International Entrepreneurship Review

2025, Vol. 11, No. 4

10.15678/IER.2025.1104.01

Assessing entrepreneurial emotional intelligence: The development of the emotional intelligence in business questionnaire

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ABSTRACT

Objective: The article aims to present the 'Emotional Intelligence in Business' (EIB) questionnaire, developed using the four-component 4EI model of emotional intelligence.

Research Design & Methods: The EIB questionnaire is based on the 19 competencies of the 4EI Model, which builds on D. Goleman's mixed model of emotional intelligence. Its competencies are adapted to the business environment, and allow the identification of 4 components: 1) self-awareness (SA), 2) self-management (SM), 3) social awareness (SocA), and 4) relationship management (RM). One hundred fifty-eight respondents of different ages participated in the EIB questionnaire development procedures during 2020 and 2021. We validated the EIB questionnaire using classical test theory methods. We analysed data in MS Excel, SPSS, FACTOR, and R-Studio using techniques such as exploratory and confirmatory factor analyses, Cronbach's alpha, and non-parametric tests (Mann-Whitney U, Kruskal-Wallis).

Findings: The EIB questionnaire demonstrates robust psychometric properties, including high measurement accuracy and internal consistency. It also features a distinct factorial structure. Moreover, the tool demonstrates meaningful and theoretically congruent correlations with N.Hall's Emotional Intelligence Test and D.Lyusin 'AmIn' Questionnaire. The EIB questionnaire comprises 40 statements, each rated on a five-point Likert scale. According to the 4EI model, the EIB questionnaire is a reliable measuring tool for building an entrepreneur's EI profile.

Implications & Recommendations: The EIB questionnaire allows the building of profiles of entrepreneurs and tracking the dynamics of their EI components: SA, SM, SocA, and RM. Surveys with automatic follow-up recommendations can be easily conducted with the help of the user-friendly chatbot 'Emotional Intelligence in Business' specially created in Smart Sender.

Contribution & Value Added: This research offers a valuable tool for measuring EI competencies in the business environment. Based on individual EI profiles, optimising project teams and improving collaboration in entrepreneurship, including online projects, is possible.

Article type: research article

Keywords: emotional intelligence (EI); four-component instrumental model of emotional intelligence (4EI model, Emotional Intelligence in Business Questionnaire (EIB Questionnaire); entrepreneurship

JEL codes: A20, C83, O35

Received: 19 November 2024 Revised: 25 April 2025 Accepted: 30 April 2025

Suggested citation:

Federova, Y., Lutsenko, O., Pilková, A., Mikuš, J., & Holienka, M. (2025). Assessing entrepreneurial emotional intelligence: The de-velopment of the emotional intelligence in business questionnaire. *International Entrepreneurship Review,* 11(4), 7-19. https://doi.org/10.15678/IER.2025.1104.01

INTRODUCTION

Goleman (1995) characterises emotional intelligence (EI) as the capacity to recognise one's feelings and those of others, to motivate oneself, and to effectively manage emotions in oneself and others. Effective communication and problem-solving both necessitate high EI. Research into emotional intelligence has enriched fields such as psychology, business, leadership, and entrepreneurship. An examination of the

literature through the Scopus and Web of Science databases indicates an increase in articles focusing on EI within management. Crucial soft skills like resilience, stress tolerance, adaptability, leadership, and social impact may all be built on EI. EI enhances communication quality, offering a cooperative edge in the workplace. Innovative entrepreneurial endeavours are more likely to be undertaken by those with high EI scores. According to Çetin and Karakaş (2021), innovative dispositions foster innovation and exhibit more proactive knowledge-sharing behaviour. Leaders with high EI can unlock the potential in their followers, resulting in a collective talent that increases employee commitment. Project managers' EI fosters teamwork and speeds up attaining the intended outcomes (Zhang & Hao, 2022). A high level of metacognitive awareness in students (the ability to acquire knowledge and learn new skills) is related to a high level of EI (Perikova & Byzova, 2019). According to Karimi and Ataei (2022), developing and enhancing entrepreneurial abilities in students requires a better level of EI.

