Enhancing Emotional Intelligence in Students via ICT and Gamification: Insights from the Pol-Com Project

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Abstract

In the wake of the global pandemic that disrupted all aspects of life—including education—significant changes have reshaped teaching and learning practices. The crisis acted as a catalyst for rapid digital adaptation among instructors, administrators, and learners; consequently, many adopted Information and communication technologies

(ICT) tools out of necessity, even those who were previously hesitant due to traditional pedagogical norms or skepticism about technology's value. This shift was especially notable in higher and vocational education, and it has led to changes that now appear largely irreversible.

ICT tools have proven effective for knowledge- and fact-based learning; however, a critical challenge has emerged: the increasing reliance on digital technologies risks limiting the development of interpersonal and emotional intelligence (EI) competen-

cies. These soft skills are indispensable in law enforcement, where professionals must navigate high-pressure and emotionally charged contexts, yet they remain underrepresented in existing curricula.

The aim of this study is to examine how gamified ICT tools can be integrated into vocational education and training (VET) to enhance the emotional intelligence and communication skills of law enforcement students. To achieve this aim, the research pursued the following objectives: (1) to analyse theoretical foundations of EI and its relevance to law enforcement; (2) to explore gamification as a pedagogical strategy for EI development; (3) to assess VET students' perceptions and experiences with gamified ICT environments; and (4) to provide recommendations for incorporating gamification into training curricula.

The KA220-VET Pol-Com project was launched to address this gap by designing a digital platform with gamified tools aimed at fostering EI and communication competencies. The project unfolded in several phases: identification of EI as an underexplored domain (Q1 2024), trainer feedback confirming its importance (Q2 2024), and student feedback from higher education (Q4 2024) and VET cohorts (Q1–Q2 2025). This paper presents the findings from VET students, offering insights into how ICT-based gamified tools can support the development of emotional and social skills in law enforcement education.

Keywords: Law-enforcement, VET, Emotional Intelligence, E-Learning, Communication.

Introduction

In an era marked by rapid technological advancement and unprecedented global challenges, the intersection of digital innovation and emotional intelligence education has, therefore, emerged as a critical frontier for enhancing professional competencies. Moreover, as educational paradigms shift towards immersive and interactive methodologies, the integration of gamified ICT tools offers transformative potential for cultivating nuanced emotional and social skills, which are essential for effective performance in high-stakes environments.

In recent years, global education systems have undergone profound transformations; notably, many of these changes have been accelerated by the COVID-19 pandemic. As Dhawan (2020) highlights, "The COVID-19 pandemic has created an unprecedented challenge for education systems worldwide, accelerating the adoption of online learning and ICT tools at a scale and speed never seen before" (p. 5). Consequently, this rapid shift compelled educators across various fields to adopt and integrate information and communication technology (ICT) tools, both to ensure continuity of instruction and to maintain student engagement in largely remote learning environments.

While these technological tools have demonstrated effectiveness in supporting cognitive and knowledge-based learning, important questions nevertheless remain about their capacity to foster the development of soft skills—such as emotional intelligence (EI)—which are crucial for holistic personal and professional growth. Recent scholarship underscores this unresolved gap particularly starkly. Gutierrez, Rojas-Barahona, and Hernández (2025) argue

that "most current systems focus exclusively on static cognitive adaptation or incorporate superficial emotional responses, without dynamically modifying pedagogical strategies in response to detected emotional states." This observation highlights that, despite advances in digital education, many ICT-based solutions continue to lack the emotional attunement and adaptive pedagogical design essential for developing competencies such as EI.

Accordingly, the challenge for contemporary educators is not only to leverage ICT for cognitive knowledge transfer but also to harness its potential to strengthen intrapersonal and interpersonal skills. It is precisely this challenge that frames the central concern of the present study.

Problem of the Research. Emotional intelligence (EI) is widely recognised as a critical determinant of professional effectiveness and organisational resilience in high-pressure contexts such as law enforcement (Goleman, 1995; Mayer et al., 2016). In fact, empirical research demonstrates that EI supports stress management, adaptive decision-making, and effective interpersonal communication (Salovey & Grewal, 2005; Petrides et al., 2016). However, despite this well-documented importance, vocational education and training (VET) programmes have historically afforded limited attention to the deliberate and systematic development of EI competencies. Instead, current curricula predominantly emphasise cognitive and technical skills, while intrapersonal and interpersonal capabilities remain underdeveloped.

