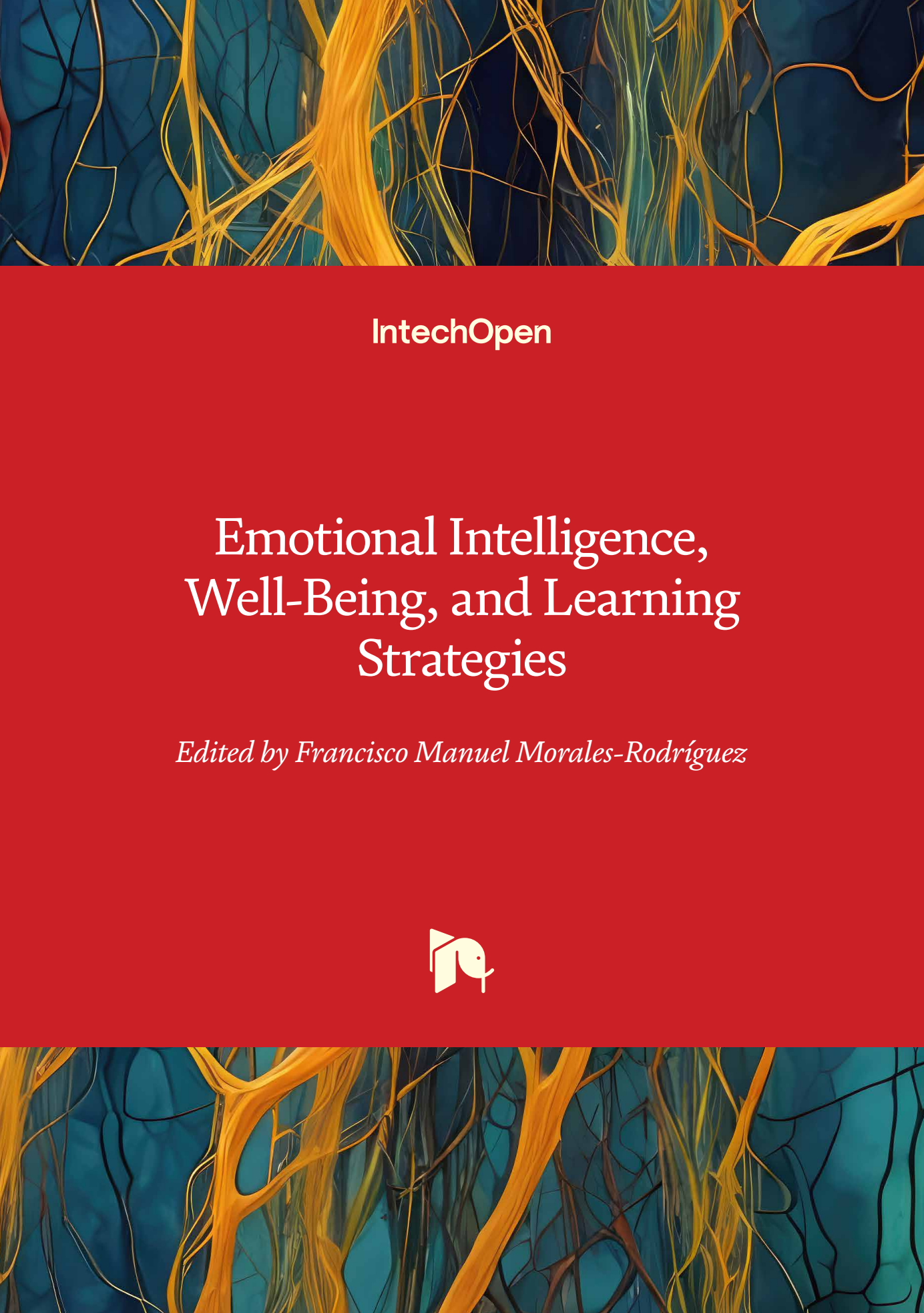




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Emotional Intelligence, Well-Being, and Learning Strategies

Edited by Francisco Manuel Morales-Rodríguez



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Meet the editor



Francisco Manuel Morales-Rodríguez has a Ph.D. in Psychology and a degree in Labour Sciences. He is a Full Professor at the University of Granada, Spain. He is active in research and coordinates and participates in innovation projects in education, training, and employment. He has published several books and articles in academic journals and has worked as a referee for journals and congresses. He is currently investigating affective sexual and gender diversities and coordinating the advanced innovation project, “Transversal Education for Affective-Sexual, Gender and Corporal Diversities”. He was awarded one of nine research prizes from the General Foundation of the University of Málaga, Spain. Dr. Morales-Rodríguez is a recipient of the William James Award for Psychopedagogical Innovation from the International Scientific Association of Psychopedagogy.

Contents

Preface	IX
Chapter 1	1
Becoming a Better Person: Empathy, an Implicit Outcome of Professional Education <i>by Roar Stokken, Beate Farstad, Kristin Ljoså Sørheim and Torhild Erika Lillemark Høydalsvik</i>	
Chapter 2	19
Destination Memory: A Fundamental Component of Social Cognition <i>by Tanisha Rathore, Gunjan Joshi and Kedarmal Verma</i>	
Chapter 3	39
Emotional Intelligence and Well-Being: Toward Shaping and Reconstructing Psychological Health in Scheduled Tribe Families of Jharkhand, India <i>by Raymond Rocky Tete and Anuradha Sathiyaseelan</i>	
Chapter 4	55
Exploring Oxytocin and Compassion among Prelicensure Nursing Students: A Simulation Study <i>by Shelley Price and Elizabeth A. Johnson</i>	
Chapter 5	65
Facilitation of Emotional Intelligence in Nursing Students within an Authentic Learning Environment <i>by Gugu Ndawo</i>	
Chapter 6	91
Mentoring for Well-Being at Work <i>by Riza Kadilar</i>	
Chapter 7	109
The Interplay of Social-Emotional and Cognitive Competencies: Enhancing Well-Being and Learning Strategies in Educational Contexts <i>by Maryam Hachem</i>	

Chapter 8	127
The Literature Review of Emotional Intelligence, Well-Being, and Learning Strategies for Gifted Students	
<i>by Min-Ying Tsai</i>	
Chapter 9	161
The Role of Emotional Intelligence in the Learning Process and Academic Performance	
<i>by Afra Selcen Taşdelen</i>	
Chapter 10	173
Unheard Voices in the Digital Age: Transforming Holocaust Narratives through the MEMORISE Learning Platform	
<i>by Kasra Seirafi, Cathrin Steiner, Paul Sommersguter and Stefan Jänicke</i>	

Preface

This book, *Emotional Intelligence, Well-Being, and Learning Strategies*, provides information that can be used to develop psychoeducational interventions in the field of health and design activities and programs to promote the enhancement of well-being, socio-emotional development, and learning across diverse contexts. It includes eleven chapters that present new knowledge and advances from theoretical and practical aspects in the field of Emotional Intelligence, Well-Being, and Learning Strategies.

The book is structured in the following chapters:

Chapter 1: “Becoming a Better Person: Empathy, an Implicit Outcome of Professional Education”.

Chapter 2, “Destination Memory: A Fundamental Component of Social Cognition”.

Chapter 3, “Emotional Intelligence and Well-Being: Toward Shaping and Reconstructing Psychological Health in Scheduled Tribe Families of Jharkhand, India”.

Chapter 4, “Exploring Oxytocin and Compassion among Prelicensure Nursing Students: A Simulation Study”.

Chapter 5, “Facilitation of Emotional Intelligence in Nursing Students within an Authentic Learning Environment”.

Chapter 6, “Mentoring for Well-Being at Work”.

Chapter 7, “The Interplay of Social-Emotional and Cognitive Competencies: Enhancing Well-Being and Learning Strategies in Educational Contexts”.

Chapter 8, “The Literature Review of Emotional Intelligence, Well-Being, and Learning Strategies for Gifted Students”.

Chapter 9: “The Role of Emotional Intelligence in the Learning Process and Academic Performance”.

Finally, Chapter 10, “Unheard Voices in the Digital Age: Transforming Holocaust Narratives through the MEMORISE Learning Platform”.

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Becoming a Better Person: Empathy, an Implicit Outcome of Professional Education

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and Torhild Erika Lillemark Høydalsvik*

Abstract

This chapter aims to deepen the understanding of empathy development during the education of welfare professionals. Empathy, defined as the ability to share and understand another person's state of mind, is a crucial skill for professionals in the welfare sector. The discussion outlines empathy in professional education and practice, drawing on various perspectives, including Lipsky, Antonovsky and Biesta. Through focus group interviews with students, the research examines their perceptions of how their education has altered their empathic responses. The findings reveal that new knowledge acquired during education significantly enhances students' empathic capacity, impacting both their cognitive and affective responses and significantly influencing their client interactions. Education broadens students' understanding of clients' situations, enhances their awareness of diverse needs and shapes their empathic responses. This transformation is crucial for effective professional practice, benefiting both clients and professionals by fostering resilience and job satisfaction.

Keywords: Biesta, compassion satisfaction, compassion fatigue, higher education, professions, purpose of education, sense of coherence

1. Introduction

Emotional intelligence concerns the ability to perceive, understand, utilize and manage both one's own and others' emotions [1]. Empathy, concerning the ability to share and understand another person's state of mind [2, 3], is part of this process [4]. It is an 'other-centred' reaction often described as the capacity to 'put oneself in another's shoes' [5], an important capacity of professionals working in the welfare sector, as it facilitates the understanding of clients and their circumstances, especially when determining whether help can meet needs [6].

In professional education programmes preparing for jobs in the welfare sector, such as teacher training and social work education, it is therefore important to ensure and develop the students' empathic capacity throughout their education. It is, for instance, found to be a central factor in being present and interested in the

relationship between the social worker and the client [7], and in teachers' understanding of children's school adjustments [8].

Being dependent upon both genetic and environmental influences, empathy is unevenly distributed among us [9]. There is a strong and consistent relationship between gender and empathy [10]. Age and education are important factors in explaining empathy profiles [11], and Pastor [12] found empathy to increase throughout adolescence.

Research has found that empathy can be taught [13–15]. Still, little is known about how the empathy of professionals should be developed through education. Based upon an investigation of the empathic profile of social work students, Stokken et al. [16] point to the need for new knowledge of how education develops empathy.

To contribute to the body of knowledge on how educational programmes can better prepare students for their transition into professionals, this chapter investigates students' own perception of how their education has altered their empathic responses. We draw on focus group interviews among students studying to be social workers and teachers. We use the term 'clients' to encompass all sorts of individuals, families and groups that these welfare professionals serve and support. In the analysis, we pay special attention to how they discuss, predict and understand situations where an empathic response will be relevant in their upcoming profession.

2. Empathy

Research literature provides multiple and multifaceted definitions of empathy. For instance, Watson et al. [17] found four different schools of thought on empathy in their literature review: the philosophic/psychological, the therapeutic, the social and cultural and the neuroscientific. In another literature review, Hall and Schwartz [18] found that empathy reflects cognitive and affective processes, but the concept is also used for instilling internal states. The many and inconsistent definitions of empathy make Stueber [19] claim that the use of 'empathy' has been 'characterized by a rather shameful disregard for conceptual clarity', while Hall and Schwartz [18] label the use of the term as 'promiscuous'. Despite variations found when reviewing the evolution of the concept throughout the literature, Alexander and Alessi [20] found the significance of empathy as a fundamental element in clinical practice to stay the same.

Despite the conceptual ambiguity of empathy, widely used empathy measures have been developed [21]. In research, one widely used measure [18] is the Interpersonal Reactivity Index (IRI), developed by Davis [2, 3]. It measures two dimensions of cognitive empathic response by means of the perspective-taking scale and the fantasy scale, and two dimensions of affective responses through the empathic concern and personal distress scales. These four dimensions are separate constructs [3] that, to varying degrees, are needed in professional practice [16]. We utilize this understanding as the cornerstone of our investigation.

Perspective taking concerns the tendency to spontaneously adopt the psychological point of view of others. It thus reflects the ability to understand and anticipate the behavior and reactions of others. The *fantasy scale* taps into the tendency to transpose oneself into the feelings and actions of fictitious characters. Even though this concerns fictitious characters, it probably reflects an ability to imagine the situation of others. *Emotional concern* assesses 'other-orientated' feelings of warmth, sympathy and concern for unfortunate others—feelings important for how professionals attune

to the one assisted. *Personal distress* refers to 'self-orientated' feelings of personal anxiety and unease in interpersonal settings, important in professional practice as it regards how the professional handles the act of helping on their own end.

3. Empathy in professional education

Education influences the empathy of students. In a review, Andersen et al. [22] concluded that empathy declines over the course of medical studies. In contrast, Stanley and Mettlida [6] found that social workers had a significantly higher empathy score than the control group at the end of their education. Greeno et al. [23] found that bachelor's students in social work scored significantly lower on empathy than nursing students and master's students in social work. They discussed whether this was a result of less clinical experience among bachelor's students. Vorkapić and Ružić [24] found higher empathy levels among future preschool teachers in comparison to other students. Stokken et al. [16] found that personal distress is significantly lower among social work practitioners than social work students and that social work students have an empathy profile that differs from teacher education students.

Through this chapter, we aim to gain insights into how educational programmes can better prepare students for their professional roles by fostering well-developed empathy profiles. Our investigation is based on focus group interviews with teachers and social work students. Although neither empathy nor emotional intelligence is addressed as separate topics in these professional education programmes, empathy is cultivated through various methods. These methods encompass interactive dialog exercises and hands-on learning experiences, alongside theoretical teachings on subjects such as recognition, mentalization and ethical viewpoints. Additionally, students are frequently given assignments that necessitate a profound comprehension of the client's circumstances, which, in turn, bolsters their empathic abilities.