The interest in EI in management is growing due to a deep understanding of its impact on professional performance. However, there is a significant gap in research on EI in the business environment. Scholars have identified a lack of assessment tools that consider the specific characteristics of EI in the business context. The development of EI is grounded in three key theories: Bar-On's non-cognitive model, Mayer and Salovey's ability-based model, and Goleman's mixed model of emotional competence. Scholars have developed a variety of psychological tests based on these models. However, the most established and widely used instruments – such as the Mayer- Salovey-Caruso Emotional Intelligence Test (MSCEIT, MSCEIT 2.0); EQ-i (based on Goleman's work and Bar-On's measurements); ECI 2.0; EQ 360 2.0 (Ackley, 2016), Schutte Self Report-Inventory (SSRI), Trait Meta-Mood Scale (TMMS), Wong and Law's Emotional Intelligence Scale (WLEIS), and Trait Emotional Intelligence Questionnaire (TEIQue) (Bru-Luna *et al.*, 2021) – do not sufficiently account for the specific requirements of the business environment.

Considering the important role of sustainable entrepreneurship, given the increasing interest of management in EI in the scientific literature, we conducted a literature analysis of existing techniques for assessing EI in the business sector. We aimed to provide a detailed description of the EIB questionnaire, which allows entrepreneurs and managers to measure EI in a business environment. Hypothesis: Building on existing EI models, a reliable and valid questionnaire can be developed to assess essential EI in business, offering quantitative data and graphical profile interpretation.

The developed and successfully applied EIB questionnaire is valuable for assessing EI in a business environment. It is a convenient and practical tool that allows for the application of psychology in the business environment and thus enhances further interdisciplinary research.

This study contributes to the effective use of human capital in professional activities in a business environment. The detailed questionnaire is described that can be easily and conveniently applied to assess the EI of entrepreneurs in European countries.

The literature review and hypotheses development section presents a systematic literature analysis of existing EI assessment questionnaires in the business environment. The research methodology section describes the methodology for developing the EIB questionnaire. The results and discussion section outlines and compares the developed EIB questionnaire with existing EI assessment questionnaires.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The primary objective of the literature review was to systematise existing EI assessment methods and identify questionnaires suitable for EI assessment within the context of the business environment (considering fields of entrepreneurship, management, and economics).

We conducted the bibliographic search in two stages: an initial search to obtain information according to inclusion-exclusion criteria and a final selection to evaluate the results.

We conducted the literature search in April 2024 in the Web of Science (WoS) database and Scopus, including articles published from 2020 to 2024 (inclusive).

The inclusion criteria for the studies consisted of 1) being published in peer-reviewed journals, 2) being presented as full open-access articles, 3) containing testing and quantitative results, 4) being written in English, 5) containing tests (questionnaires) on EI, and 6) containing quantitative results of EI assessment.

The exclusion criteria for the studies consisted of 1) studies on EI of children, adolescents, and schoolchildren, 2) studies in which EI is only a small part of a comprehensive study, 3) research on the productivity and characteristics of health workers and nurses, and 4) studies that did not quantify results.

In the search strategy, we included the following terms: emotional intelligence, test, questionnaire, assessment, and evaluation. The search was not limited to WoS categories and was limited to Scopus subject areas: psychology, social sciences, business, management and accounting, and health professions. We used the combinations of terms: 'emotional intelligence AND test,' 'emotional intelligence AND questionnaire,' 'emotional intelligence AND assessment,' and 'emotional intelligence AND evaluation.' We selected and analysed only article-type studies that met the aforementioned criteria.

To ensure consistency, we defined the data extracted from each instrument in advance. Subsequently, we used a Microsoft Excel spreadsheet to compile the selected documents and identify duplicates. Figure 1 outlines the search, process including the number of studies included and excluded.