Furthermore, the integration of innovative, technology-enhanced approaches to EI training within formal law enforcement education remains scarce. On the one hand, digital tools and gamification have been shown to enhance learner engagement, motivation, and immersive learning experiences (Deterding et al., 2011; Hamari et al., 2019). On the other hand, empirically validated gamified solutions specifically designed to address the unique emotional, social, and professional requirements of future law enforcement officers are still notably lacking. Taken together, this gap highlights the pressing need for evidence-based, ICT-driven pedagogical frameworks that can effectively facilitate EI development within VET contexts, thereby aligning both academic and professional imperatives.

Aim and Objectives of the Study. The aim of this study is, therefore, to investigate how gamified ICT tools can be effectively integrated into VET programmes in order to foster the development of emotional intelligence and communication skills among law enforcement students. To achieve this, the research will:

- Analyse the theoretical foundations of emotional intelligence and its relevance to law enforcement education;
- Explore the role of gamification as a pedagogical strategy for promoting emotional and social skill development;
- Evaluate the perceptions and experiences of VET students (in law enforcement, pre-service) regarding IT-based gamified learning environments focused on EI;
- Provide recommendations for incorporating gamification into law enforcement training curricula to support EI development.

Research Context. Emotional intelligence encompasses vital intrapersonal and interpersonal competencies, such as self-awareness, empathy, and emotional regulation, which are indispensable for professionals operating in stressful and emotionally charged environments (Goleman, 1995). Specifically, law enforcement officers must develop resilience and adaptive communication skills in order to manage complex real-world interactions (Andersen & Papazoglou, 2015).

In response to this challenge, the KA220-VET project was initiated to address the identified gap in vocational training by creating a gamified educational platform tailored to enhance EI and communication skills. Gamification, which can be defined as the application of game-design elements in non-game contexts, has already shown promise in increasing learner engagement and motivation (Deterding et al., 2011). Moreover, it offers immersive experiences that simulate social interactions conducive to EI growth.

Accordingly, through empirical data collection with VET students in Lithuania, this study seeks to contribute to the growing body of knowledge on digital innovation in vocational education. Therefore, the central research question guiding this inquiry is as follows: how, and to what extent, can ICT-based gamification support the development of emotional intelligence competencies in law enforcement education from the perspective of VET students?

Integrating Emotional Intelligence Techniques with ICT

Over the past two decades, gamification through ICT has become a prominent subject within academic discussions, primarily due to the vast potential unlocked by technological advances. This trend is understandable, considering the expansive opportunities ICT has offered for enhancing educational practices. Nevertheless, it is crucial to emphasise that while digital gamification has only recently become widely accessible and cost-effective, the use of games as educational instruments has a much longer history. As Teresevičienė et al. (2006) note, thinkers and pedagogical theorists from Ancient Rome and Greece already advocated for educational activities that were both motivating and aligned with children's developmental needs. Later, during the Renaissance and Enlightenment, figures such as Comenius in the 17th century and Pestalozzi in the 18th century further emphasised developmentally appropriate education, promoting the use of illustrated textbooks and practical exercises.

Importantly, the feasibility of implementing these pedagogical ideas has always been closely tied to available technologies. For example, the invention of the printing press in the 15th century revolutionised education by enabling the mass production of books, thereby lowering costs and facilitating widespread access to learning materials (Teresevičienė et al., 2006). Fast forward five centuries, and digital technologies have expanded these opportunities

exponentially. Yet, as contemporary educators integrate ICT into teaching, they often overlook the privilege of having such abundant resources at their disposal.

Today, gamification can be applied in diverse ways—from simple elements embedded in lessons to complex, team-based games designed for specific learning purposes (Deterding et al., 2011). Over the last twenty years, research has consistently demonstrated gamification's effectiveness in education. For instance, Houtari and Hamari (2012) defined gamification as "the process by which certain activities gain the same attractiveness as games" (p. 10), while Hamari et al. (2014) highlighted its three key components: motivational affordances, psychological outcomes, and behavioural effects. Taken together, these factors foster motivation through positive emotional experiences, ultimately leading to sustained desirable behaviors.