When discussing the development of educational programmes, it is important to acknowledge that they serve a threefold purpose [25–27]. They should foster qualification, socialization and subjectification. According to Biesta [27], these three purposes may reinforce each other, may become contradictory, or even self-contradictory.

The qualification process involves becoming educated and certified as professionals. This process is characterized by formal elements such as learning outcomes and curriculum, which are designed to ensure that students acquire the necessary competencies for their professional roles. The goal is to prepare them to effectively manage the complexities of their professional responsibilities. The learning process not only aims for students to become proficient in their field but also to internalize the values and norms associated with their profession.

The socialization process involves integrating into the professional community. Biesta [27] describes it as the '(re)presentation of cultures, traditions, and practices, either explicitly but often also implicitly'. By employing the term '(re)presentation', he underscores the practical nature of socialization. It extends beyond mere understanding to include the enactment of these cultures. This process aids students in contributing to the formation of a collective identity among professionals, embodying shared values, norms and practices that define the profession, such as professional standards and codes of conduct.

The subjectification process involves taking on the role and tasks of the profession in one's own unique way. This process focuses on the development of individuality and independence, encouraging students to become autonomous and critical

thinkers. At the same time, each professional's unique way of thinking and working impacts the community of professionals. As such, it is the opposite of socialization, as it can challenge the common ways of acting [25].

To effectively discuss the development of empathy as a result of an educational process, empathy must be understood within the context of the overarching purpose of education: professional practice.

4. Empathy in professional practice

Social workers and teachers are what Lipsky [28] labels street-level bureaucrats. They are public service workers who interact directly with the citizens, have substantial room for discretion and possess the power to exert force. In their work, they often face situations where they ought to assist persons with problems. Zacka [29] claimed that their engagement varies between high and low, where high engagement can involve either caring for the user or enforcing rules. The approach the professional employs is highly dependent on their understanding of the client's situation, in which empathy is a cornerstone.

Dialog between the helper and the client serves as the primary means of understanding the client's situation and providing effective assistance. Empathy is crucial in establishing and maintaining a sound relationship, which is essential for delivering meaningful support. In social work, the interdependence between the two parties is often referred to as the 'working alliance' [30, 31]. This interdependence enables the helper to experience the impact of their work on a human level, whether the effect is positive or negative. To conceptualize the positive effects, the term *compassion satisfaction* is often used, while *compassion fatigue* is a frequently used term to conceptualize the negative experiences [32].

Research has revealed that employees who gain pleasure from helping score higher when compassion satisfaction is measured [33, 34]. Positive experiences, for instance, occur when seeing a 'change for the better' in patients and families [35]. Such positive experiences may counterbalance the risks of compassion fatigue and thus may account for resilience [36]. Positive experiences when helping thereby influence the relationship with the service users and the help provided, as well as worker satisfaction and even retention in the profession [37].

The negative effects of compassion fatigue can be divided into three main components: burnout, secondary traumatic stress, and moral distress [38]. Burnout manifests as emotional exhaustion and depletion, often resulting from prolonged work-related stress. It encompasses three key aspects that individuals may experience to varying degrees. Secondary traumatic stress refers to the emotional disturbance and distress that arise from exposure to individuals who have directly experienced trauma. Moral distress occurs when welfare professionals recognize the appropriate course of action but are unable to act accordingly. It also arises when health workers are compelled to act in ways that conflict with their personal and professional values, thereby compromising their sense of integrity and authenticity. The costs of compassion fatigue are not only on the part of the social workers. Such fatigue can also prevent the social worker from truly relating and thereby impair helping [39, 40].

Henriksen [41] identified Antonovsky's [42] concept of a sense of coherence as essential for understanding the burdens associated with professional practice. A sense of coherence occurs when comprehensibility, manageability and meaningfulness are

experienced. A robust sense of coherence is strongly correlated with perceived health, particularly mental health, and is effective in reducing levels of distress [43].

The concept of *comprehensibility* is cognitive and refers to perceiving a situation as understandable. This creates an ability to predict what is 'coming next' and can, as such, enable coping. The concept of *manageability* is behavioral and relates to the feeling of having enough resources at one's disposal to manage a given situation. It can concern whether environmental, societal and one's own resources are sufficient to cope with the demands. *Meaningfulness* is motivational and regards whether it makes sense to find solutions. On the contrary, without finding meaning in a given situation, motivation is lacking, and it is thus more likely that it is perceived as a heavy burden.

5. Methods

To explore the development of empathy within professional education, we utilized focus groups and inductive collective analysis. In the focus groups, cases were presented to frame the discussions. This allowed us to gather insights suitable for an inductive analysis inspired by grounded theory [44] and phenomenology [45].

5.1 Recruitment, interviews and material

Participants were recruited from students enrolled in professional education programmes at two institutions in Norway. Recruitment was carried out through direct face-to-face or email contact, and participation was entirely voluntary. The dataset comprises nine interviews, totalling approximately 11 hours of discussion. Six interviews were conducted in person, with three or four informants meeting two researchers. The remaining three interviews were conducted digitally, with two informants meeting two researchers. In all interviews, the informants were familiar with at least one of the interviewers.

During the interviews, one researcher moderated the discussion while the other took notes and managed the recording. Creating a comfortable and open environment where participants felt safe to share their thoughts and experiences was of utmost importance. This involved active listening from both researchers. The moderator focused on guiding the conversation without dominating it, encouraging participation from all members and being attentive to non-verbal cues. Effective time management was also essential to ensure that all relevant points were covered within the allotted time. All interviews were recorded and subsequently transcribed.

5.2 Interview guide

To ensure relevance to theories of empathy, an interview guide was developed on the basis of IRI [2, 3]. The IRI questionnaire consists of 28 items answered on a five-point Likert scale, from 'Does not describe me well' to 'Describes me very well' [2]. The items are equally divided between the four dimensions of empathy. While the purpose of IRI is to map empathy profiles, our goal is to understand the development of empathy throughout education. The questionnaire could thus not be converted in any way, but it served as a reference point for how empathy can be investigated.

In focus group interviews for phenomenological research, it is crucial that participants engage deeply with the topics being discussed. Husserl [45] emphasized the importance of returning 'to the things themselves', meaning that researchers should

concentrate on the direct experiences and perceptions of individuals, free from pre-conceived theories or biases. To ensure this focus and to prevent the interviews from becoming mere storytelling of emotional situations or theoretical discussions on empathy, respondents were presented with four scenarios. These scenarios were designed to facilitate discussions on the four main aspects of empathy as described by Davies.

The scenarios were:

- A boy approaches you during a break and confides that he is being bullied by his classmates. He believes the bullying is due to his unusual and strange smell.
- A colleague who has appeared fatigued for some time reveals that her mother has developed dementia. She prefers to keep this information from the rest of the staff to avoid the commotion it might cause.
- A colleague seeks your advice on a matter involving a 10-year-old girl who is unfocused, aggressive and clearly unbalanced.
- This scenario is provided in two parts.
In Part 1, a teenager discloses that she is in such pain that she resorts to self-harm. In Part 2, the same teenager explains that her self-harm is a result of your inability to help her.

For each of the scenarios, the same questions were discussed. These are:

- What would you feel?
- What do you think this person needs?
- What would you do and why would you do this?
- Would you have reacted the same way before you took your education?
- What makes you react differently now?

5.3 Analysis

The data analysis was conducted inductively in a collective process. Being present in the same room during analysis emphasized collaboration and reflexivity. The analysis is inspired by grounded theory [44], particularly the concept of developing theories grounded in the data itself and the importance of remaining close to the data throughout the iterative process of revisiting it until theoretical saturation is reached. By engaging in iterative cycles of coding and thematic development, we ensured that our findings were grounded in the participants' experiences and viewpoints.

During the collective analysis, we frequently revisited relevant portions of the audio files to critically interpret the communicated content. By employing these methods, we aimed to maintain the integrity of the data and provide a robust foundation for subsequent analysis.

First, we identified the sections where the informants described how they would have reacted to the scenarios presented and what made them react differently now.

The outlined material we analyzed inductively to identify why they responded differently. From the process, four categories emerged. These are reflected in the four subsections in the findings section.

5.4 Ethics

The research project was reported (Ref 114,710) to SIKT, the data protection services for research used by the Norwegian university sector. Adhering to the ethical guidelines provided, we have ensured informed consent, voluntary participation and the protection of participants' rights and well-being. Data is stored and protected in accordance with the data management plan. Measures to ensure confidentiality and anonymity are implemented, including anonymization processes and safeguarding data from unauthorized access.

The students were invited to participate in the focus group interviews because they were in the final semester of their education. This frames the situation [46] as a focus group interview with respondents being on the cusp of becoming professionals. The importance of this frame is likely reinforced by the fact that the moderators of the focus group interviews are representatives of the institutions where the students are being educated. This has the distinct advantage of clearly situating the informants in the role we want them to occupy when responding.

The use of quotes from interviews demands careful consideration, especially when translating into another language. We have meticulously adjusted the spoken words from the interviews to align with the grammar of the written language. This step is vital to preserve the authenticity and integrity of the participants' responses while ensuring the text is comprehensible and coherent for readers. When rephrasing these quotes into English, we focused on capturing the tone and meaning rather than providing a word-for-word translation. This approach ensures that the true essence of the interviewees' experiences and insights is conveyed, thereby enriching the overall quality and depth of the research.

6. Findings

We aim to explore how the empathy of students enrolled in professional programmes develops throughout their educational journey. In the focus group interviews, the students were all very clear on the need for empathy in their upcoming professions. One of our informants, who is studying to become a social worker, expressed the fundamental importance of empathy to the profession in this way:

I believe that empathy is something that everyone who chooses to go into social work has at their core.

In the focus group interviews, the students were presented with four scenarios in which a professional approach demands an empathic response. Despite individual differences, all informants indicated that their education had altered how they would respond to the presented scenarios. They feel they have improved in their ability to empathize and see things from another person's perspective, thus becoming better at putting themselves in someone else's shoes.

From our data, it becomes clear that the most important factor behind the change in empathic responses is new knowledge. It is thus the cognitive dimensions of

empathy that have primarily been developed. Our data also shows this being a multi-faceted development that not only has had an impact on how they think about others but also altered how they perceive themselves in relation to others. One puts it like this:

I have started analysing my own behaviour - how I behave as a social being. I analyse why I do this and why I do that. [...] I did that because of what I did there, because of you over there and you over there. It's been strange seeing oneself in the third person.

Obviously, the students begin their education with an initial empathic capacity. This capacity is likely to play a central role in both the students' empathic development and their decision to pursue studies in the welfare professions. Our data proves that this initial empathy becomes significantly developed throughout education. One respondent expressed the development in this way:

I would say that I had empathy three years ago as well, but that empathy has grown.

One of the students expresses how new knowledge has developed her thoughts regarding the clients and their situation:

We can see it much more broadly now. We can view it from different perspectives. We can ask ourselves new questions like, if you look at it from one side, if you look at it from another side.

The students describe the transformations as profound and significant, impacting them not only by enhancing their analytical abilities but also by altering their personal identities. One student articulates these changes in the following manner:

I feel that I have become a lot more reflective throughout the education. I believe everyone who takes this education comes out as a better person. Truly. That's what I think. You become so much more aware of yourself and how to present yourself in the best possible way.

In the following sections, we delve deeper into how the knowledge they have acquired has influenced their empathic capacity. We will begin by examining an extended scope of potential causes for the situations encountered by the client. Subsequently, we will explore a transformed understanding of the needs of others. We then delve into how the new knowledge frames their thinking before we finally consider an enhanced awareness of the professional role.

6.1 An extended scope of possible causes

Our data clearly demonstrates that the students have developed a greater appreciation for the fact that a problem can be understood and experienced in various ways. It is evident that it is knowledge acquired throughout the educational programme that has extended their ability to understand the situation of the clients as complex and varied.

Our informants indicate that, previously, their own experiences were the primary source of knowledge, which they now view as quite limited. Currently, they aim to understand situations more comprehensively and therefore collect more information before taking action. An illustration of this shift is evident in the responses to the first

scenario presented in the focus group interviews, where the informants encounter a boy who reports that his classmates say he smells unpleasant. The students first discuss possible reasons why the boy might smell unpleasant, including the hypothesis that it might not be true that he smells different at all. One of the students articulated their current approach in this way:

It is a matter of trying to find out more about the background of why the classmates distance themselves from him, thinking he smells strange. There could be several reasons for this. It could be that it is a long time since he bathed, or if his family eats something that the others don't eat. There could be many causes.

Our data reveals that understanding the client is not merely about knowing the possible causes. It also involves an enhanced ability to analyze the situation using theoretical approaches. One of the students articulates her current approach to the situation as follows:

Now we have more hooks to hang our choices on. I feel more confident in my actions [...] with my theoretical understanding. [...] Yes, I think a different kind of understanding has been developed.

While possessing a broad range of explanations enables approaching the situation from various perspectives, it is the professional standard of comprehending the client's situation before offering assistance that renders this approach valuable. Consequently, the curriculum of the educational programmes has enhanced the students' empathetic abilities through a professional approach, encompassing knowledge of causes and theoretical frameworks.

6.2 An extended scope of possible needs

During the focus group interviews, it became evident that education has also transformed the students' perceptions of the needs of others. The acquisition of new knowledge has heightened their awareness of the diverse range of needs that arise when individuals face challenges, making them more capable of meeting clients in a helpful way. This transformation is illustrated in discussions related to a scenario where a colleague shares that her mother has been diagnosed with dementia.