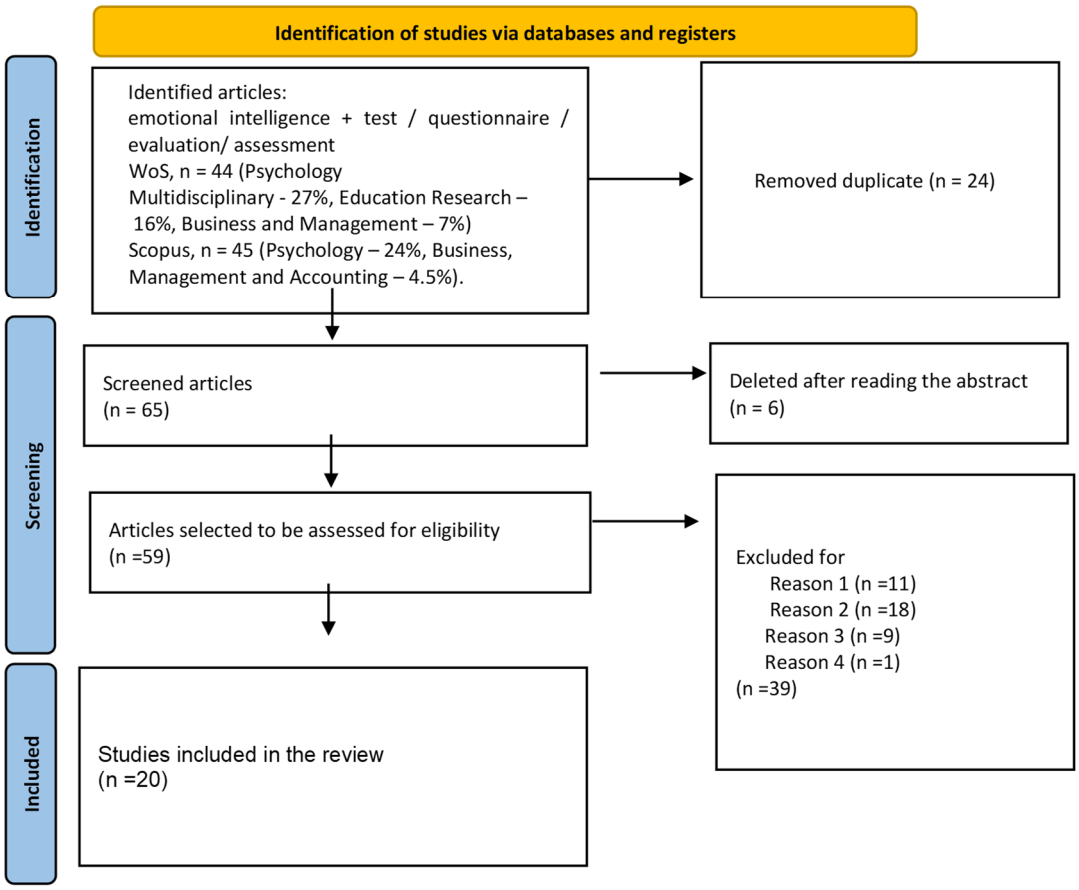

Figure 1. Flowchart according to PRISMA

Source: own elaboration based on the research results in April 2024 in WoS database and Scopus categories.

The literature review identified a total of 20 articles, reflecting a growing interest in the assessment of EI. Most often, researchers identify groups of questionnaires for measuring EI according to three main EI Models: ability-based model, trait-based model, and mixed approach model (Bru-Luna *et al.*, 2021; Butler *et al.*, 2022; Sweis *et al.*, 2022).

Ability models (primarily the Mayer and Salovey model) focus on comparatively separate mental processes related to emotional information. These models emphasise cognitive ability and see EI as intelligence that can process and interpret emotional information. Ability-based assessments help determine emotional identification skills. They are typically unfalsifiable because each question has a correct response. However, ability-based measurements assess only the understanding of emotion. The main disadvantage of ability-based EI measures is the lack of workplace relevance of the items (Schlegel & Mortillaro, 2019). Therefore, these tests may not be entirely sufficient. They may be helpful

in the initial stages of personnel selection and in courses on understanding emotions. The most popular ability-based measures instruments validated in the English language are the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), USA; Trait Meta-Mood Scale (TMMS), USA; Schutte Self-Report Inventory (SSRI), USA; Multidimensional Emotional Intelligence Assessment (MEIA), USA; Three Branch Emotional Intelligence Forced Choice Assessment (TEIFA), USA; Self-Rated Emotional Intelligence Scale (SREIS), USA; Emotional Intelligence Self-Description Inventory (EISDI), USA; Multifactor Emotional Intelligence Scale (MEIS), USA; Wong and Law's Emotional Intelligence Scale (WLEIS), China; Workgroup Emotional Intelligence Profile-3 (WEIP-3), Australia; Situational Test of Emotion Management (STEM), Australia; Situational Test of Emotional Understanding (STEU), Australia; Audiovisual Test of Emotional Intelligence (AVEI), Israel (Bru-Luna *et al.*, 2021). These tests are attractive for respondents as they contain tasks, puzzles, and images (O'Connor *et al.*, 2019).