When applied to law enforcement education, gamification has been analysed primarily in terms of its motivational impact and learning outcomes. For example, Gehring and Marshall (2023) found that gamification elements in criminal law studies enhanced student motivation, producing effects comparable to popular video games among youth. Similarly, Fantazir and Bartley (2021), who used Classcraft—a role-play-based video game—in a criminal justice course, reported improvements in teamwork, motivation, and problem-solving. Moreover, Bernardes, Amorim, and Moreira (2022) advocate for the use of educative games in in-service training, including in law enforcement, noting positive effects on knowledge retention. While these studies collectively highlight promising outcomes, it is worth noting that structured, large-scale research in this field remains limited.

Beyond law enforcement, gamification has been systematically applied to develop a range of competencies. For example, it has been used to improve writing (Bharamgoudar, 2018), problem-solving (Černikovaite, 2023), and creativity (Kalinauskas, 2014). Empirical findings consistently report that gamified approaches not only increase student motivation but also enhance personalised learning (Zeybek & Saygı, 2024). For instance, Smiderle et al. (2020) observed that gamification particularly benefits students who might otherwise hesitate to participate, as it provides a supportive and engaging environment.

Within the scope of this paper, however, the focus shifts to the question of whether IT-based gamification can effectively support the development of emotional intelligence (EI) among future law enforcement officers. While previous studies (Ares et al., 2018; Jun & Lim, 2018) show that gamification has proven highly effective in STEM education, its applicability in social sciences and professional training—especially in law enforcement—requires further exploration. At the same time, researchers warn against superficial or "rhetorical" gamification, which may fail to deliver meaningful outcomes or even backfire (Landers, 2019). Therefore, as Hassan et al. (2021) stress, gamification must be carefully integrated by skilled educators who are mindful of diverse learning styles and pedagogical strategies.

Turning to emotional intelligence itself, the concept has a rich philosophical and psychological foundation. From Plato's reflections on reason and emotion to modern theories of intelligence (Naudužienė, 2023), scholars have long debated the interplay of cognition and emotion. The 20th century marked significant progress, with Terman focusing on cognitive intelligence, Thorndike (1920) introducing the notion of social intelligence, and Guilford (1967) expanding the idea of intelligence as a multifaceted construct. Nevertheless, the recognition of emotional and social components gained prominence only later.

The formal concept of EI emerged in the 1960s (Davitz, 1976) and gained global attention with Goleman's seminal work in 1995. Goleman (1998) defined EI as a cluster of competencies essential for leadership, including self-motivation, impulse control, mood regulation, and empathy. He later expanded this framework to include 25 competencies such as political awareness and achievement drive. Since then, three dominant models have shaped EI research: Mayer and Salovey's (1997) ability model, Bar-On's (1997) mixed model, and Petrides et al.'s (2018) trait model.

Each of these models conceptualies EI differently. Bar-On (2006) framed it as a collection of non-cognitive skills—such as stress management, adaptability, and interpersonal competence—that predict life success more reliably than traditional IQ. Mayer and Salovey (1997), meanwhile, described EI as a hierarchy of four abilities: perceiving, facilitating, understanding, and managing emotions. Petrides et al. (2018) further highlighted the link between strong EI and positive psychological, academic, and relational outcomes.

These theoretical insights are particularly relevant for law enforcement, where officers frequently face high-stress and emotionally charged situations. Black (2022) emphasises that EI is not innate but can be cultivated through targeted training. Indeed, skills such as self-regulation are fundamental for de-escalation, as they allow officers to control their emotions and replace impulsive reactions with rational judgment. Therefore, enhancing emotional intelligence and communication skills has the potential to make officers more resilient, better communicators, and ultimately more effective in managing conflict and building positive community relations.

The Study Design and Results

To empirically explore these propositions, the research was structured as a three-phase study. Phase 3 itself was divided into two parts: part A focused on gathering baseline data regarding students' general learning experiences and attitudes toward gamified ICT tools, while part B examined how these tools intersect with the development of emotional intelligence (EI). Specifically, the present paper concentrates on part B of phase 3, which was conducted during the spring semester of 2025. In this phase, the focus is on investigating how theoretical EI concepts manifest in the actual educational experiences of VET students preparing for careers in law enforcement.