The students express that education has significantly altered how they approach such situations. Previously, they would have been more inclined to share their own experiences, but now they recognize that this is not what the colleague needs. Their actions are now based on their new understanding of possible needs. In short, they have developed an approach where they do not simply assume that the other person needs what they would have needed. Instead, they approach the situation with the question of what the other may need. One of the students expresses the change in this way:

From three years ago until now, the focus has shifted. Previously, I would have shown support and empathy by recounting my own experiences and offering tips and tricks. [...] Now I would not initially mention my own experiences.

In addition to recognizing that what is perceived as helpful can vary from person to person, situation to situation, and over time, they also acknowledge that problems have a context. One of the social work students expressed it this way:

Now, I think much more about the ripple effects it has on the people around. I feel that I have learned this from my studies.

An illustration of this can be found in one of the focus group interviews with teachers. During the discussion, our informants emphasize the importance of attending to the professional role of the colleague, considering how the colleague's mother's illness might impact both the quality of teaching and the collective of professionals. One of them states:

I believe I would not have had the same understanding of teaching as a team effort earlier. I would have viewed that colleague as a person and attended to her, rather than now when trying to see the whole picture.

Subsequently, they explore the characteristics and challenges of being a teacher. One of the students had earlier worked as a mechanic. He states:

It's a completely different type of job, so you get more tired from it. [...] Earlier I was used to working a lot without getting tired. And now I work 5 hours at a school, and I am completely exhausted when I get home.

Their awareness of the demands inherent in the professional role leads them into a discussion about how home burdens can complicate the job. This raises concerns about the mental health of the colleague in question. One of the participants expressed their concern as follows:

Is this something that affects her to the extent that she is at risk of burnout and mental collapse? I would at least try to get her to think about whether she feels that she is up to par. It's often not the first thing one considers when exhausted.

From the interviews, it becomes clear that the students have heightened their awareness of how needs differ among individuals facing problems. Previously, they often understood others' situations based on how they themselves would have perceived them. Now, they have expanded their ability to grasp what others need, thanks to increased knowledge of diversity. This understanding stems not only from knowledge of needs but also from an awareness of how different situations and roles influence the experience of encountering problems in various contexts.

6.3 The professional scope of actions

The new knowledge acquired throughout the education has not only influenced how the students perceive their clients but also how they view their own roles. In one of the scenarios presented, a girl who engages in self-harm is discussed. The subsequent discussions reveal a difference in perspectives between the social workers and the teachers. Generally, the student teachers were more likely to be emotionally affected by situations compared to the social workers.

A response that exemplifies the teachers' approach is: *'I think I would have taken her to the school nurse immediately, as we are discussing serious matters'*. In contrast, a typical response from the social workers is: *'It would have led to a conversation. What is causing your pain? What makes you do this?'* Thus, while the social workers perceive the situation as within their scope of responsibility, the teachers view it as bordering on

their professional boundaries. One of the teachers reflected on the case being at the border of their professional scope by stating:

We are not educated for that situation, and I am thinking, should we be educated for that situation? It is important that we have other professions with us when doing our jobs.

We attribute this difference to the nature of their education. While teacher education emphasizes initiating learning processes, social work education focuses on addressing individuals' personal issues. Consequently, when someone engages in self-harm, social workers perceive it as a more routine matter compared to teachers. This distinction significantly influences their responses to such situations. Defining the situation as either within or beyond the scope of one's professional responsibilities restricts the range of empathic responses in a situation.

Empathy as part of professional practice often leads to compassionate and supportive responses that address the emotional and psychological needs of individuals. The education that students receive is thus crucial, as it shapes their compassionate and supportive responses by altering their perception of situations and limiting the range of actions they can take.

6.4 The professional position

In the second part of the scenario involving the girl who engages in self-harm, the students are confronted with the notion that they are responsible for her self-harm. This triggers an emotional reaction expressed in both words and body language. After a short while, they start to analyze the situation by means of their scope of possible causes and her possible needs. In this process, a central issue is the validity of the claim that they are to blame. Still, they never lose sight of the girl. One student expressed his thoughts on the situation as follows:

Is it personal or not? Maybe, maybe not. Is it right or not? Maybe, maybe not. It's like that, but that's not what's important. What is important is to acknowledge that the other person is in pain and in need of help.

Our data clearly shows that it is their professional role that shapes how they perceive and respond to situations. Despite their personal feelings, they are there to care for others. This means they must prioritize the client, at least in the moment.

At that moment, it's about setting your own feelings aside. [...] Your own emotions, you have to push them aside in the moment. The focus should be on the client. [...] And then, when the job is done and you can retreat to the office, then you might realize, "hey okay". "There were a lot of emotions that came up". And then you might use your colleagues to support you and talk about it afterwards.

Through their discussions, we notice that our informants distance themselves from the emotional burden of being in the moment. Attuning to others' needs is at the core of professional practice and ethics, a focus that also persists when they step back and reflect on their own reflective process. One of the informants expresses:

And then the thought comes. It's not me who has inflicted anything on her, and then I get a bit like, oh my god, am I creating coping strategies, like, to handle this. Is

this how I manage to absorb the theory? Protect myself and use coping strategies to handle it?

Our data clearly shows that the students' professional role significantly influences how they perceive and respond to situations. A crucial aspect of this is the suppression of their own feelings, which allows for appropriate empathetic responses. This approach is grounded in the student's knowledge of possible causes and needs, but equally important is the professional standard of prioritizing the client.

7. Discussion

We aim to deepen our understanding of the development of empathy during the education of welfare professionals. Insights from our focus group interviews reveal that students perceive that education has sparked a significant growth in their empathy, which influences their interactions with clients in various ways. Since empathy is essential to professional practice, we now explore the relationship between this transformation and education. We employ Biesta's work [25] on the purpose of education to structure our discussion.

Biesta [25] posits that education serves a threefold purpose: qualification, socialization and subjectification. In the qualification process, students acquire the specific skills and knowledge needed to carry out their jobs. Through the socialization process, they adopt the norms and values of the profession. Meanwhile, the subjectification process involves the development of their unique identities and ways of acting as professionals. We will structure the forthcoming text in accordance with these three purposes.

7.1 Qualification

The fundamental mission of welfare professions is to help the client. Central to this mission is the ability to truly understand the client. Empathy, as previously discussed, plays a crucial role in this process, serving as the foundation for building the so-called 'working alliance' [30, 31] between the helper and the person being helped.

Our findings reveal that education has significantly transformed the empathic capacity of the students in two crucial ways. First, students have broadened their understanding of the possible underlying causes of a client's situation. Second, students have heightened their awareness of how needs differ among individuals facing problems, thanks to increased knowledge of diversity dependent on persons, situations and roles. This new knowledge has expanded the cognitive components of their empathy by enhancing their ability to comprehend personal and interpersonal factors by means of theoretical frameworks and professional ethics.

By facilitating a deeper understanding of the client's situation, empathy is crucial to providing effective assistance. This benefits the client, but it can also make the job of a welfare professional more manageable. Truly helpful assistance often leads to positive changes for the client. This provides rewarding experiences for the professional, which can mitigate the risks of compassion fatigue [35, 36]. This can be understood by means of the work of Antonovsky [42].

Finding situations meaningful and being able to comprehend and manage them leads to a sense of coherence, which, in turn, provides positive benefits such as greater resilience and higher life satisfaction [42]. This can explain why professionals,

despite experiencing significant stress and adversity in their jobs, do not experience emotional depletion or drainage. The expanded understanding of a client's potential causes and needs, acquired through education, not only enhances empathy but also improves professional coping skills. The student's enhanced capacity to understand the client thereby benefits not only the client but also the professional.

7.2 Socialization

Biesta [27] defines socialization as the '(re)presentation of cultures, traditions and practices, either explicitly but often also implicitly'. This process involves both adopting and practising the norms and values of the profession. Our findings indicate that the socialization occurring throughout the education process impacts students' empathic responses in two ways: by defining the boundaries of their professional conduct and by shaping how they adhere to professional standards.

As demonstrated above, understanding the potential underlying causes of a client's situation and being sensitive to the needs of individuals facing problems is crucial for being an empathic professional. When our informants encountered the case of the self-harming girl, we observed that teachers were more likely to be emotionally affected by the situation compared to social workers. In terms of empathy being an amalgamation of cognitive and affective components, this points to the empathy profiles of the teachers reflecting a higher score on the affective aspects of empathy.

The teachers perceived the situation as serious and bordering on their professional scope, while social workers regarded it as a routine matter. We attributed this difference to their respective educations: teacher education emphasizes learning in the classroom, whereas social work education focuses on individuals and their problems. This divergence frames the empathy that is to be exercised during professional work. In this matter, it is important to note that the framing of self-harm is markedly different between the two educational paths.

In social work education, self-harm is considered a relatively normal reaction among the various personal issues covered in the curriculum. For teachers, however, personal problems constitute only a small component of their training. Considering this difference, it makes sense that the two groups perceive the situation quite differently. Consequently, since the curriculum, as we have seen, influences the cognitive aspects of empathy, it also shapes what one imagines as a mundane occurrence or not. At the same time, since the knowledge base of a profession defines whether a professional should take care of the situation or not, it also shapes the scope of compassionate responses available.

By framing how a professional thinks about a situation, the curriculum shapes the cognitive aspects of empathy, which in turn influence the affective components. The curriculum of a professional educational programme is thus not only a representation of what students ought to know, but it also defines what a profession handles, how it should be handled by the profession and how one should feel about it.

7.3 Subjectification

Biesta conceptualizes subjectification as the formation of unique identities and modes of action. Our data clearly indicates that the formation of unique identities is framed by their qualification and socialization processes. One central aspect of this is the professional obligation to prioritize the needs of others, regardless of their own personal feelings.

To truly understand the client, all relevant questions must be asked. In this regard, our informants have realized the necessity of self-restraint. As the focus should be entirely on the client, the client should not be burdened with the professional's own emotions. Asking all relevant questions is thus not merely about knowing what to ask and how to ask but also about having the courage to ask. This courage rests upon a trust in one's own ability to receive and acknowledge the responses, understand them, transform this understanding into an adequate response and reflect upon this process.

In the findings section, we also discussed the informant's self-reflection, exemplified in the example where one of the informants was critical of her own use of theory when stepping back and reflecting upon her approach to thinking about the case where she got the blame for the girl's self-harm. This illustrates how the contents of the educational programme also influence how they think about themselves and their own thinking.

Consequently, the framing of their role in the qualification and socialization processes, through the formation of unique identities and modes of action, is highly contingent upon their education. In this context, the professional standard of placing the user at the centre denotes both the necessity of self-restraint and the courage to enquire. The curriculum also shapes how they perceive themselves and their own thought processes. This demonstrates that education not only impacts the cognitive aspects of empathy but also inflicts the emotional aspects.

Consequently, the formation of unique identities and modes of action is highly contingent upon education due to their qualification and socialization processes. In this, the professional standard of placing the user at the centre plays a vital role, as it denotes both emotional self-restraint and the courage to enquire. Further, the qualification and socialization processes shape how students perceive themselves and their own thought processes. This demonstrates that education impacts not only the cognitive aspects of empathy but also the emotional aspects.

8. Conclusion

We have explored how the empathy of students develops throughout professional education. Our main finding was that the new knowledge acquired has increased the empathy of the students. Their ongoing empathy has, due to the education, 'grown', as one of the students puts it. We have thus seen that empathy can be both learnt and taught.

Our aim is to contribute to the body of knowledge on how educational programmes can better prepare students for their transition into professionals by 'growing' their empathy. This aim is motivated by empathy being an important capacity of professionals working in the welfare sector, as it facilitates the understanding of clients and their circumstances.

In the discussion, we have observed that the knowledge acquired during the qualification process expands the understanding of the potential causes of problems and the potential needs of the client. This expanded understanding is a pivotal asset for both empathy and professional coping skills. Furthermore, the contents of educational programmes are crucial to the socialization process, as they define what a profession handles, how it should be handled and how one should feel about it. Additionally, we have seen that the qualification and socialization processes frame the subjectification process, thereby impacting not only the cognitive aspects of empathy but also the emotional aspects.

When considering all aspects, the significance of the curriculum becomes evident. Thorough coverage in the educational programme is easier to handle emotionally than what was just mentioned. It is also easier to provide a suitable empathic response to thoroughly covered topics than to those just briefly mentioned. Although empathic development may seem to occur almost naturally throughout education, the relationship between empathy and well-known content is crucial, ensuring that the empathic development of students is not left to chance. This task may not be as challenging as it appears, and it is unnecessary to find separate means for the three different purposes of education. If the domain of qualification is adequately addressed, the other two domains will naturally follow. Students will then receive tools that can aid them in finding a sense of coherence in their daily work, benefiting themselves, their clients and their colleagues.

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Destination Memory: A Fundamental Component of Social Cognition

Tanisha Rathore, Gunjan Joshi and Kedarmal Verma

Abstract

Individuals possess the capacity to recall the recipients of the information. We refer to this as destination memory or social memory due to its crucial role in social interaction and communication. In the proposed chapter, we will comprehensively synthesize the foundations of destination memory with sections that emphasize its socio-cognitive process, mechanism, and importance in daily life. We would also highlight its distinction from other memory systems. Additionally, we will discuss prospective destination memory errors that individuals can commit during their communication. By analyzing the available literature, this proposed chapter will synthesize the neurological bases and mechanisms of destination memory with different factors, including age, cognitive load, and stress. The objective of this proposed chapter is to comprehensively understand destination memory as a vital component of memory functioning in social neuroscience and the communication sciences.