Trait models are based on recognising emotional abilities. Trait-based measurement instruments are based on self-assessment and, therefore, have related drawbacks. The respondent may deliberately want to get better grades in the eyes of the employer, or the respondent may unintentionally underestimate or overestimate their EI (Fiori & Vesely-Maillefer, 2018; Petrides, 2010). Trait-based measures have a distinct advantage over ability-based measurements because they track student experiences and learning outcomes. They measure emotional self-efficacy. However, their disadvantage is bias in self-reports, which is often due to the desire of the test taker to show better results (for example, during hiring). The primary tools in this concept are the Trait Meta-Mood Scale (TMMS), the Trait Emotional Intelligence Questionnaire (TEIQue, the short form (TEIQue-SF) and peer or 360-degree ratings (TEIQue 360), UK. TEIQue has strong reliability. TEIQue-SF is used in studies of the relationship between EI and achievement (Bitar *et al.*, 2023). It is a frequently utilised instrument across numerous nations and has numerous language translations (Daderman & Kajonius, 2022). Schutte Self-Report Emotional Intelligence Test (SSEIT) or Schutte Self-Report Inventory (SSRI), based on Salovey and Mayer's original model and is often used to identify differences in the EI of men and women (Dishari & Al Afnan, 2023).

Mixed models (primarily the Bar-On and Goleman models) combine ability concepts and personality traits. These models focus on intrapersonal qualities, interpersonal skills, stress management, adaptability, and general mood. The advantage of using a mixed assessment is that they can measure multiple qualities of emotional intelligence with one instrument. These dimensions are heterogeneous and one often measures them by self-report and other assessors. These measurements are becoming increasingly more widely used. The most popular validated mixed model measures instruments are Emotional Competence Inventory 2.0 (ECI 2.0), USA; The Emotional Intelligence Questionnaire (EIQ, EQ-i 2.0), USA; USM Emotional Quotient Inventory (USMEQ-i), Malaysia; The Indigenous Scale of Emotional Intelligence, Pakistan; the Mobile Emotional Intelligence Test (MEIT), Spain, Personal-Interpersonal Competence Assessment (PICA), Emotional and Social Competency Inventory (ESCI).

Most of the tests are developed or translated and adapted into English. Often, they contain statements on a four-point to five-point Likert scale. A notable trend in improving testing objectivity is using the 360 Degree Questionnaire. For example, a manager's self-assessment can be corroborated by assessing two other supervisors, peers or subordinates (Sweis *et al.*, 2022). Only some measurements involve repeated testing over a more extended period. An example would be using the Trait Emotional Intelligence Questionnaire (TEIQue) for four years (Zadorozhny *et al.*, 2024).

Recent research emphasises the need to consider the digital world's impact on EI and the importance of using digital tools to assess EI (Audrin & Audrin, 2023). The fresh perspective in EI research is the EI-ACCME test, designed to assess meta-emotional intelligence. This test focuses on the cognitive aspects of emotional abilities and metacognitive and meta-emotional processes that impact our emotional lives. The IE-ACCME scales describe Meta-Emotional Beliefs, Emotional Self-Concept, The Emotional Abilities Test, and Self-Rating of Performance (D'Amico & Geraci, 2023). Scholars continue to create complex EI tests, mainly in medicine and nursing. Researchers developed the EMI-T for social care and healthcare student selection purposes (Pienimaa *et al.*, 2023)

Despite the growing number of available tools, the literature review revealed a lack of EI assessment instruments tailored to the business environment, which remains a promising area for EI application. A combination of EI tests is used to assess EI in the management and business sectors. The

impact of EI on transformational leadership (Hajncl & Vučenović, 2020), the impact of EI on the effectiveness of communications (Dong *et al.*, 2022), features of the influence of emotional intelligence on Prosocial Behavior (Čikeš & Humer, 2023), study stereotypes that limit women's opportunities in entrepreneurship (Tabassum & Nayak, 2021) or a questionnaire including several EI questions is prepared (Ran *et al.*, 2021). Scholars investigated the impact of EI on transformational leadership through EI using several tests, including the Vocabulary Emotion Test (ability test, VET-3) and the Emotional Skills and Competence Questionnaire (self-report measure, ESCQ-45) (Hajncla & Vučenović, 2020). Scholars synthesised a questionnaire using a five-point Likert scale to study the influence of EI of men and women on Corporate Financial Decision-Making in Pakistan (Ran *et al.*, 2021). Moreover, various tests served to study stereotypes limiting women's entrepreneurship opportunities (Zhang *et al.*, 2023).

