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Integrating Artificial Intelligence into Soft Skills Development: Opportunities and Challenges

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Abstract. In the 21st century, soft skills such as communication, critical thinking, teamwork, leadership, problem-solving, and emotional intelligence are essential for personal and professional development. Unlike academic knowledge, they enhance the practical impact of what a person knows. As artificial intelligence (AI) develops rapidly, integrating it into education, and specifically into soft skills development, may accelerate learning. However, few existing solutions bring these skills together in a single system. Many learners prioritize academic knowledge because soft skills are not formally assessed and do not lead to a diploma. As a result, these skills are often neglected, although employers increasingly expect them in both international and domestic settings. This article explores how soft skills development can be combined in a single AI-based system. The pilot study draws on a survey of some respondents. The analysis examines how respondents currently use AI to develop soft skills, which skills they consider the most important and the most difficult to develop, and whether attitudes differ by age or occupation.

Keywords: soft skills; artificial intelligence; AI-based learning; communication; critical thinking; emotional intelligence; teamwork; leadership; learner engagement;

Introduction

In recent years, artificial intelligence (AI) technologies have developed rapidly, penetrating various areas of education, and young people are using them more and more

actively. These technologies also make it possible to organize educational goals more effectively, including the development of practical skills such as soft skills. At the same time, many young people have not yet fully grasped the importance of soft skills, so insufficient attention is paid to developing them. To strengthen these skills, young people often participate in offline camps and festivals; however, such events are not always available. For this reason, some students have turned to online platforms. In particular, chatbots can complete almost any task, but they may end up doing the task for the user rather than helping to develop the skill. Moreover, existing tools are often designed for isolated tasks and are not integrated into a single system that develops soft skills holistically. As soft skills are increasingly recognized as a critical quality worldwide, using AI to develop practical skills could be an effective approach. In particular, bringing these tools together on a single platform could increase young people's interest in soft skills and bring considerable benefits to society.

Identifying which soft skills young people consider the most important and the slowest to develop makes it possible to direct attention to the areas where support is needed most. According to the OECD's Survey on Social and Emotional Skills (SSES 2023), conducted among 10- and 15-year-old students, these skills are associated with academic success. At the same time, some skills appear harder to develop. On average, 15-year-old students reported lower levels than 10-year-olds on all skills except empathy and tolerance. Moreover, in Helsinki and Bogotá, the two cities that took part in both the 2019 and 2023 rounds, students' levels of most skills declined. In Helsinki, the largest declines were observed in curiosity, creativity, responsibility, tolerance, and trust, while in Bogotá they were observed in curiosity, creativity, tolerance, and optimism. These findings should be interpreted with caution, since they rely on students' self-reports and the age groups consist of different students rather than the same individuals followed over time. Nevertheless, they suggest that the development of soft skills cannot be taken for granted. The survey also found that teachers of older students tend to be less equipped to support their social and emotional development. This points to a need for a

personalized and accessible learning environment for young people, and AI-based tools may serve as an important means of creating such an environment. In this regard, it is necessary to determine which soft skills respondents consider the most important and the most difficult to develop.

Attitudes towards artificial intelligence (AI) and soft skills may differ across demographic groups. In a representative survey conducted in Luxembourg between June and August 2025, 72% of respondents aged 16–24 viewed generative AI positively, while older age groups expressed more concern. Differences by occupation were even more marked: 84% of workers in information and communication technology (ICT) viewed generative AI positively, compared with 47% of manual workers, 53% of whom saw it as a threat. A YouGov survey of 1,061 respondents conducted in March 2025 also identified differences by age, gender, and occupation: older adults and non-users of generative AI were more likely to see it as a threat to their jobs, while about half of those under 30 reported using it at work. The results, however, are not uniform: according to a 2026 survey in the United States, young adults are more likely than other age groups to expect AI to have a negative effect on them personally. Attitudes towards soft skills also vary between generations: in a LinkedIn Learning survey, 62% of Generation Z respondents considered hard (technical) skills more important than soft skills, whereas learning and HR professionals regarded soft skills as more important. Thus, differences by age and occupation appear both in attitudes towards AI and in the valuation of soft skills, but their direction varies by context, and how attitudes towards soft skills and AI jointly differ across groups appears to be under-researched. Accordingly, it is necessary to determine whether respondents' attitudes towards soft skills and AI differ by age or occupation.

Research Questions

1. How do respondents currently use AI to develop their soft skills? Is there a need for a single AI-based system?

2. Which soft skills do respondents consider the least developed and the most

difficult to develop?