Keywords: destination memory, social cognition, interpersonal communication, episodic memory, source memory

1. Introduction

Our memory plays a very important role in our social life. It would be hard to imagine any conversation that does not take help of previous memories in any way. It is crucial for recalling personal information, social norms, shared experiences, conversational content, recognizing faces, learning from mistakes, maintaining relationships, storytelling, and cultural transmission in social environments and communication. Previous studies have seen how memory impairments in older people with memory related disorders like dementia and Alzheimer's have detrimental effects on their social life and in turn leads to reduced well-being [1]. In our life, we might have found ourselves in situations where we remember telling someone a story only to find out later that we did not or we relayed the information to a different receiver. This is an example of a distorted destination memory. Destination memory is the ability to remember to whom we shared specific information with (**Figure 1**) [2]. Such instances of miscommunication can lead to serious mishaps in both personal and

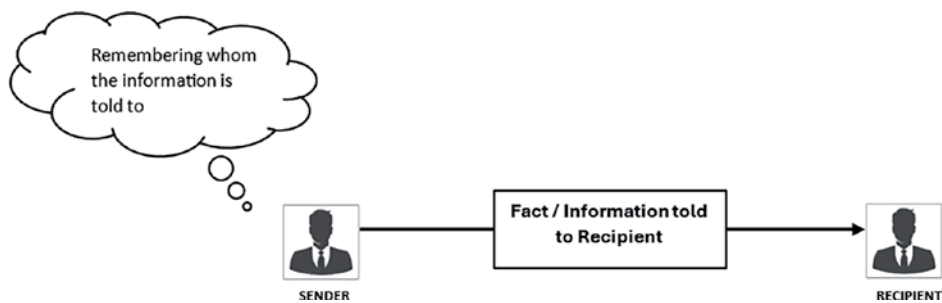


Figure 1.
Pictorial representation of destination memory: The sender must remember the recipient of some information.

professional life. For example, what if you tell about a job opening to your friend who already has a job rather than the one who is unemployed. These mistakes could end up hampering your relationships. Research has shown that destination recall is difficult and could be subject to many distortions. Destination memory can be affected by many factors like aging [3, 4], diseases like Alzheimer's [5–7], more focus on self [2, 3], familiarity [8], attractiveness of the receptor [9], and emotions [10].

The chapter delves into destination memory's foundational theories, distinctions from other memory systems, and socio-cognitive processes. Key topics include its relationship with episodic and source memory, factors influencing destination memory, and its neurological basis. The chapter also highlights practical implications and potential interventions for improving destination memory in clinical and everyday contexts.

This chapter addresses a crucial aspect of social cognition by exploring how memory functions in interpersonal communication. Understanding destination memory is vital for enhancing social interactions, preventing communication errors, and addressing memory deficits in clinical populations such as individuals with Alzheimer's disease or brain injuries. Additionally, this exploration contributes to broader insights into cognitive neuroscience, offering avenues for practical applications in education, therapy, and organizational management.

2. Historical foundation

The groundbreaking study of Koriat et al. [11] introduced the concept of destination memory, focusing on action repeats common in aging, such as repeatedly sharing the same story. They observed that while older adults recalled fewer words from a list compared to younger individuals, they exhibited a greater tendency to repeat retained phrases. Koriat later attributed this to impaired “output monitoring” in older adults, linked to poorer integration of information with its encoding context.

The concept of “output monitoring” aligns with “target memory,” proposed by Marsh and Hicks, who distinguished between recalling the source of information (“source memory”) and its recipient (“target memory”) [12, 13]. In a similar spirit, the term “target monitoring” was coined by Brown, Hornstein, and Memon to describe the capacity to control who is informed of information [14]. In their study, participants struggled to avoid repeating personal information to the same recipients over multiple sessions, with difficulties increasing after repeated interactions. Unsurprisingly, the findings revealed that participants found it harder to prevent

duplications on the last session than on the others. The authors claim that target memory deteriorates with the volume of prior contacts. Gopie and MacLeod in 2009 came up with the term “destination memory”.

3. The relationship of source memory and destination memory with episodic memory system

Source memory and destination memory are both a crucial part of episodic memory that is essential to social interactions. Source memory is episodic in character because it is crucial for recalling the context (such as the time and location) in which information has been provided with reference to oneself as a participant in the episode [2]. Source memory is defined as a memory of the episodic source from which a certain thing or knowledge was learned [15]. There has been plenty work done on source memory, exploring its relationship with aging [15], development [16], emotions [17] and many other factors. The episodic memory system, first defined by Tulving, includes both source memory and destination memory [18]. Research done on destination memory has investigated its relationship with various variables like familiarity, attractiveness, theory of mind, age, gender, and so on [4, 8, 19–21]. Unlike source memory, destination memory remains unexplored to a large extent. The cognitive resources underlying destination memory involve episodic recall, executive functioning and self-referential processes [22]. The role of executive functioning here is to either allow the formation of association between the appropriate encoding context (binding) or restrict an inappropriate association to be formed (inhibition) [23].

Similarities between how episodic memories, source memories, and destination memories operate can be noticed. First is the contextual nature of destination memory. According to the Destination Memory Framework (DMF) proposed by Haj, contextual processing is a crucial component of destination memory, since recall in DM is connected to the reconstruction of the encoding context [23]. We know already that contextual processing is a big part of source memory [17, 24]. Secondly, the involvement of the pre-frontal cortex (PFC) is another similarity between destination memory, source memory and episodic memory. Contextual processing uses the executive functions of our brain suggesting a role of the prefrontal cortex [23]. In neuroimaging research, the prefrontal cortex (PFC) has been linked to the binding of items and contexts [25, 26]. Another link has been observed in the medial temporal lobe activity that is seen in both destination memory and episodic memory [27]. In their paradigm, they asked participants to perform a destination memory recognition task and monitored the neural activity through fMRI. It was discovered that higher recognition task scores were linked to more activity in the para hippocampal gyrus [27].

4. Distinction from other memory systems

Even though destination memory, episodic memory, and source memory are closely related, there are certain distinctions between them that make it important to study them separately. Firstly, the nature of retrieval is different for the three memory systems. While episodic memory retrieval is more relevant to remembering the entire experiences of the individual, destination memory is focused only on the association between the sender and receiver of the information [2,

18]. With source memory and destination memory, while the nature of memory is very similar, the role of the source/recipient to be remembered changes [28]. Another distinction is the cognitive demands that arise with the memory systems. It engages self-referential cognitive processes to track your interaction with others [22]. It involves remembering your own past actions—specifically, whether and to whom you have told information. Specifically, when sharing information, attention is directed toward the act of conveying it, which limits the cognitive resources available for linking the information to its recipient. As a result, destination memory tends to be less precise. Requires monitoring your role as the communicator of information. Episodic memory may or may not include self-referential aspects. It generally focuses on the “what, where, and when” of individual experiences; communication is not given any special attention (e.g., “I went to the park”). However, in source memory, the focus lies on the external origins of the information (e.g. “Who told me this?” or “Where did I hear that?”).

5. Socio-cognitive dimension

Destination memory relies on both cognitive and social aspects of information processing. Haj with his colleagues came up with the Destination Memory Framework (DMF) to describe the cognitive and social underpinnings of destination memory (Figure 2) [23]. The DMF describes the cognitive mechanisms (episodic memory system and executive functions) that underlie destination memory as well as the social factors (familiarity, attractiveness, emotions, and theory of mind) that influence it. Described below are these factors.

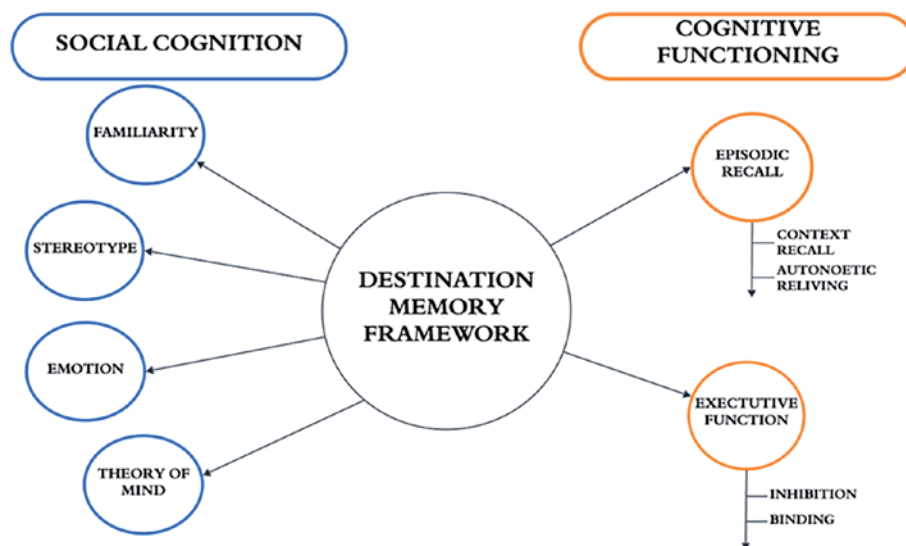


Figure 2.

Destination memory framework by Haj [23] illustrates the cognitive mechanisms—episodic memory and executive functions—and social factors such as familiarity, attractiveness, emotions, and theory of mind that collectively shape destination memory.

5.1 Cognitive factors

5.1.1 Episodic memory system

Cognitively, the DMF roots destination memory in the episodic memory system. As discussed before, we have seen the similarities between destination and episodic memory. In this section, we will dive deeper into the relationship between the episodic memory and destination memory. Two important components of episodic memory are context recall and auto-noetic consciousness.

Context recall refers to the ability of an individual to remember details of an experience in which an event occurred, specifically the where, when, and who of the situation. For example, recalling whether you told a particular fact to a friend at a coffee shop or during a phone call demonstrates context recall. This allows individuals the ability to reconstruct past experiences [18]. Context recall enables a subjective state called auto-noetic consciousness. This refers to the ability to mentally travel back in time to relive the event [18]. For instance, reliving the moment you shared an exciting fact with a colleague during a meeting reflects auto-noetic consciousness. The relationship between destination memory and context recall was explored in a study on normal aging [22]. Participants, consisting of healthy older and younger adults, were tasked with telling facts (e.g., “London is the capital of the United Kingdom”) to photographs of celebrities, which were presented in either color or black and white. Later, in a recognition task, they had to determine whether they had previously shared that fact with the depicted celebrity. Additionally, participants were asked to recall the contextual detail of whether the photograph had been shown in color or black and white. The results revealed that older adults exhibited poorer destination memory compared to younger participants. Furthermore, the performance of older adults on destination memory tasks was significantly predicted by their ability to recall contextual details [3]. These findings suggest that the observed decline in destination memory with aging may stem from difficulties in encoding and processing contextual features.

El Haj et al. investigated this connection between destination memory and episodic memory in patients with mild Alzheimer’s disease [22]. Participants were asked to share facts with photographs of famous individuals and later identify whether they had previously conveyed a particular fact to a specific person. Using the “Remember/ Know” paradigm, participants provided “Remember” responses if they consciously recalled details of the interaction and “Know” responses if they only recognized the event without specific recollection. The study found that Alzheimer’s patients showed impaired destination memory, accompanied by a significant reduction in “Remember” responses. This deficit was strongly correlated with broader episodic memory impairments ($r = .62, p < .001$). The researchers attributed these difficulties to disruptions in both episodic recall and auto-noetic consciousness.

A similar relationship was observed in Huntington’s disease patients [29]. Despite being primarily a motor disorder, Huntington’s disease also involves cognitive impairments, including episodic memory and executive function deficits. In a destination memory task, patients displayed poor performance, which was significantly correlated with episodic memory deficits. These findings suggest that destination memory impairments in both Alzheimer’s and Huntington’s diseases are strongly influenced by disruptions in episodic memory and contextual processing.

5.1.2 Executive function

Another cognitive aspect of destination memory is the executive function. Executive functions, including shifting, updating, and inhibition, play a significant role in destination memory [7]. Inhibitory control enables the suppression of irrelevant information, allowing individuals to focus on pertinent details. For instance, remembering that you told a specific fact to your teacher and not a classmate requires inhibition of conflicting memories. Research has shown that impairments in these higher-order cognitive processes, often linked to frontal lobe dysfunction, impact the ability to recall the context of events, such as remembering to whom information was conveyed. Studies on Alzheimer's disease reveal a strong correlation between destination memory deficits and challenges in inhibitory control, as individuals struggle to suppress irrelevant information during retrieval [7].

Additionally, the process of binding, which integrates events with their contextual details, is crucial for destination memory. For example, associating a fact with the person and environment where it was shared demonstrates successful binding. Deficits in binding are associated with episodic memory impairments seen in normal aging, Alzheimer's disease, and Korsakoff's syndrome [30]. For instance, participants with Korsakoff's syndrome showed reduced performance in both destination memory and binding tasks, highlighting their interdependence.

Overall, destination memory is influenced by executive functions and binding processes, which together facilitate the association of events with their appropriate contexts and the suppression of irrelevant details, enabling accurate recall and subjective reliving of past experiences.

5.2 Social factors

Destination memory is central to social interactions and communicative efficacy. It integrates the social and affective characteristics of an interlocutor. These characteristics include the familiarity of an individual, stereotypes, emotional states, and the ability to infer mental states (theory of mind).