However, we found a few tests designed for managers. One of these tests was the QEPro test, specifically designed for French managers. QEPro is an ability-based measure of EI with theory-based scoring based on a modified version of Mayer and Salovey's (1997) four-branch EI model. QEPro is dedicated to business executives and managers in a French cultural environment (Haag & Jilinskaya-Pandey, 2023). The constructs are measured in three areas: ability, personality, and trait & affective measures. QEPro correlates in meaningful and theoretically congruent ways with general intelligence, Trait EI measures, the Big Five factors of personality, and the Affect measures. According to Haag and Jilinskaya-Pandey's hypothesis, two meta-competencies, Identifying Emotions and Strategic Management of Emotions, depend on cultural context.

The second test is Emotionally Intelligent Leadership for Students (EILS). EILS is a self-report assessment designed to measure EI leadership within a student context. It aims to act as a learning instrument for students in high school, college/university, or graduate school. It encompasses three main domains: consciousness of context, self-awareness, and awareness of others. The EILS inventory includes 19 statements, each evaluated on a five-point Likert scale, with scores ranging from 8 to 40 for each of the three domains/constructs. We conducted reliability testing, and each scale demonstrated a robust reliability level (Shankman *et al.*, 2015).

The self-report measure Wong and Law Emotional Intelligence Scale (WLEIS), developed by Wong and Law (2002), is promising. The WLEIS is based on the model of Mayer and Salovey (Salovey & Mayer, 1990) and consists of 16 items, which are evenly distributed across four dimensions: self-emotion appraisal, others' emotion appraisal, use of emotion, and regulation of emotion (Wong & Law, 2002). Self-emotion appraisal relates to individuals' awareness of and reflections on their emotions. Others' emotion appraisal pertains to recognising and understanding the emotions of others. Emotion encompasses observing, assessing, and regulating emotions to alter one's emotional state. Regulation of emotion allows individuals to enhance their performance by harnessing self-driven emotions.

Initially, WLEIS was suggested for leadership and management studies. However, it has been successfully applied to South Korean nurses (Park & Yu, 2021), Chinese students (Kong, 2017), Moroccan students (Ghoudani *et al.*, 2018), UK university students (Sochos *et al.*, 2021), and Spanish medical students (Carvalho *et al.*, 2016).

Moreover, scholars studied the WLEIS on a sample of managers in Chile and found that a structural model of four related factors has the best fit but had low reliability in three of the four factors (Acosta-Prado & Zárate, 2019). The results of the testing of 489 Colombian managers indicated that the WLEIS presents favourable fit indices. Convergent and discriminant data supporting WLEIS scores' validity indicates its reliability (Acosta-Prado *et al.*, 2022).

In response to the growing interest in EI within the realms of business, management, and entrepreneurship, we have developed and validated a test tailored to the nuances of the business environment. Based on the latest iteration of D. Goleman's mixed model (Wolff, 2005), our test encompasses four key components: self-awareness, self-management, social awareness, and relationship management. These components reflect crucial competencies for entrepreneurs and managers (Mikuš *et al.*, 2023). These prior empirical results allowed us to assume the following research hypotheses:

H1: Based on the existing EI models, it is possible to develop a reliable EI questionnaire that considers the skills essential for success in the business environment. The questionnaire

could provide quantitative characteristics of the profile and a graphical interpretation of the EI profiles of business environment participants.

H2: A comparative analysis with the results of well-known EI questionnaires will confirm the questionnaire's construct validity.

RESEARCH METHODOLOGY

We applied the four-component instrumental model of emotional intelligence (4EI Model), which includes self-awareness (SA), self-management (SM), social awareness (SocA), and relationship management (RM) as its core components. The 4EI Model is specifically designed for entrepreneurial and business contexts, incorporating 19 distinct competencies (Mikuš *et al.*, 2022).

The 'Emotional Intelligence in Business' questionnaire represents results using a four-quadrantEI diagram, which illustrates the respondent's emotional intelligence profile (EI profile). We validated the EIB questionnaire using Classical Test Theory methods. We analysed the data in MS Excel, SPSS, FACTOR, and R-Studio using techniques such as exploratory and confirmatory factor analyses, Cronbach's alpha, and non-parametric tests (Mann-Whitney U, Kruskal-Wallis).