3. Do attitudes towards soft skills and AI differ by age or occupation?

Literature review

There is no scholarly consensus on the definition of "soft skills": researchers describe them variously as personal traits, behavioral or interpersonal skills, and non-technical competencies. In the early 1990s, the World Health Organization identified decision-making, problem-solving, creative and critical thinking, communication, self-awareness, empathy, and coping with stress as essential skills. Similarly, the Dublin Descriptors of the European Higher Education Area emphasize transferable skills rather than acquired knowledge. Nevertheless, higher education institutions tend to focus mainly on hard skills, which may leave graduates lacking in soft skills. Artificial intelligence (AI) offers new opportunities for developing these skills: AlAfnan et al. point out that language-learning applications, virtual reality simulations, chatbots, feedback platforms, and emotion recognition software can be used to support communication skills. At the same time, excessive reliance on AI may reduce students' opportunities to develop soft skills themselves. Reviews of AI-based conversational agents likewise identify limited empathy, inconsistent responses, and over-reliance on AI as key challenges. However, the sources reviewed here give insufficient attention to how different tools for soft skills development could be combined within a single system. The present study aims to address this gap.

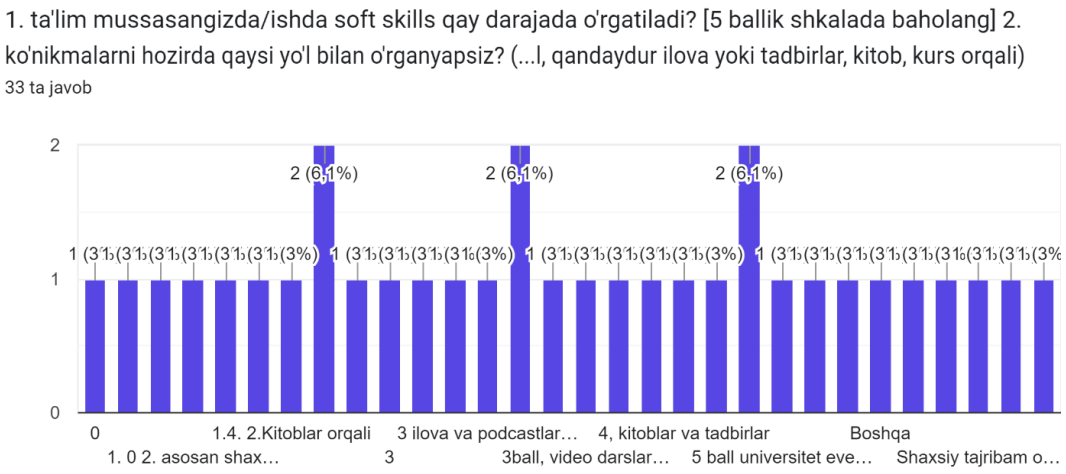
Methods

This study used an exploratory, pilot-type survey design. The data were collected through an online questionnaire and analyzed mainly with descriptive statistics, supplemented by manual coding of open-ended responses. The aim was to obtain preliminary answers to the three research questions rather than to test hypotheses or generalize findings. A total of 33 respondents completed the questionnaire. Their ages ranged from 14 to 46, and they included students and working professionals. Respondents' age and current occupation, the soft skills they considered least developed

in themselves (respondents could select more than one of seven listed skills: communication, critical thinking, teamwork, leadership, problem-solving, emotional intelligence, and creativity, or add their own), a self-assessment of five skills (communication, teamwork, critical thinking, leadership, and concentration) on a five-point scale, and the extent to which soft skills are taught in their educational institution or workplace, and the ways in which respondents currently develop them through events, books, courses. Items on age and occupation were used for the comparison of groups (RQ3), the item on least developed skills addressed RQ2, and the items on current ways of developing skills addressed RQ1.