5.2.1 Familiarity

Prior research on memory has shown the beneficial effects of familiarity, showing that familiarity tends to strengthen encoding [31]. Imagine a person regularly interacts with their family doctor and a new specialist for the first time. When recalling which doctor they shared specific medical concerns with, they are more likely to remember sharing those concerns with their familiar family doctor, even if the new specialist received more detailed information. This illustrates how familiarity influences memory by fostering ease and stronger encoding. Similarly, being exposed to a stimulus that has previously been studied leads to faster processing of it. To test the same for destination memory, Haj and his colleagues asked the participants to tell familiar and unfamiliar proverbs to faces of celebrities [8]. Then, on a recognition task, they were asked which face they had told the proverb to. They found that irrespective of the familiarity of the proverbs, participants remembered familiar faces better than unfamiliar ones. This can be explained by research that shows that familiarity with individuals can influence social interactions, with people generally feeling less nervous and more comfortable when interacting with familiar faces. This is supported by studies showing that we tend to be more anxious and less at ease with

unfamiliar individuals [32]. Additionally, we are more likely to smile at familiar faces than at unfamiliar ones [33]. With these findings in mind, we can say that familiarity plays a vital role in social interactions.

5.2.2 Stereotypes

Stereotypes play a significant role in shaping destination memory, particularly when certain characteristics, such as profession or behavior, align with common stereotypes. A study on destination memory examined recall for profession-related facts in physicians and mechanics. Participants were presented with facts related to medicine and mechanics. The results showed that profession-congruent facts were remembered better; mechanics recalled mechanics-related facts more accurately, while physicians had better recall for medicine-related facts [34]. When people make destination judgments, they often rely on these stereotypes to help them process and recall information more easily. Imagine telling a story about car maintenance. When deciding whether you shared this story with a mechanic or a schoolteacher, you may rely on the stereotype that a mechanic would be more interested in or relevant to the topic. Consequently, you might confidently but inaccurately conclude that you told the story to the mechanic, even if it was actually shared with the schoolteacher. This reliance on stereotypes helps them navigate memory tasks more efficiently by using generalized beliefs when detailed recollections are harder to access.

This tendency is especially pronounced among older adults, who may experience memory challenges due to aging. In these cases, older adults may rely more heavily on stereotypes as a cognitive shortcut to compensate for deficits in contextual memory. By doing so, they can form judgments about destinations based on familiar, generalized beliefs rather than specific, detailed recollections, which may be harder to access. This reliance on stereotypes helps them navigate social and memory-related tasks more efficiently, even when faced with cognitive limitations.

5.2.3 Emotion

Emotion plays a crucial role in enhancing memory by helping the brain prioritize stimuli that are deemed significant or emotionally relevant [35]. This process is largely facilitated through the interaction between the amygdala, which processes emotions, and the hippocampus, which is central to memory formation. When an emotional event or stimulus occurs, the amygdala signals the hippocampus to enhance the encoding of the memory, making emotionally charged experiences more memorable [36].

Research indicates that older adults exhibit better destination memory for emotional faces—whether positive or negative—compared to neutral faces [4]. For example, remembering that you shared a heartfelt story with a smiling friend is more likely than recalling a neutral interaction. This is because the emotional content of the face draws more attention and leads to stronger memory encoding. In contrast, younger adults do not show the same differential memory performance for emotional versus neutral faces, suggesting that this enhancement of memory by emotion may be more pronounced in older adults [4].

However, this emotional memory advantage is not observed in individuals with Alzheimer's disease, primarily due to dysfunction in the amygdala [5]. The amygdala's diminished ability to process emotional stimuli in Alzheimer's patients means that their memory for emotional faces, whether positive or negative, is not as enhanced

as it would be in healthy older adults. This highlights the critical role the amygdala plays in the relationship between emotion and memory, and how impairments in this region can affect the ability to prioritize and retain emotionally significant information.

5.2.4 Theory of mind

Theory of mind (ToM) refers to the ability to understand and attribute mental states—such as beliefs, desires, intentions, and emotions—to oneself and others [37]. This cognitive ability allows individuals to interpret and predict the behavior of others based on their internal mental states, facilitating more effective social interactions. In the context of memory, theory of mind plays a crucial role by enabling deeper processing of an interlocutor's cognitive and emotional states. When we understand someone else's perspective or emotional state, we are more likely to engage with that information meaningfully, which can enhance our memory of the interaction, including destination memory, or the ability to recall details about people or places we encounter. For instance, imagining how a friend might react to a fact you shared can make the interaction more memorable.

Research has shown that there is a significant correlation between theory of mind performance and destination memory in both healthy older adults and individuals with Alzheimer's disease [19, 20]. In healthy older adults, the ability to understand others' mental states helps in encoding and recalling information about social interactions, as it encourages more comprehensive processing of the event. This deeper processing can lead to improved memory for details such as the identity of the person, the emotional tone of the interaction, and other contextual information relevant to the encounter.

In Alzheimer's patients, despite the cognitive decline associated with the disease, those who perform better on theory of mind tasks show better destination memory

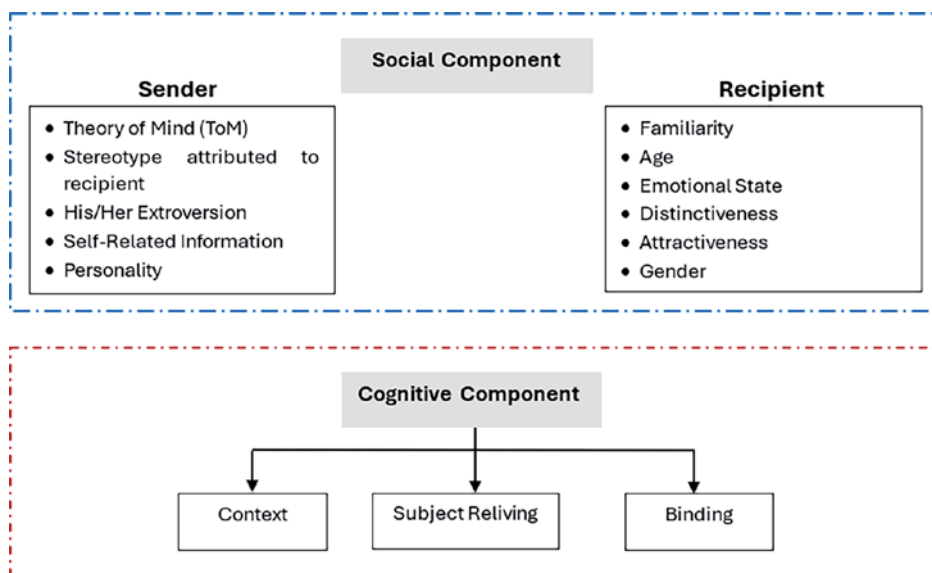


Figure 3. Components of destination memory: Social component (sender and recipient factors like personality, emotions, and familiarity) and Cognitive component (context, subject reliving, and binding). These components affect the encoding and retrieval of Destination memory.

[20]. This suggests that the ability to process and understand others' emotions and intentions continues to support memory, even in the face of neurological impairment. Theory of mind may help Alzheimer's patients retain and recall more detailed information about people and situations, especially in social contexts where understanding emotional cues is key.

Overall, theory of mind facilitates more nuanced and efficient memory encoding by promoting deeper social and emotional engagement, and its relationship with destination memory highlights its importance across different age groups and even in the context of cognitive decline.

Since this framework was proposed in 2017, subsequent research has identified additional social and cognitive factors that influence destination memory depicted in **Figure 3**.

6. Factors affecting destination memory

6.1 Deception tendency

Individuals with a high tendency to deceive demonstrate equal recall for both truthful and false information. This reflects their careful monitoring of the recipients to ensure consistency in future social interactions, thus avoiding being caught in their deception. On the other hand, individuals with a low tendency to deceive exhibit better destination memory for lies than for truthful information. This discrepancy could be due to moral discomfort or cognitive dissonance, which makes the lies more salient and memorable. These findings highlight how deception affects memory, with varying outcomes depending on the individual's moral or cognitive engagement with the act of lying [38].

6.2 Age and social exposure

Older adults tend to show superior destination memory for individuals of their own age group, likely due to more frequent social interactions and shared experiences with peers. Conversely, younger adults perform better with younger recipients, suggesting an age-related bias in memory based on social familiarity. Additionally, reduced exposure to specific age groups negatively impacts destination memory, as seen in older adults who have limited interaction with younger individuals. These results emphasize the role of social engagement and frequency of contact in shaping memory performance across different age groups [39]. Research indicates that aging negatively affects recollection (detailed memory retrieval) more than familiarity (a sense of knowing), as recollection relies on self-initiated processing, which diminishes with age [40–42]. This decline contributes to destination amnesia in older adults, where they mistakenly believe they have shared information with someone when they have not. Additionally, aging has a greater adverse impact on the ability to remember associations between pieces of information compared to remembering individual pieces of information. This phenomenon is explained by the associative-deficit hypothesis, which attributes the impairment to challenges in forming and retrieving links between related information [43].

6.3 Gender differences

Female participants consistently outperform males in destination memory tasks, which has been linked to their generally superior verbal episodic memory. This

enhanced ability allows them to recall more effectively to whom they have communicated information. Importantly, no own-gender bias was observed, as both male and female participants performed equally well for recipients of either gender. This adaptability suggests an evolutionary advantage in maintaining social connections across genders, crucial for navigating diverse social networks [21]. This could be explained by a few factors. Firstly, women show better memory for verbal material than men [44]. Females show better remembrance of autobiographical events and even show: a greater affinity to describe such events in better detail, higher elaborated construction, and sentimental remarks [45–47]. The tendency for emotional expressivity can also be explained by endogenous sex hormones [48]. Secondly, Females show better performance in tasks of face processing [44, 49, 50]. Finally, this could also be explained by the increased interest females take in the social aspects of day to day life [51, 52].

6.4 Attractiveness and distinctiveness

Destination memory is significantly better for both highly attractive and highly unattractive faces compared to neutral ones, indicating that distinctiveness plays a key role in memory performance. Faces with distinctive features, such as tattoos, further enhance recall, as they are more easily encoded and retrieved due to their uniqueness. These findings align with theories suggesting that distinctive visual stimuli capture attention more effectively, leading to stronger memory associations [9, 53].

6.5 Emotional contexts

Emotional contexts significantly influence destination memory. For instance, individuals with Korsakoff's syndrome exhibit impaired memory for emotionally negative destinations compared to positive or neutral ones, highlighting a decline in emotional processing. This suggests that emotional content is integral to destination memory and that deficits in processing such content, as seen in clinical populations, can severely hinder memory performance [10].

6.6 Mode of communication

The method of sharing information significantly impacts destination memory. Speaking aloud leads to better recall than typing, likely due to the auditory reinforcement of the information. Combining both modes (speaking aloud and typing) does not significantly improve performance beyond speaking alone, suggesting that the auditory component plays a dominant role in memory retention. These findings highlight the importance of multimodal communication in enhancing memory [54].

6.7 Cognitive load and recipient choice

In low cognitive load conditions, destination memory remains unaffected by whether participants can choose the recipient. However, in high cognitive load situations, the act of choosing a recipient improves memory performance. This suggests that the choice element helps participants allocate cognitive resources more effectively, focusing attention on the recipient and enhancing memory for the interaction [55].

6.8 Introspection

Reflecting on the attributes or beliefs of the recipient (e.g., celebrities) enhances destination memory in control participants. For individuals with traumatic brain injuries (TBI), introspection about the recipient's beliefs shows varying effects, with some participants experiencing improved memory performance. This suggests that introspective processing may offer a potential intervention strategy to enhance destination memory in clinical populations [56].

6.9 Neurological and psychiatric conditions

Destination memory is influenced by both episodic memory and socio-affective dysfunctions, with the degree of impact varying by condition. For instance, Alzheimer's disease, dementia, and Korsakoff's syndrome affect memory performance differently, depending on the interplay between memory deficits and emotional or social processing impairments [7, 30]. These findings underscore the importance of considering both cognitive and socioemotional factors in understanding and addressing destination memory decline.

7. Neurological basis

The neurological understanding of destination memory remains limited, as research in this area is still developing. However, based on the cognitive processes involved in destination memory, El Haj et al. [57] proposed a hypothesis, suggesting that the neurological basis of destination memory involves the medial temporal lobe for contextual binding, the prefrontal cortex for executive functions, and the precuneus for self-referential processing.

7.1 Medial temporal lobe

Destination memory, as part of the episodic memory system, relies on the MTL for associative learning [57]. The MTL includes the hippocampus, perirhinal cortex, parahippocampal cortex, and entorhinal cortex, all crucial for binding features into cohesive episodic memories [58]. Especially the hippocampus plays a pivotal role in binding individual features into dynamic episodic memories and associating items to their specific episodic context [59–61]. Both these features of the hippocampus are an important feature of destination memory. Along with the hippocampus, the entorhinal cortex is utilized in the processing and recalling of contextual information, which is an essential part of destination memory [62, 63]. Supporting evidence comes from an fMRI study where the parahippocampal region was active during destination memory tasks, emphasizing its role in contextual recognition [27]. Additionally, the Binding of Items and Contexts (BIC) model suggests that the perirhinal cortex processes object-specific details (“what”), and the parahippocampal cortex processes contextual details (“where”) to form complete episodic memories [64].

7.2 Prefrontal cortex

The prefrontal cortex has been shown to play a key role in both episodic and source memory. Early neurological studies have shown that lesions in the PFC disrupt

episodic memory [65]. Along with that, various regions of the PFC have been seen to process various aspects of episodic memory:

- *Left lateral PFC*: Activity in the left lateral PFC or more specifically Brodmann areas 9, 10, 44, 46, and 47 is linked to contextual judgments [66, 67].
- *Right Lateral PFC*: Context recall that involves heuristic judgments and metacognitive decisions are linked to the Right Lateral PFC [68].
- *Ventrolateral PFC*: The ventrolateral PFC is said to support the encoding of specific item features, whereas the dorsolateral PFC is implicated in organizing and relating contextual features [25, 69].