We conducted the testing between 2020 and 2021 via the online platform of the National University of Civil Defence of Ukraine (https://testing-system-nure.herokuapp.com/auth). Participation in the testing was voluntary, with a total of 158 respondents surveyed. The sample consisted of individuals aged 18–42 from various fields, including 46 non-students and 109 university students – specifically in psychology (12), philosophy (33), mathematics (10), and law (54) – from V.N. Karazin Kharkiv National University and Ukrainian engineering pedagogy academy. Three respondents did not specify their field of study. The sample included students across different academic years: 35 in the 1st year, 28 in the 2nd, 26 in the 3rd, 16 in the 4th, and 7 in the 5th year. In terms of gender, there were 120 women and 38 men.

The research methodology for developing emotional intelligence in business tests included two stages.

Stage 1. Development of the EIB questionnaire

We created a preliminary version of the test, containing 80 statements, on the online platform. It is scored using a five-point Likert scale.

There were 20 statements for each component of the 4EI Model (SA, SM, SocA, and RM). We determined the methodology of test construction. We formulated the questionnaire statements in a way that they were consistent with the theory and at the same time related to the business context – professional activity and entrepreneurial activity. We created a test of 80 questions in Visual Studio and conducted a student survey on the test platform https://testing-system-nure.herokuapp.com/auth. We processed the data using MS Excel, SPSS, STATISTICA, FACTOR, and R-Studio. Correlation analysis with the total test score and assessment of the distribution of responses to the items allowed us to retain the top 10 items on the scale in terms of their psychometric properties. However, only 1 out of 80 initial items did not meet standard psychometric requirements: 'I know which professional tasks cause me fear.' We may assume that it was loaded with some other factor, such as anxiety, rather than self-awareness as a component of EI. As a result of the first survey stage, 40 of the 80 most essential statements remained. This allowed us to make the questionnaire shorter and more precise, which is a preferred outcome in questionary construction.

Stage 2. The final version of the EIB questionnaire

We created the second test version on the online platform https://testing-system-nure.herokuapp.com/auth, which contained 40 statements with scoring on a five-point Likert scale. We received feedback. We checked the construct validity of the results by comparing them with the responses of respondents using methods that are also based on a mixed model of EI, namely, the questionnaire of N. Hall (test contains 30 statements and 5 EI components) (Hall, 2007) and Lyusin (test contains 40 statements and 6 EI components) (Lyusin, 2006).

The overall test score and the score of the RM scale followed a normal distribution: K-S d=0.05414, p>0.20; Lilliefors p>0.20 and K-S d=0.06442, p>0.20; Lilliefors p<0.10, respectively. The other two scales deviate from the normal distribution. The discriminability of all scales and the test as a whole was very high: Ferguson's δ coefficient = 1.0, which means that the test was informative and evenly distinguished between people by differences in the level of EI and its components.

The Exploratory Factor Analysis using the principal components method, polychoric correlation coefficients, Direct Oblimin rotation, and a hierarchical factor solution (Schmid-Leiman solution) with one main factor and four subfactors showed that all selected tasks correlated with the respective factors at the levels of 0.30-0.83. The parallel analysis used to select the significant factors confirmed that the recommended number of factors for this set of items is 4. The factors correlated with each other at the level of relationship management-social awareness 0.43; relationship management-self-awareness 0.32; relationship management-self-control 0.27; social awareness-self-awareness 0.32; social awareness-self-control 0.26; self-awareness-self-control 0.22. The sub-factors correlated with the general factor of EI at the level of relationship management 0.66; social understanding 0.65; self-awareness 0.49; and self-control 0.42. For EI in business, the most critical components were relationship management and social understanding (Lutsenko *et al.*, 2021).

Confirmatory factor analysis showed that the goodness-of-fit of the selected four-factor test model is not high enough: RMSEA 0.074 (preferably less than 0.080; good if less than 0.050), CFI 0.774 and TLI 0.758 (preferably 0.90 or more). The insufficiently large and representative sample can explain this. However, the internal reliability of the scales of the questionnaire and the questionnaire as a whole was very high: Cronbach's alpha coefficient for the EI in Business questionnaire as a whole was 0.932; for the scales of self-awareness – 0.778, self-control – 0.846, social understanding – 0.868, and relationship management – 0.906. The reliability of the scales assessed in the exploratory factor analysis was notably higher: 0.927, 0.906, 0.866, and 0.865, respectively. This result indicated the test's internal consistency and low measurement error (Lutsenko *et al.*, 2021).