Methodology

Study Design and Implementation: An empirically grounded, multi-phase investigative study was systematically designed and implemented with the aim of eliciting complex and contextually rich feedback regarding whether—and in what specific modalities—information technology (IT)-based gamification could serve as an effective pedagogical strategy for enhancing emotional intelligence (EI) competencies. Moreover, this longitudinal research unfolded across several iterative phases during the academic years 2024 and 2025, thereby ensuring both temporal depth and methodological rigour. Importantly, the present manuscript focuses specifically on the third phase (Part B), which sought to investigate how theoretical EI concepts are reflected in real educational experiences. Thus, this phase provides the most practice-oriented insights into the applicability of gamification in law enforcement education.

The participants were pre-service Vocational Education and Training (VET) students specialising in law enforcement, all of whom were enrolled in full-time study programmes across Lithuania. In order to operationalise the research objectives, students were invited to engage with selected curriculum components, which included gamification methodologies, interactive audio-visual learning modules, and self-assessment quizzes. Collectively, these activities accounted for approximately two European Credit Transfer and Accumulation System (ECTS) credits, thereby representing a substantial though not overwhelming component of their study load. In addition, participants were instructed to prepare detailed written reflections on the potential of these curricular elements to foster EI-related skills. At the same time, they were encouraged to provide constructive recommendations for improving both pedagogical strategies and structural design. Consequently, the dual emphasis on reflection and recommendations not only supported critical thinking but also generated practically relevant feedback.

Procedure: To ensure ecological validity, curriculum components were integrated directly into the "Police Tactics" course at the Lithuanian Police School, a nationally recognised VET institution. Within this authentic training environment, students interacted with gamification exemplars, explored interactive video content, and completed self-administered diagnostic quizzes. Following this experiential engagement, a dedicated reflection session was organised to facilitate analytical discussion. Furthermore, students were deliberately organised into 17 collaborative groups ranging from three to eleven members, a structure specifically chosen to foster open dialogue. Importantly, the group format also created a psychologically safe and anonymous environment, thereby encouraging participants to express their views honestly and without fear of reprisal. In other words, the procedure was carefully designed to balance experiential engagement with reflective depth.

Data Collection and Analysis: Building on the structured procedure, a comprehensive qualitative content analysis was conducted on both the writ-

ten reflections and the recorded outcomes of group discussions. Crucially, the reported numerical data should be interpreted as representing distinct thematic categories or evaluative perspectives, rather than individual respondent counts. This is because groups frequently contributed multiple—and occasionally divergent—insights within a single submission. Consequently, the analysis aimed less at quantifying opinions and more at capturing the richness and complexity of students' perspectives.

Respondent Characteristics: Altogether, the study cohort comprised 92 preservice VET students, including 48 females and 44 males, with ages ranging from 19 to 45 years. The majority of participants were between 19 and 22 years old; however, the presence of older students added valuable diversity to the dataset, thereby broadening the scope of perspectives considered. Thus, the sample reflects both the typical demographic profile of VET programmes and the additional insights contributed by non-traditional students.

Study Limitations: At the same time, it is essential to acknowledge the limitations inherent in the research design. Recognising the subjective and interpretive nature of qualitative inquiry, multiple safeguards were implemented to mitigate potential biases. For instance, anonymity was maintained throughout data collection in order to encourage honest and uninhibited feedback. Moreover, although the relatively robust sample size strengthens the credibility and transferability of the findings, it must be emphasised that thematic counts were shaped by the multiplicity of perspectives emerging within individual groups. Consequently, the data should be read as reflective of group-level dynamics rather than as precise individual-level tallies. Nevertheless, these limitations do not diminish the value of the findings; rather, they highlight the interpretive depth and contextual sensitivity that qualitative research can bring to emerging fields such as gamified EI development in law enforcement training.

The preponderance of student participants were within the age range of 19 to 22 years; nevertheless, a subset of respondents were appreciably older, contributing to a broader age distribution within the cohort. The calculated mean ages for the sample were 22.1 years for female participants and 22.3 years for male participants, respectively.

Results: All students—as substantiated by the cumulative content of the written reflections provided by all 17 small groups—expressed consensus regarding the perceived value and applicability of the curriculum components, which encompassed illustrative examples of gamification, interactive audiovisual content, and self-directed assessment tools. These elements were consistently recognised as beneficial for cultivating competencies associated with emotional intelligence, particularly those relevant to the students' anticipated professional functions within the field of law enforcement (refer to Fig. 1).