Although episodic and source memory studies show the involvement of these specific brain regions, their involvement in destination memory is yet to be studied.

7.3 Precuneus

Destination memory involves self-referential processes, where individuals focus on themselves—their traits, experiences, actions, or perspectives. These cognitive activities center on evaluating information relevant to one's identity, emotions, or actions. This might depend on parts of the brain linked to these kinds of tasks. The precuneus, part of the cortical midline structures, is associated with self-referential processes. These include mentally simulating self-generated actions, evaluating self-relevant information, and integrating past experiences [70–74]. Activation of the precuneus during autobiographical memory tasks highlights its role in self-awareness and first-person perspective-taking, both of which are central to destination memory [75]. It is also crucial for first-person perspective-taking and agency experiences. Given that destination memory is a system primarily concerned with self-initiated information, this is especially pertinent to it.

8. Future directions

8.1 Clinical applications

A huge chunk of existing research on destination memory has explored how its performance is affected by diseases like Alzheimer's, Dementia, Korsakoff, and clinical populations with brain-related injuries. Further research can focus on targeted interventions to improve destination memory in these populations, such as cognitive rehabilitation programs, pharmacological treatments, and the use of assistive technologies designed to compensate for memory deficits.

8.2 Explore different types of destination memory

The DM task paradigm has traditionally emphasized DM performance, where participants verbally convey information to a recipient. Alternatively, we could explore paradigms that mimic messaging apps or involve tasks designed for virtual gaming environments.

8.3 Neurological exploration

Future research should focus on identifying and understanding the brain regions, neural pathways, and cognitive processes involved in destination memory. By employing advanced neuroimaging techniques, such as fMRI or EEG, alongside behavioral experiments, researchers could uncover how neural activity supports the encoding, storage, and retrieval of destination-related information. Such insights could pave the way for developing targeted interventions or training programs aimed at enhancing destination memory. Furthermore, exploring the neural basis of destination memory could provide a better understanding of its interaction with other cognitive functions, such as attention, working memory, and social cognition, ultimately contributing to a more comprehensive framework for improving memory performance in real-world scenarios.

8.4 Performance across the lifespan

Longitudinal studies examining how destination memory evolves across the lifespan could provide valuable insights into the natural progression of memory abilities, including how and when individuals begin to experience declines in memory accuracy related to the destination of information. By tracking individuals over time, researchers could identify key stages when destination memory is most vulnerable, helping to pinpoint early indicators of cognitive decline in both healthy aging and clinical populations. These studies could also shed light on the role of various factors, such as lifestyle, social engagement, and mental health, in preserving memory function over time.

8.5 Emotions and destination memory

Since destination memory plays a vital role in social communication, and emotions significantly influence both communication and memory processes, it is essential to explore how emotions affect destination memory. Emotions can enhance the salience of social interactions, making some experiences more memorable than others. For example, emotionally charged interactions may strengthen memory associations with the person involved, while neutral or mundane interactions might be less memorable. Studying the impact of emotions on destination memory can provide insights into why we recall certain interactions vividly and forget others. This research could also examine whether the emotional valence (positive, negative, or neutral) of a situation affects the accuracy and reliability of destination memory. Understanding these dynamics can improve applications in diverse areas, such as forensic psychology, education, and clinical therapy, by identifying how emotional contexts influence the recall of shared information and communication outcomes.

8.6 Content-context

Future research on destination memory should explore how the interplay between content (the information conveyed) and context (the situational and interpersonal details) affects memory encoding and retrieval. This could involve examining how different types of content and varying contexts, such as emotional settings, cultural norms, or virtual environments, influence destination memory accuracy and the cognitive mechanisms underlying these processes.

8.7 Cultural and social contexts

Cross-cultural research could provide valuable insights into how social norms, communication styles, and cultural values influence destination memory. Different cultures emphasize varying levels of individualism, collectivism, and interpersonal communication styles, which may impact how people encode, store, and retrieve information about who they shared it with. For instance, cultures that prioritize collective responsibility might foster better destination memory for group-related interactions, while individualistic cultures might emphasize personal accountability for information dissemination.

Investigating group dynamics and their influence on destination memory in collaborative settings could further illuminate how memory operates in social contexts. In group environments, factors such as group size, hierarchy, trust, and roles may affect the accuracy of destination memory. Collaborative tasks may involve overlapping responsibilities, leading to memory errors about who was informed or assigned specific tasks. Research could focus on how shared responsibilities and social interactions either support or hinder accurate memory in group settings. Such studies could inform strategies to enhance communication in teamwork, educational environments, and organizational contexts.

By addressing these areas, future research can deepen our understanding of destination memory and enhance its applications.

9. Conclusion

Destination memory is a fundamental component of social cognition, essential for effective communication and interpersonal interactions. It plays a vital role in maintaining social connections, managing professional tasks, and navigating daily life. As demonstrated throughout this chapter, destination memory is influenced by a wide array of factors, including age, cognitive load, emotional context, social familiarity, and neurological health. The cognitive and social dimensions of destination memory highlight its complexity. Its reliance on episodic memory systems, executive functioning, and self-referential processes underscores the importance of both cognitive and social mechanisms in memory encoding and retrieval. The Destination Memory Framework (DMF) offers a structured approach to understanding these interrelations, providing insights into the role of contextual processing and the integration of personal and social attributes in shaping memory. Research on destination memory has also revealed its susceptibility to various impairments, particularly in clinical populations such as those with Alzheimer's, Korsakoff's syndrome, or traumatic brain injuries. These findings emphasize the need for targeted interventions, including cognitive training, assistive technologies, and therapies, to address destination memory deficits. The chapter also explores potential future directions for destination memory research.

In conclusion, destination memory represents a vital yet underexplored aspect of memory and social cognition. Its role in effective communication, interpersonal interactions, and everyday functioning highlights its significance in maintaining personal and professional relationships. By examining the intricate interplay between cognitive and social mechanisms, we deepen our understanding of how episodic memory systems, executive functioning, and self-referential processes contribute to destination memory. Advancing knowledge in this area can inform interventions to

address memory-related disorders, improve cognitive training programs, and design assistive technologies. Furthermore, these insights hold the potential for enhancing communication strategies across diverse cultural and organizational settings. Future research holds immense promise for expanding our understanding of destination memory. Longitudinal studies could shed light on its trajectory across the lifespan, while cross-cultural investigations might reveal how sociocultural factors influence memory dynamics. Neurological exploration using advanced imaging techniques could identify the specific brain regions and networks involved, leading to novel therapeutic approaches. Additionally, exploring the interconnections between emotions, cultural contexts, and memory performance could foster applications in education, forensic psychology, and organizational management. By prioritizing destination memory research, we can not only advance social neuroscience but also address practical challenges in healthcare, education, and professional domains, ultimately fostering a deeper appreciation for the complexities of human memory and cognition.

Conflict of interest

The authors declare no conflict of interest.

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Emotional Intelligence and Well-Being: Toward Shaping and Reconstructing Psychological Health in Scheduled Tribe Families of Jharkhand, India

Raymond Rocky Tete and Anuradha Sathiyaseelan

Abstract

A vital component in determining psychological, emotional, and social well-being is emotional intelligence, the ability to recognize, comprehend, manage, and use emotions well. In the sociocultural setting of scheduled tribe families in Jharkhand, India, this conceptual study examines the hyperlink between emotional intelligence and psychological health. The study aims to establish a theoretical model that contextualizes the impact of emotional intelligence on individual and familial well-being in tribal cultures by using a conceptual framework development technique. The difficulties tribal families encounter, such as emotional anguish, a lack of effective coping strategies, intergenerational conflicts, and sociocultural stressors, are at the heart of the investigation. The study examines how contextual factors, ranging from close familial relationships to more general systemic precedents, influence psychological outcomes and emotional development, drawing on Bronfenbrenner's Bio-ecological Systems Theory. The results exhibit the need for culturally sensitive mental health interventions that incorporate traditional knowledge systems, community-based coping mechanisms, and indigenous emotional practices. To strengthen emotional resilience and psychological well-being among Jharkhand's tribal populace, the study ultimately seeks to inform the creation of policies, educational reforms, and mental health initiatives.

Keywords: emotional intelligence, well-being, relationship, resilience, scheduled tribe family

1. Introduction

The preservation and improvement of psychological well-being are significantly influenced by emotional intelligence (EI). EI is defined as the ability to identify,

comprehend, control, and constructively use emotions, which is a crucial factor in determining how people react to internal and external stimuli [1]. Since individuals with high EI manage their emotions and keep a level head under pressure, they are more likely to handle life's obstacles [2]. This skill lessens the possibility of experiencing protracted negative emotional states like anger, sadness, or worry, which can otherwise jeopardize mental health. EI empowers people to become more empathetic, form wholesome relationships, and settle disputes amicably [3]. Additionally, it increases self-awareness, enabling people to recognize emotional triggers and maladaptive behavioral patterns and make better decisions regarding cognition and behavior [4]. EI is commonly highlighted in clinical and counseling contexts as a protective factor against mental health issues, promoting psychological flexibility and resilience in the face of distress [5].

A person's entire mental health and quality of life largely depend on their well-being, including their emotional, psychological, and social aspects. It stands for thriving and reaching one's potential rather than only the absence of mental disease. Higher levels of well-being are associated with increased life satisfaction, a sense of purpose, and the capacity to handle daily stress effectively [6]. A protective barrier against mental health issues like depression and anxiety disorders is reinforced by emotional well-being, which in particular contributes to optimism, a positive outlook, and the capacity to handle emotional setbacks [7]. Autonomy, environmental mastery, personal development, and a feeling of purpose are all components of psychological well-being that support people in traversing life with resilience and confidence. Offering emotional support and reducing feelings of loneliness and social well-being, including helpful relationships and a sense of belonging, further supports psychological health. Well-being is the foundation of mental health, allowing people to flourish emotionally and psychologically in spite of the unavoidable difficulties of life [8].

The scheduled tribe (ST) is defined in Article 366 [9] as the tribe, and the recognition is granted under the Article 342 in the Indian Constitution. STs received special status in the Indian Constitution to meet their historical marginalization, socioeconomic downsides, and cultural fragility [10]. In the framework of ST families in Jharkhand, EI plays a crucial role in shaping interpersonal relationships, family dynamics, and general well-being [11]. In the collectivist culture that many ST families in Jharkhand adhere to, social conventions, customs, and community ties are intricately entwined with emotions. However, traditional family structures have evolved due to several socioeconomic issues, including migration, modernization, and economic instability [12, 13]. Consequently, it is now necessary to improve EI to preserve family bonds [14].

The bond between ST parents and offspring in tribal homes is frequently impacted by intergenerational disparities, gender roles, and cultural expectations [15]. By encouraging openness in discussing feelings and worries, EI can assist ST parents and offspring improve their communication abilities. It will lead to higher understanding and empathy, enabling parents to recognize the goals and difficulties of their offspring [16]. Identifying and constructively treating emotional triggers will also effectively steer conflict resolution. It will also promote better emotional control, preventing relationships from being adversely affected by stress, financial difficulties, and social demands [17].

Emotional, psychological, and social facets of wellness are all included in well-being. Higher EI can improve well-being in ST families by lowering tension and anxiety. By properly managing stress, emotionally savvy ST parents and offspring

can stop intergenerational trauma from occurring. ST parents who acknowledge and accept their offspring's feelings assist them in developing a greater sense of self-worth, boosting their self-esteem [18]. Additionally, emotionally intelligent ST family members would make well-informed decisions supporting their and their families' welfare [19]. Furthermore, a high EI would lessen tensions by shifting societal standards and empowering ST families to promote individual goals while traversing community expectations. As a result, the ST families' bonds would be strengthened [20].

Research on psychological well-being and EI is expanding, but few studies concentrate on tribal cultures and families, especially in Jharkhand, India [21]. Existing research frequently overlooks the distinct sociocultural, economic, and emotional experiences of tribal families in favor of focusing on EI and well-being in metropolitan populations, corporate environments, educational institutions, or general family dynamics [22].

Most EI research has focused on leadership traits, academic success, or job performance in general populations [23]. Emotional expression, collectivist emotional norms, and culturally varied intergenerational emotional transmission are areas of research deficiency [24]. In the contemporary literature, psychological well-being is frequently quantified using Western frameworks that emphasize individual accomplishment, autonomy, and self-actualization [25]. Even so, since well-being is commonly associated with social membership, customs, and environmental ties, it is not sufficiently considered in tribal study. Additionally, little is known about how STs' emotional resilience and general well-being are affected by socioeconomic stressors such as land displacement, unemployment, and the loss of traditional livelihoods. Research on tribal populations' resilience and strengths is sometimes underappreciated [9].

Integrating cultural, psychological, and social aspects is the primary aim of this study to comprehend how EI affects family dynamics, specifically, the relationship between ST parents and their offspring and general well-being in Jharkhand's ST families. The study's two primary goals are to comprehend psychological well-being in the context of ST families and to explore EI's function.

2. Conceptualizing emotional intelligence and well-being

Salovey and Mayer define EI as "the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought" [26]. EI is a type of innate intelligence comprised of interconnected skills that influence how people perceive, understand, and regulate their own emotions and those of others. The ability to accurately perceive, assess, and communicate emotions; use emotions to support cognitive functions; comprehend and analyze emotional data; and control emotions thoughtfully and productively are all included in these emotion-related competencies. When taken as a whole, these qualities highlight how complex EI is and how important it is to human functioning and interpersonal efficiency [27].