One of the test's criterion validity (*i.e.*, its practical value) indicators is the logical distribution of scores among contrasting groups of subjects – age groups, men and women, representatives of different professions. The obtained results corresponded to the expected EI components' expression levels in the groups. The social awareness component is significantly higher in women than men (Mann-Whitney U Test: U=1682, p=0.014). The self-awareness component showed a proportional increase with the advancement in the year of study among higher education students: Kruskal-Wallis test resulted in H=12.61833, p=0.0272. This trend was further supported by the correlation between the level of self-awareness and the year of study: ρ=0.234, p=0.003. Law students reported higher self-control than philosophy students (U=651, p=0.035). Moreover, we observed higher levels of self-awareness and self-control in the group of non-law students compared to philosophy students (U=657, p=0.027; U=554.5, p=0.015, respectively) (Lutsenko *et al.*, 2021).

RESULTS AND DISCUSSION

The development, validation, and psychometric testing of the 'Emotional Intelligence in Business' questionnaire resulted in a reliable, discriminative, and criterion-referenced instrument for measuring both the overall construct and its components. The test has undergone thorough validation and demonstrated strong reliability.

The test enables entrepreneurs to assess four components of EI (SA, SM, SocA, and RM) and to create a graphical representation of both their own and their team's business EI profile.

The test consists of 40 questions, with ten questions dedicated to each component. For each statement, a respondent must select one answer (never, very rarely, sometimes, often, or always). The developed items are statements that indicate the business scope of EI. An example of a task from the self-awareness scale: 'I am aware of the goals for which I work.' An example from the self-control scale: 'I do my job without making mistakes in a stressful situation.' Example from the social understanding scale: 'I feel what I should not say to a person.' An example from the Relationship Management scale:

'I know the strengths and weaknesses of each team member (employee).' The survey can be conveniently conducted in GoogleForms and via a chatbot created on the Smart Sender online platform.

The respondents could receive individual recommendations on further development of EI in the business after filling out the questionnaire based on their results. The chatbot survey in Smart Sender can automatically deliver personalized EI development recommendations to respondents. Smart Sender is an innovative platform for creating chatbots for various services across Telegram, Viber, Facebook, and more. The platform allows for creating bots without writing any code, making it accessible even for users without a technical background. We tested this methodology, namely, we created chatbots on the Smart Sender platform, to give feedback for improvement in the level of competence in each EI component. The chatbot automatically interacts with users via text messages and sends questions and recommendations to respondents. The chatbot can answer users' questions by providing information, making recommendations, or solving problems. It is also possible to offer the EIB questionnaire in Google Forms or paper form. However, the paper form is less convenient and does not provide individual recommendations.

As a result, respondents receive information about their EI Profile in business (Mikuš *et al.*, 2022). The EI Profile matches the 4EI Model. It consists of quadrants equal to the component's value obtained during the test (from 0 to 10). For example, the EI profile can be described as {7.3SA; 5.3SM; 4.9SocA; 7.1RM}, {HLSA; ALSM; ALSocA; HLRM}. This respondent has an average level of SM and SocA and a high level of SA and RM.

The 4EI Model offers the advantage of visually demonstrating the development degree of each component. By constructing an EI profile, it becomes possible to ascertain the development level of each component, allowing individuals to focus on enhancing the requisite EI skills. Moreover, a comprehensive approach involves monitoring the results both before and after participating in a training course, facilitating a clear assessment of progress and areas needing further development. This article was devoted to assessing the EI of managers, entrepreneurs, and other participants in the business environment. The questionnaire was based on the 4EI Model, which contains 19 essential competencies for managers, entrepreneurs, and business people (Mikuš *et al.*, 2022). The 4EI Model was developed based on D. Goleman's updated model. This model excludes the component of motivation, as it is included in other components of the 4EI Model. The competencies of the model for the business environment were chosen based on the generalisation of theoretical material about EI.

