emerged from the analysis at the connotative level. In particular, in the theme of interpersonal relationships, there was a strong correspondence between the visual and verbal material, both emphasising social bonds as a key foundation of wellbeing.

4. Discussion and Conclusions

The findings revealed several interconnected domains shaping international students' wellbeing. These included interpersonal relationships, the international and culturally diverse environment, physical spaces, and academic and institutional factors. The findings align with established frameworks of wellbeing and social connectedness, in particular Ryff's (2014) model of psychological wellbeing, where positive relations with other and environmental mastery are key dimensions. Overall, the international character of the university was perceived almost exclusively in positive terms across all four domains. The domain of social connections was identified as the key component influencing students' wellbeing. Together with the support from other domains, it appears to act as a protective factor against the psychological distress commonly experienced by international students (Soufi Amlashi et al., 2025; Xiong et al., 2025).

The international character of the university was valued particularly for enabling a shared experience of being foreign. Drawing on the theory of social circles that foreign students form when studying abroad: co-national ties, multi-national international ties and host national ties, all were present in the study, albeit to different degrees (Hendrickson et al., 2011), with the second being most prominent. Through their shared status as foreign students, they co-create an international community which is credited for enhancing their wellbeing through mutual support and belonging.

Urban and natural settings, as well as quiet university facilities, appear to function as important psychological resources. Previous studies also revealed that students studying in a foreign country were looking for meaningful attachment to new places, which helps them adjust to living in a foreign culture (Terrazas-Carrillo et al., 2014). The strong emphasis on tranquillity in students' descriptions of physical environment may have several interpretations. It may reflect the lower population density of the host country and city compared to students' home countries, as well as Slovak culture being perceived as less expressive and more reserved. Additionally, given that most participants come from a country currently experiencing military conflict (Ukraine), the safety and serenity of the environment may be particularly significant.

While previous research often focuses on the problematic issues such as acculturation difficulties, language barriers, and discrimination (Xiong et al., 2024; Prado et al., 2024), our present findings, in contrast, highlight what resources aid the positive adjustment. These differences may partially be explained by the study's limitations, which includes a relatively homogeneous sample, its focus on a single institution, and the potential positivity bias associated with the PhotoVoice method. This may result in underrepresentation of the more negative experiences.

Despite these limitations, the study offers practical implications for the universities who look for ways how to support the wellbeing of international students. Priority should be put on

creating opportunities for social interactions, building inclusive international communities, and providing accessible and calming communal spaces. Addressing these needs and making relatively small yet visible institutional efforts may also have a meaningful impact on students' everyday wellbeing.

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