Conversely, "Well-being can be understood as how people feel and how they function both on a personal and social level, and how they evaluate their lives as a whole" [28]. This description implies that well-being is a complex concept that includes a variety of interconnected components that stretch across and intersect the broad areas of behavioral patterns, emotional experience, cognitive processes, and

interpersonal interactions [29]. EI improves interpersonal interactions, lowers stress, and encourages healthier coping mechanisms, all of which substantially impact psychological well-being. When individuals can handle difficulties with empathy and self-awareness, they are usually more resilient, skilled at resolving conflicts, and have higher levels of life satisfaction. Therefore, cultivating EI promotes emotional equilibrium and deep social ties, directly enhancing overall well-being [30].

3. Socio-cultural context of scheduled tribe families in Jharkhand

With around 26% of the state's population being STs, Jharkhand is home to one of India's largest ST populations [31]. With an annual growth rate of 9.1%, Jharkhand's economy has outperformed the national average and surpassed the state's goal of achieving a gross domestic product of Rs 10 trillion by the fiscal year 2029–2030. However, the ST populations remain subject to significant socioeconomic disadvantages notwithstanding the anticipated growth rates of 6.7 percent in 2024–2025 and 7.5 percent in 2025–2026 [32, 33].

The Santhal, Munda, Ho, Oraon, and Kharia are important tribes with unique social structures, languages, and customs. The society is primarily patrilineal in its social structure, and marriages are typically exogamous [34]. The STs speak Kharia, Kurukh, Santali, Mundari, Sadri, and Ho as the predominant languages [35]. Active involvement in various indigenous festivals, including Sarhul, Karam, and Sohrai, strengthens the continuity and cohesiveness of their social system [36]. Traditional songs and dances are typically performed at these events, and the usage of musical instruments like the Mandar and Nagara enhances the experience [37]. ST families in Jharkhand still have major obstacles in the educational system. Even while literacy rates have increased over time, tribal communities continue to trail behind the state average, and poverty, early marriage, and distance from schools are the main causes of the high dropout rates, especially among girls [38]. Most ST families work in seasonal labor, forest products, and subsistence farming. Some people have started moving to cities for low-skilled occupations, but no economic growth has been sustained [39]. About culture, these ethnic communities have strong oral traditions, a sense of camaraderie, and a strong bond with nature, which is fundamental to their social structure and worldview [40].

ST families in Jharkhand deal with a variety of difficulties in spite of their strong culture and fortitude. Poverty, displacement from mining and industrial developments, and inadequate access to high-quality healthcare and education are the leading causes of emotional anguish and mental health issues. Numerous people encounter sociocultural pressures, like the decline of traditional ways of life and growing estrangement in urban environments. These communities are nonetheless marginalized by systematic and societal discrimination, which makes integration and equal opportunity challenging [41, 42]. In tribal areas, where there are few clinics and mental health specialists and mental illness is frequently stigmatized or misunderstood, access to mental health care is minimal. Many suffer in silence as a result, with psychiatric disorders going untreated and undetected [43].

Tribal families in Jharkhand have long relied on traditional coping strategies and indigenous psychological methods to address emotional and psychological discomfort due to the lack of institutional mental health infrastructure. Regionally referred to as ojhas or deoras, traditional healers or shamans are essential in the diagnosis and treatment of mental and spiritual disorders. They frequently combine chants, rituals, and

herbs. Even while these methods might not be entirely consistent with contemporary psychology, they give tribal families easily accessible and culturally based strategies for overcoming obstacles in life [44]. Their holistic approach to well-being relies heavily on nature-based activities, such as spending time in forests or integrating herbal medicines [45]. Support networks within the community are essential; issues are frequently resolved cooperatively by elders or tribal councils, encouraging fraternity and cooperation. Rituals, storytelling, dancing, and music all have therapeutic and spiritual purposes, assisting people in expressing their joy, sorrow, and stress in culturally significant ways [46].

4. Theoretical framework aligning EI and well-being in ST families

A comprehensive model for comprehending how human development is influenced by the dynamic interactions between people and various environmental systems is provided by Bronfenbrenner's Bio-ecological Systems Theory [47]. The theory, which Urie Bronfenbrenner developed, asserts that biological predispositions and embedded environmental contexts—the macrosystem (cultural and societal norms), the mesosystem (interconnections among settings), the exosystem (indirect influences), the chronosystem (temporal changes and life transitions), and the microsystem (immediate settings)—all have an impact on development. This approach emphasizes how contextual and personal factors influence emotional, cognitive, and social development throughout life, reinforcing the importance of structural and cultural influences [48]. Hence, Bronfenbrenner's Bio-ecological Systems Theory can be applied to the EI and well-being of ST families (See **Figure 1**).

4.1 Microsystem: Directly perceived contextual factors of EI and well-being

The immediate surroundings, including the family, peers, and community, directly influence emotional development in the microsystem. Close kinship connections, culturally based parenting, and traditional customs contribute to the development of EI and well-being in ST families by encouraging social belonging, empathy, and emotional regulation. These culturally specific interactions reinforce resilience and safe emotional expression, acting as protective factors [49, 50].

4.2 Mesosystem: Interrelations between environments affecting developmental outcomes

The interactions between an offspring's immediate surroundings, including their family and institutions, are included in the mesosystem. Effective cooperation with health services, schools, or colleges improves psychological and emotional support in ST environments. Tribal knowledge integration promotes well-being and identity affirmation, whereas cultural differences might impede emotional growth and academic adjustment [51–53].

4.3 Exosystem: Indirect socio-environmental factors affecting social and emotional behavior

The exosystem comprises external environments, such as work environments, healthcare systems, and legislative frameworks, that indirectly impact ST families.



Figure 1.
Bronfenbrenner's bio-ecological framework for ST families' EI and well-being.

Supportive measures like welfare programs and tribal advocacy improve resilience by influencing the larger developmental context. However, restricted access to these resources might worsen emotional well-being and raise economic stress [54–56].

4.4 Macrosystem: Overarching cultural structures and inequalities

The macrosystem is a representation of the larger sociocultural background that affects ST communities, where institutionalized marginalization and discrimination can erode identity and emotional health. However, by promoting resilience and self-acceptance within culturally significant frameworks, cultural affirmation through language, customs, and heritage will develop EI [57, 58].

4.5 Chronosystem: Temporal dimensions of change impacting life

Generational changes, life transitions, and sociopolitical shifts are among the temporal impacts on development that are captured by the chronosystem. Displacement

and cultural disturbance may increase emotional vulnerability in ST families, but community resilience and long-term adaptation might eventually promote emotional development and psychological well-being [59, 60].

Consequently, Bronfenbrenner's Bio-ecological Systems Theory provides a potent lens through which to comprehend how a complex web of societal, institutional, and cultural influences, in addition to personal or familial elements, affect the EI and well-being of ST families. Recognizing the dynamic interactions between each system, improving tribal well-being entails multifaceted interventions, ranging from redefining macro policies to bolstering family structures that acknowledge and value indigenous ways of existence [61, 62].

5. Discussion and implications

This study demonstrates the significance of EI as a critical factor in determining psychological well-being within the distinct sociocultural context of ST families in Jharkhand [63, 64]. The results confirm that EI promotes better family interpersonal dynamics and allows people to control their emotions and be resilient [65]. The relationship between EI and well-being is especially evident in the context of ST families, where kinship structures, traditional customs, and collective identity provide the foundation for social functioning [30].

The study incorporates emotional development into the complex realities of ST families by utilizing Bronfenbrenner's Bio-ecological Systems Theory [48]. Strong familial ties and culturally established emotional practices improve emotional expression and empathy at the microsystem level. Offspring's psychological security is directly impacted at the mesosystem level by the extent of interaction between tribal families and official institutions like schools, colleges, and health care. The exosystem illustrates how familial stress is exacerbated by financial instability and a lack of institutional support, indirectly influencing emotional climates. The macrosystem emphasizes how cultural pride is a defense mechanism while systemic inequity and cultural marginalization undermine self-worth. Lastly, the chronosystem shows how emotional adaptability is changed over time by long-term socio-political and generational changes, including relocation or changing educational standards [66].

These findings have several ramifications. First, rather than imposing external, individualistic concepts of well-being, therapies meant to improve tribal mental health must incorporate indigenous emotional frameworks [67]. Tribal programs that promote EI should align with customs, storytelling, shared past experiences, rituals, and group problem-solving, which are already used for therapeutic and emotional purposes. Second, to facilitate identity affirmation, which is essential to psychological well-being and lessen cultural conflict, educational and medical institutions must aggressively integrate tribal perspectives [68, 69].

To ensure that welfare initiatives are both culturally and emotionally suitable, the research recommends systemically incorporating tribe perspectives into their planning and implementation. Furthermore, developing culturally competent clinicians and bolstering community-based mental health services are crucial steps toward long-term well-being. In addition to fostering resilience, acknowledging and enhancing ST families' innate emotional strengths and adaptive techniques will validate the importance of indigenous emotional knowledge in guiding holistic development [70, 71].

To sum up, developing EI in ST families is essential for both family and individual well-being and the empowerment of the larger ST community. To meet the emotional

and psychological needs of India's underprivileged tribal groups, a systemically informed and culturally grounded strategy is essential [72].

6. Conclusion

This study emphasizes how crucial EI is in determining the psychological well-being of Jharkhand's ST families. According to the research, EI is a cultural and personal strength that promotes emotional fortitude, harmonious family relationships, and flexible reactions to hardship in tribal settings. The study illustrates how multilevel systems, ranging from close family relationships to more general sociopolitical pressures, interact to influence emotional experiences and developmental consequences by mapping these outcomes using Bronfenbrenner's Bio-ecological Systems Theory. Specifically, culturally grounded EI can act as a buffer against the emotional stress brought on by social marginalization, poverty, and displacement.

The relevance of indigenous emotional practices and group coping mechanisms, which are frequently disregarded in conventional mental health frameworks, is one of the research's principal conclusions. Rituals, storytelling, shared memories, nature-based activities, and group caring are some of the traditional practices of ST communities that provide efficient emotional regulation strategies that complement fundamental EI skills. Therefore, strategies incorporating tribal worldviews and emotional wisdom into policy and practice are desperately needed, as opposed to imposing Western or standardized conceptions of emotional well-being.

By carrying out longitudinal and participatory investigations within various tribal tribes throughout India, future studies should expand on these findings. Such research may examine how changing socioeconomic conditions affect emotional adaptation and how emotional abilities are passed down through generations in dynamic cultural contexts. This topic would also benefit from studies on gender-specific emotional development, the effects of internet exposure on tribal offspring, and the incorporation of tribal EI perspectives into educational institutions and mental health care. Furthermore, research that compares tribal and non-tribal individuals may shed more light on the particular emotional strengths and weaknesses of ST families.

In a nutshell, incurring EI in ST families is a culturally rooted, community-sustaining necessity rather than just a personal developmental objective. While maintaining cultural identity, psychological well-being can be significantly improved by recognizing and enhancing the emotional frameworks inherent to tribal life. Developing inclusive institutions that respect and utilize tribal EI as a tool for collective empowerment and long-term mental health is both a problem and an opportunity for legislators, educators, and mental health professionals.

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Chapter 4

Exploring Oxytocin and Compassion among Prelicensure Nursing Students: A Simulation Study

Shelley Price and Elizabeth A. Johnson

Abstract

It is critical for nurses to cultivate and demonstrate compassion in their profession, yet compassion among prelicensure nursing students remains underexplored. In this study, 14 prelicensure nursing students, all enrolled in a Bachelor of Science in Nursing program completed the Sinclair Compassion Scale—Learner and provided saliva samples to assess oxytocin levels before and after a control and simulation event. The simulation, modeled after the Community Action Poverty Simulation, aimed to cultivate compassion by immersing students in the challenges faced by individuals living at or near the poverty line. It was hypothesized that Sinclair Compassion Questionnaire scores and salivary oxytocin levels would increase following the simulation relative to the control, with a positive correlation expected between the two measures. Findings revealed that self-reported compassion significantly increased over time from the pre-control time point to the end of the simulation time point. However, an inverse relationship was identified between oxytocin and compassion. The simulation appeared to have a positive impact on self-reported compassion scores among this group. However, the direct relationship between oxytocin and compassion remains unclear. These results contribute to a growing body of evidence indicating that compassion development in nursing students is multifaceted, involving both emotional and physiological processes influenced by contextual and social factors.

Keywords: compassion, oxytocin, simulation, nurse, student, nursing education

1. Introduction

Compassion is a fundamental competency of nurses [1]; however, the understanding and measurement of compassion, especially the individual trait, remains an ongoing challenge. Despite evidence supporting the centrality of compassion for safe and competent nursing care, challenges exist in developing and maintaining compassionate patient care due to the complexity of the healthcare industry and the intricacy of patient conditions [2]. While extensive research has focused on qualitative aspects of compassion in nursing practice and education, this body of research does not offer objective measurement or quantification of compassion among prelicensure nursing students [3].

Research by Weng et al. [4] published in 2013 provided a pivotal demonstration that compassion can be cultivated through training and practice, rather than being an immutable trait that is stagnant. Some studies have explored biological indicators, like oxytocin, for their connection to prosocial behaviors [5]. Oxytocin is a hormone associated with many human behaviors and actions, including feelings of affection or care for another [6]. Building upon this research, a recent study of psychology university students in Spain identified a relationship between empathy, salivary oxytocin, and compassion-based mindfulness training [7, 8]. This research's results found significantly higher empathy and salivary oxytocin among study participants. Specifically, the study indicated that prosocial emotions and behaviors, such as compassion, can be increased and that salivary oxytocin is correlated positively and objectively with such emotions.