Results

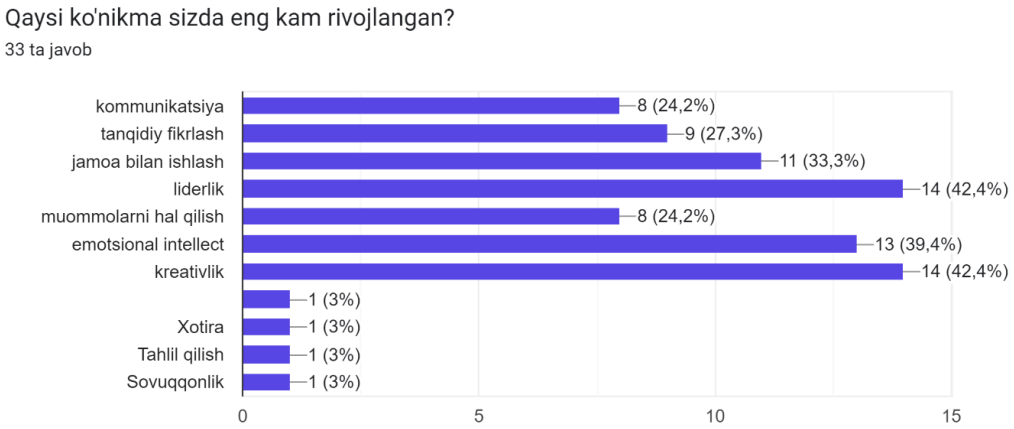
A total of 33 respondents completed the questionnaire. The questionnaire was administered in Uzbek and the items were translated into English for reporting.



Current ways of developing soft skills and the need for a single AI-based system

In their open-ended answers, respondents mentioned a variety of sources for developing soft skills, including apps and podcasts, books, video lessons, university events, and personal experience. (RQ1)

Most important and most difficult soft skills



As shown in Figure 1, leadership and creativity were the skills most frequently reported as the least developed, each selected by 42,4% respondents. They were followed by emotional intelligence (39,4% respondents) and teamwork 33.3%. Critical thinking was selected by 27.3% respondents, while communication and problem-solving were each selected by 24.2%. Four respondents named other skills, including memory, analysis, and composure. Since respondents could select more than one skill, the percentages exceed 100%. (RQ2)

A comparison of responses from the youngest (14) and oldest (46) participants revealed contrasting patterns in self-reported soft skill difficulties. The younger respondent reported challenges in problem-solving and sustained attention, whereas the older respondent described passivity in critical thinking and creativity. An examination of the underlying causes suggests that these differences stem from distinct developmental and situational factors. Among adolescents, limited life experience appears to hinder the formation of effective strategies for approaching complex problems. In contrast, adults tend to rely on experience-based, "ready-made" solutions, while the demands of daily work and family responsibilities leave insufficient time and energy for creative exploration. These findings indicate that soft skill deficits are age-specific and cannot be addressed through a one-size-fits-all approach. Accordingly, integrating soft skills

training with artificial intelligence (AI) within a single, inclusive platform may offer a practical solution. Such a platform could provide personalized, adaptive learning pathways, for example scaffolding problem-solving and attention-training exercises for younger users, while offering flexible, time-efficient creativity and critical-thinking modules for adult learners. By accommodating diverse age groups and needs, an AI-supported platform has the potential to further ensure access to high-quality education for all members of society. (RQ3)

Discussion

The findings suggest that soft skills development among respondents is fragmented: learners rely on separate, informal resources rather than an integrated system. This supports the gap identified in the literature, where existing tools address isolated tasks and are rarely combined [AlAfnan et al.]. The weakness in creativity is consistent with the OECD survey, where it was among the skills that declined in both Helsinki and Bogotá [1], which suggests that it is hard to develop through conventional education. Leadership and teamwork, which depend on interaction, may also be hard to develop because they are rarely assessed or taught formally. The contrast between the youngest and oldest participants indicates that soft skill gaps are shaped by different factors at different ages, which fits earlier evidence that age influences attitudes towards AI [2] and the value placed on soft skills [4], although the direction varies by context [3]. Since only two respondents were compared, this should be treated as an exploratory observation, not as evidence of a general age effect. Practically, this means that a single platform should adapt to the learner instead of offering the same content to everyone. To avoid the risk that AI does tasks for users rather than developing their skills, it should focus on guided practice and feedback. The limitations of this study are described in the Methods section. Future research should include larger and more age-diverse samples, compare occupations, and test the proposed platform through pilot implementations with pre- and post-training assessment.

Conclusion

This pilot study showed that soft skills development among respondents is fragmented, relying on separate, informal resources rather than an integrated system. Leadership and creativity were most often reported as the least developed skills, followed by emotional intelligence and teamwork. A comparison of the youngest and oldest participants suggested that the nature of these gaps may differ by age: limited life experience for the younger respondent, and reliance on ready-made solutions combined with limited time and energy for the older one. These results point to the value of a single AI-based platform that brings soft skills training together and adapts to the learner's age and needs, with an emphasis on guided practice and feedback rather than ready-made answers. Given the small sample, the findings are exploratory, and further research with larger and more diverse groups, along with empirical testing of such a platform, is needed to confirm them.

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