Our approach focused on building emotional competencies (*e.g.*, increased awareness and generation of new ideas, ability to collaborate, negotiation and relationship-building skills, and leadership) that will enable managers and entrepreneurs to improve team management and generate positive financial results. However, our research can only be confirmed by the real success of project teams based on the principles of collaboration of students trained according to the 4EI Model.

Our study integrates the latest advancements in EI research in psychology and management. It is based on the popular 4-component approach to EI in psychology. The content of the components reflects the competencies essential for success in management and the business environment.

The EIB questionnaire aligns with the 4EI Model based on Daniel Goleman's latest EI framework. Unlike D. Goleman's Model, which contains 16 general EI competencies, the 4EI Model contains 19 competencies essential for management and business success. In contrast to D. Goleman's questionnaire, which consists of 10 situational questions, the EIB questionnaire consists of 40 business-adapted questions – 10 for each EI component.

Thus, in contrast to the currently existing EI questionnaires, the EIB questionnaire considers the business environment's peculiarities. At the same time, unlike existing questionnaires in the business environment, the EIB questionnaire enables a broader reach of respondents. It is suitable for a wide range of managers and entrepreneurs, not limited to one culture like the QEPro test, specifically designed for French managers (Haag & Jilinskaya-Pandey, 2023), not limited to students like the test Emotionally Intelligent Leadership for Students (EILS) (Shankman *et al.*, 2015).

Moreover, the EIB questionnaire takes less time and is more user-friendly. It contains fewer questions and EI components than many popular questionnaires. We compared the construct validity of

the EIB questionnaire with two well-known EI questionnaires developed by N. Hall (30 statements and 5 EI components) (Hall, 2007) and D. Lyusin (40 statements and 6 EI components) (Lyusin, 2006).

The EI questionnaire contains 40 questions reflecting 4 EI components. At the same time, it allows for building a logical and understandable profile of EI in entrepreneurship (quantitatively and graphically). The EIB questionnaire is based on the most widespread approach to the composition of EI.

CONCLUSIONS

We provided a detailed description of the EIB questionnaire, which enables entrepreneurs, managers, and specialists to assess. The EIB questionnaire includes 40 statements rated on a 5-point Likert scale, assessing managers, entrepreneurs, and business people's SA, SM, SocA, and RM levels. The test also allows for tracking the dynamics of EI development in business according to the 4EI Model. The visual result of the assessment can be reflected in respondents' individual and group EI profiles. The development, validation, and psychometric testing procedures resulted in a reliable, discriminative, and criterion-referenced 'Emotional Intelligence in Business' questionnaire that measures the overall level of the construct and its components. The test is available in English, Slovak, and Ukrainian. We thus developed a practical and easy-to-use tool for measuring the EI of entrepreneurs.

The presented methodology completes the list of EI questionnaires (Butler *et al.*, 2022; Bru-Luna *et al.*, 2021; Sweis *et al.*, 2022). At the same time, our study fills the gap in the ability to assess EI in business and entrepreneurial environments and complements the work on evaluating managers' EI (Shankman *et al.*, 2020; Haag & Jilinskaya-Pandey, 2023). This study is an example of the use of digital technologies in assessing EI, which aligns with current trends in education (Audrin & Audrin, 2023).

The presented methodology for assessing EI has been applied to assess the EI of young people and seniors in Slovakia and Ukraine (Mikuš *et al.*, 2023). The test is simple to administer and can serve across different cohorts and in different countries. Testing with this tool allows users to assess EI and create a base for developing individuals (Mikuš *et al.*, 2023) and group EI profiles (Fedorova *et al.*, 2023). It is also promising in intergenerational team building.

The limitations of the study include a relatively small respondent sample and geographical scope. Thus, in the future, we plan to expand the geographical scope of the research and increase the number of respondents in Slovakia and Ukraine. We aim to gather more evidence on the validity of the EIB questionnaire. The future research agenda includes further validity investigations into other populations and cultures. EIB questionnaires allow us to evaluate the effectiveness of EI development of future managers and entrepreneurs based on the 4EI Model. Furthermore, we plan to concentrate on the possibilities of using artificial intelligence to expand the possibilities of using the EIB questionnaire in entrepreneurship.

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Acknowledgements and Financial Disclosure

Funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia under project No. 09I03-03-V01-00055 and the Slovak Research and Development Agency under Grant APVV-19-0581.

Use of Artificial Intelligence

The authors have not declared whether their text is free of AI/GAI usage or not.

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