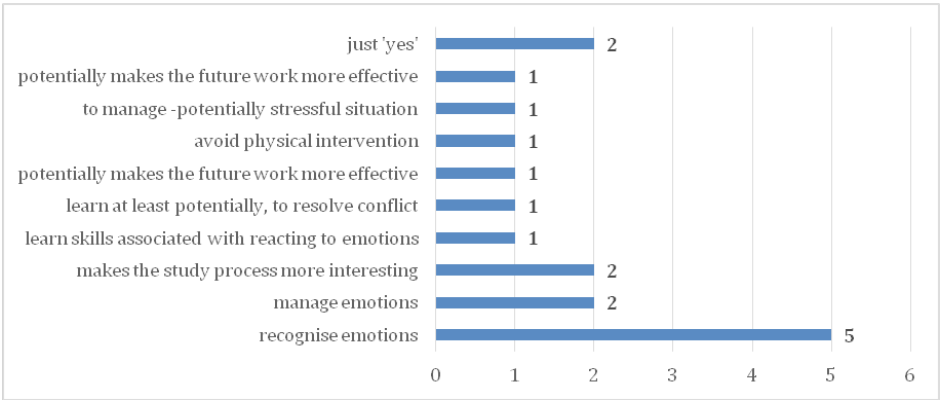


Figure 1.
VET students on whether the curriculum for learning the aspects related to emotional intelligence in their future profession in law enforcement may be useful (Number of small groups)

Among the 17 small groups, the dominant sentiment expressed was unequivocally positive; furthermore, several groups contributed particularly detailed, analytically rich, and contextually grounded reflections, as illustrated in Figure 1.

In addition to indicating their general stance, students were explicitly encouraged to articulate the reasoning that informed their affirmative evaluations—namely, to elucidate the specific grounds upon which they judged the curriculum to be effective and valuable.

Following a systematic and rigorous content analysis of the collected written reflections submitted by all 17 groups, an aggregate of 26 discrete thematic categories or evaluative perspectives was identified. These emergent categories, which encapsulate the diverse dimensions of perceived curriculum usefulness, are comprehensively depicted in Figure 2.



Figure 2
VET students in 17 small groups on why the elements of the curriculum may be useful (No of categories/ perspectives after Content analysis)

The comparative analysis of findings derived from higher education (HE) students in Part A and vocational education and training (VET) students in Part B reveals a number of noteworthy parallels and distinctions. Both HE and VET participants acknowledged that gamification elements were particularly effective in introducing more practice-oriented learning tasks.

However, the reflections offered by VET students were substantially more elaborate, incorporating a broader spectrum of arguments supporting the perceived usefulness of the curriculum. These included categories such as "fostering empathy," "recognising one's own emotional states," and "emotional self-regulation." In contrast, HE students frequently emphasised that comparable elements had been entirely absent from their existing academic programmes, thus rendering any innovative pedagogical tool especially welcome.

This divergence in perspectives may be partially attributed to the disparity in sample sizes—with 92 VET students participating in Part B compared to 32 HE students in Part A—which could have influenced the breadth and depth of reflections.

Overall, it was observed that students across both groups demonstrated a high level of openness and critical engagement in evaluating their educational experiences, as evidenced in Table 1.

Table 1. *Students on why the elements of curriculum may be useful in their studies.*

Category/perspective (No of contributions, allocated to a specific category)	Some examples of contributions within a category/perspective
Is helpful for fostering empathy (9)	<...> especially video materials are useful to recognise what a person is going through, for example, what a police officer must be going through in a particular situation ...
More effective to learn to recognise emotions (4)	<...> these tasks are helpful to learn to recognise the emotions of involved parties, because this is important for managing stressful or conflict situations...
Is helpful for personal/professional development (3)	<...> this is important and useful because it helps to get ready for future professional activities better and in a more effective way...
More effective to decode real situations, involving recognising emotion, including own emotions(3)	<...> materials using different media, not just text or slides, help us to see better what we may encounter in real life <...> practical help to understand what we may be feeling in some stressful situation...
Is helpful, because it is more practical (2)	The tasks and videos are good, because we can do things in class, not just listen <...>
Is helpful to learn regulation (2)	Police officers work in stressful situations. The materials, tasks are good to learn to manage out own emotions, to stay on top of things< ...>

Students also articulated a range of recommendations for enhancing the curriculum aimed at developing competencies in emotional intelligence, particularly within the context of their prospective roles in law enforcement.

It was emphatically underscored in the reflection of one small group that the pedagogical competence of instructors is paramount to the overall effectiveness of the curriculum. For instance, one group commented: *"These elements may ultimately have no impact whatsoever – especially if the instructor lacks expertise in specific facets of emotional intelligence, or if the learning tasks are excessively simplistic or monotonous."* Another group observed: *"<...> analysing actual events, particularly through real-life footage, is significantly more effective than merely engaging with artificial, scripted scenarios."* Additionally, one group emphasised: *"Conversations with active-duty police officers – hearing firsthand how they handle complex, emotionally charged situations – is perhaps the most impactful learning method available..."*

Furthermore, yet another group offered a reflective caveat: *"<...> it is unrealistic to expect that training will encompass every conceivable situation we might face; not everything can be anticipated or practiced in advance..."*

The empirical data reveals that all VET student participants (N = 92, across 17 small groups) expressed a uniformly positive attitude toward the inclusion of gamified curriculum elements—such as interactive videos, self-assessment quizzes, and other examples of technology-enhanced learning tools – for the purpose of fostering emotional intelligence relevant to their future law enforcement careers.

Several key benefits were cited, including the development of empathy and the enhancement of emotional self-regulation. The practical applicability of gamified learning tasks was also highlighted. Nevertheless, students collectively stressed that authentic, unscripted engagement—particularly through interactions with professionals currently in service—was considered more impactful and credible than pre-constructed simulations for advancing emotional intelligence competencies.

Conclusions

Drawing upon the empirical evidence presented in this study, it can be concluded that emotional intelligence (EI) constitutes a core dimension of both personal development and professional competence, as it underpins psychological well-being, life satisfaction, and overall mental health. The findings reaffirm the theoretical assertion that EI is not merely an ancillary skill but a critical determinant of effective professional functioning, particularly in high-pressure contexts such as law enforcement.

Although games have historically been integrated into educational practices for centuries, the contemporary emphasis on gamification is primarily driven by rapid advancements in information and communication technologies (ICT). While the authors maintain a critical perspective on the potential overemphasis of gamification in modern educational discourse, the study acknowledges the enduring pedagogical value of games in enhancing learner motivation, engagement, and active participation.

The empirical findings from Part B, which focused on pre-service VET students in law enforcement, indicate a consistently positive orientation towards the implemented curricular components—gamified tasks, interactive video content, and self-assessment quizzes—designed to foster emotional intelligence. Students reported a range of valuable outcomes, including:

- Promotion of empathy, enabling students to better understand and respond to the emotional states of others;
- Improvement in emotional self-regulation, equipping students to manage stress and respond constructively in complex situations;
- Enhanced ability to recognise and interpret emotions, both in themselves and in others;
- Development of professional communication skills and heightened sensitivity to non-verbal cues, which are essential in law enforcement practice.

Despite the generally positive feedback, several critical observations emerged. Participants emphasised the pivotal role of instructor competence, noting that the effectiveness of the curriculum is contingent upon the expertise, facilitation skills, and contextual knowledge of educators. Moreover, students highlighted the importance of authentic, unscripted interactions, particularly with active-duty practitioners, as being especially effective in fostering realistic and applicable EI competencies.

In summary, the study substantiates the pedagogical potential of ICT-based gamification for EI development within vocational education while simultaneously emphasising the need to address specific qualitative dimensions of instructional design, including:

Educator expertise and facilitation skills, which are crucial for translating gamified materials into meaningful learning experiences;

Integration of realistic, experiential learning contexts, which enhance the applicability and transferability of EI competencies to professional settings;

Balanced deployment of technology, ensuring that gamification supplements rather than overshadows reflective and practice-based learning.

These insights will be instrumental in the final development of the curriculum for the KA220-VET Cooperation Partnerships in Vocational Education and Training project, which aims to establish an advanced educational platform incorporating gamified tools. This platform is intended to prepare future law enforcement professionals and similar practitioners in both communication and emotional intelligence, ensuring that they are equipped to navigate complex interpersonal and professional challenges effectively.

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