As part of prelicensure nursing education, instructors frequently use simulation-based education to foster compassion in students. One such simulation is the Community Action Poverty Simulation [9], which immerses students in the life of those at or near the poverty line in the United States, aiming to enhance empathy and compassion of participants towards the economically disadvantaged. This simulation has been observed to heighten the sense of compassion and empathy in prelicensure nursing students towards impoverished individuals in prior qualitative study [10], however, the precise quantitative impact of these simulations on compassion remains unknown, signifying a gap this study intends to address. Building on the current foundation, this study sought to quantitatively evaluate how the Community Action Poverty Simulation affects compassion in prelicensure nursing students, and to explore the potential correlation between these levels and the biological marker of salivary oxytocin.

2. Simulation study

This study examined the difference in compassion levels before and after a compassion-inducing simulation event with prelicensure nursing students at a large, public university in the Western United States. Compassion levels were measured using the Sinclair Compassion Questionnaire—Learner. Institutional Review Board approval was obtained from the academic institution with which the researchers were affiliated. Participants were asked to provide passive drool saliva samples at four different times—before and after a control activity and before and after the simulation event. These saliva samples were analyzed for levels of oxytocin. A repeated measures analysis of variance was performed to compare compassion and salivary oxytocin levels over time, before and after the control and simulation events. In addition, Pearson's correlation analysis was used to test whether any change in compassion levels was associated with any change in salivary oxytocin levels.

2.1 Recruitment, study procedures, measurements, and data collection

Second-term prelicensure nursing students were recruited using learning management software announcements, course-specific software, and in-person announcements during a community and public health nursing class in the term's second week. After providing informed consent, participants were directed to a specific campus classroom where they received two saliva sample kits (one 5 mL polypropylene tube, one plastic biohazard bag, and facial tissue) and instructed to complete the Sinclair

Compassion Questionnaire—Learner instrument online through a Qualtrics link (pre-control event), with the expected completion time of 2–4 minutes.

For the second data collection phase, grouped participants received the written and verbal instructions on providing passive drool samples, aiming for 4–5 mL as indicated by pre-measured marked lines on the polypropylene tubes, based on prior research [11]. Once the appropriate amount of saliva was collected in the tube, participants sealed the tube with the provided tight-fitting polyethylene cap, placed the sample in the designated plastic bag, and then into a designated cooler in the classroom. Each sample was labeled with the participants' self-selected four-digit identification code that was used throughout the study. The samples were subsequently transported to a freezer and stored securely upright in a rack at -22°C . The estimated average completion time for individual saliva collection was 15 minutes.

Next, participants engaged in a 60-minute control activity, reading from *The Waiting Room Reader* [12], a book published specifically for use in healthcare waiting room areas. The book is a collection of short stories and poems. Participants were asked to refrain from using technology or communication with others, to prevent external factors from influencing oxytocin levels, which are associated with emotions and prosocial behaviors [13]. After the control activity, participants repeated the Sinclair Compassion Questionnaire—Learner and provided a second saliva sample, following the initial protocol. This captured salivary oxytocin levels pre- (Time 1) and post- (Time 2) control event, aligning with research suggesting oxytocin fluctuations within 20 minutes post-event [11, 13, 14]. Materials were collected and securely stored, with samples placed in a locked freezer and labeled with each participants' unique identification code.

During the same academic week, but after the control event, participants attended the simulation event, which was mandatory for all second-term prelicensure Bachelor of Science in Nursing students to participate. Upon arrival at the event, participants provided a third saliva sample (Time 3) and completed the Sinclair Compassion Questionnaire—Learner, mirroring the control event's procedures. After participants completed the Sinclair Compassion Questionnaire—Learner and provided a saliva sample (Time 3), they were directed to the event area with their classmates who were not participating in the study. The Community Action Poverty Simulation in total lasted approximately 2 hours, and was a required event for all students enrolled in the Community and Public Health Nursing course to attend and engage in. During the simulation participants are assigned a role in a family unit, and each participant has tasks or objectives to achieve or complete during a specific time period. These tasks might be obtaining assistance for obtaining food, paying rent, working with a simulated government or non-profit support agency, all within a time frame and possibly considering work or childcare responsibilities.

After the simulation event, participants provided another saliva sample and completed the Sinclair Compassion Questionnaire—Learner for the final time (Time 4). Of note, collection may have exceeded the optimal 15-minute period since the Sinclair Compassion Questionnaire—Learner and the saliva collection could take up to a 4–15-minute period, respectively. Each participant was compensated with a \$20 USD Amazon gift card upon providing their final sample to the researchers. Survey collection followed the initial protocol, and saliva samples were packaged and shipped priority overnight on dry ice to the testing facility and stored following standard protocol.

This study tested two hypotheses with prelicensure nursing students:

1. Sinclair Compassion Questionnaire—Learner scores and salivary oxytocin levels would increase from pre- to post-simulation event measure in comparison to the control.
2. Sinclair Compassion Questionnaire—Learner scores and oxytocin levels would have a positive correlation.

For hypothesis 1, a repeated measures analysis of variance was conducted with Sinclair Compassion Questionnaire—Learner scores transformed into Z scores. To test hypothesis 2, Pearson's r correlation assessed the relationship between Sinclair Compassion Questionnaire – Learner scores (transformed into Z scores) and salivary oxytocin levels. Two Sinclair Compassion Questionnaire – Learner scores were missing at Time 4, which were then estimated using multiple imputation. A repeated measures ANOVA was performed for hypothesis 1 because compassion was measured before (baseline) and after the event. Statistical analysis was conducted using SPSS software. Alpha was set at .05. Data analysis was performed using the latest version of SPSS at the time of the study (SPSS 29.0).

The peptide oxytocin is produced in the hypothalamus, is released by the posterior pituitary gland, and can be measured through body fluids, including urine, cerebrospinal fluid, blood and saliva. Saliva is ideal for such measurement as it is non-invasive to collect, and salivary oxytocin is linked to oxytocin levels found in cerebrospinal fluid. The collected samples were stored at -22°C and then shipped to the University of New Mexico (UNM) for oxytocin measurement. While oxytocin has been measured through saliva since 2007, even in 2025 there is still not general agreements among scientists on how to interpret and compare salivary oxytocin results when considering the variety of assays available and in use [6, 15, 16]. In this study, oxytocin was measured using a commercially available oxytocin ELISA kit through the Comparative Human and Primate Physiology Lab at UNM directed by Dr. Melissa Emery Thompson.

The testing of salivary oxytocin was completed by thawing and vortexing the samples and then placing them in a centrifuge for 15 minutes. Finally, 1.5 ml of each sample was freeze-dried and reconstituted with sample buffer, resulting in a $6\times$ concentration [11]. The manufacturer has validated the use of the assay with human saliva samples, which has a sensitivity of 15 pg/ml. Additionally, the manufacturer reported negligible cross-reactivities for related peptides, such as vasopressin [11]. All measurements for samples were completed in duplicate to ensure accuracy. Research has indicated a range of acceptable times to collect saliva samples for biomarkers when an intervention or event is included in research, with a timepoint of approximately 15 minutes post events as ideal, but ranges from 3 to 5 minutes up to 40 minutes are seemingly also acceptable [13, 17, 18].

The Sinclair Compassion Scale—Learner is a 15-item, five-point Likert-type survey completed by each PNS participant. It is based on the Sinclair Compassion Questionnaire, a reliable and valid measure of compassion [19]. Specifically, when analyzed against nine other scales measuring compassion, the Sinclair Compassion Scale had the highest scores for internal consistency and respondent burden [19]. Literature, including the Sinclair Compassion Scale—Learner that was in press and shared with the author, indicated high validity (exploratory factor analysis) and reliability ($\alpha = .94$) of the Sinclair Compassion Scale—Learner. The Sinclair Compassion

Scale—Learner was also chosen as it was developed specifically to assess compassion among healthcare students. Additionally, the instrument assesses state-compassion, as opposed to trait-compassion. This research was investigating state-compassion of a healthcare student population, as opposed to trait-compassion.

Regarding statistical power for the Pearson's r correlation, the SPSS software program indicated that a large effect size correlation ($r = .80$) with power set at .80 and alpha set at .05 would be detected with a sample size of 12 study participants. Additionally, G*power software indicated that a repeated measures model with a single group and four time points would detect a large effect size (Cohen's $f = .35$), with power set at .80 and alpha set at .05, with a sample size of 13 study participants. Thus, the current sample of 14 study participants provided sufficient statistical power for the current analysis.

2.2 Results

Study data analysis revealed a statistically significant inverse correlation between salivary oxytocin levels and Sinclair Compassion Questionnaire—Learner scores over four time points. Additionally, Sinclair Compassion Questionnaire—Learner scores significantly increased over time, while salivary oxytocin significantly decreased. The sample was almost entirely female ($n = 13$, 92.9%), and more than half were between the ages of 18–25 years ($n = 8$, 56.9%), while about one-third were of Asian ($n = 5$, 35.7%) racial/ethnic identity. Lastly, none of the student participants had previously enrolled in a prelicensure nursing program, nor were they pregnant or breastfeeding.

Bivariate analysis revealed that the correlation was statistically significant at Time 1, $r(12) = .55$, $p < .05$, with higher salivary oxytocin levels associated with lower Sinclair Compassion Questionnaire—Learner scores with an approximately medium effect size (medium effect size = .50). Times 2 and 3 did not reveal statistical significance, $r(12) = -.30$, $p = .30$ and $r(12) = -.07$, $p = .82$, respectively. Significance was found for correlation between Sinclair Compassion Questionnaire—Learner and salivary oxytocin at Time 4 $r(12) = -.77$, $p < .001$, with higher salivary oxytocin levels associated with lower Sinclair Compassion Questionnaire—Learner scores with an approximately medium effect size (large effect size = .80).

3. Conclusion

This study provides a perspective on the intriguing relationship between compassion (as measured by the Sinclair Compassion Questionnaire—Learner) and salivary oxytocin among participants. Results showed a significant inverse relationship between oxytocin levels and compassion over time, with oxytocin decreasing and Sinclair Compassion Questionnaire—Learner scores increasing across four time points within 28 hours, although the increase in compassion from pre- to post-event was not significant ($p = .58$). The Sinclair Compassion Questionnaire—Learner scores increasing aligns with prior qualitative research and merits further research with a larger sample size—especially since there was a significant effect for an increase of self-reported compassion over time.

Unlike earlier research, this study's findings indicate that the relationship between oxytocin and compassion may be more nuanced than previously thought. Despite the simulation event being designed to foster altruistic feelings, external factors such as time constraints and social pressures could have influenced participants' emotional

and stress responses, potentially leading to the observed decline in oxytocin. This observation is intriguing considering other research [20], which suggested that stress might increase oxytocin levels. This studies' findings provide insight into the possibility of a more sophisticated and enriched understanding of the relationship between oxytocin and compassion. Rather than supporting a straightforward association, the results highlight that oxytocin's role may be more dynamic and context-dependent than previously assumed.

This outcome is particularly important given prior research has indicated that stress might elevate oxytocin levels. Moreover, evidence suggests that oxytocin enhances in-group cooperation while potentially exacerbating out-group conflict offers a compelling lens through which to interpret these findings since the simulation includes individual directives. Simulation participants are assigned a role in a family unit, including age, gender, profession or employment status, and other pertinent information. Participants might be in a family unit with 3 or 4 other participants, or a family unit of one. Participants may have exhibited a defensive emotional stance towards individuals perceived as out-group members (e.g., those represented as homeless or significantly impoverished in the simulation), which could explain their oxytocin response [21]. This interpretation is further supported by studies on exogenous oxytocin administration during structured gaming scenarios, where oxytocin was shown to reinforce in-group solidarity and out-group discrimination [22, 23].

Collectively, these insights advance the understanding of oxytocin's function, challenging overly simplistic narratives and understanding of oxytocin's purpose, regulating human emotions and social behaviors under complex and varied conditions. Rather than a single-pathway agent for compassion or stress, oxytocin emerges as a context-sensitive modulator, dynamically interacting with social and environmental cues.

These findings call for exploration into the complex interaction between compassion, oxytocin, and social dynamics. Given the ever-evolving nature of this science, it is also possible that the timing of our assessment did not capture the initial rise in oxytocin levels. This may align with the notion that oxytocin's role in compassion may be precursory and may imply the need for earlier assessment to capture its initial surge in response to compassionate stimuli [13].

Building on the understanding of biomarkers in healthcare education, our study's focus on salivary oxytocin levels, previously associated with empathy, extends the inquiry into the biological underpinnings of compassion. Healthcare simulations typically emphasize technical skills over soft skills, presenting challenges in integrating interpersonal communication and patient relationship management [24]. Given the paucity of training that enhances soft skills, it is critical to evaluate how simulations like the Community Action Poverty Simulation affect the parasympathetic nervous system, which is instrumental in social bonding and stress response.

While existing research links oxytocin and compassion [5], the complexity of oxytocin's effects on a wide range of psychological behaviors leaves the precise nature of this relationship unclear [21]. Our finding of an unexpected inverse correlation between self-reported compassion as assessed by the Sinclair Compassion Questionnaire—Learner and salivary oxytocin among prelicensure nursing students raises questions of salivary oxytocin as a reliable indicator of compassion in simulations like the Community Action Poverty Simulation. To gain a clearer understanding, future research should explore known compassion-promoting interventions and reevaluate the timing of salivary oxytocin collection to ensure early compassionate responses are accurately captured. Additionally, this study may link nuance to

educational context. This complexity matters for nursing education because it highlights that developing true compassion might involve navigating complex emotional and physiological reactions and not just generating a uniform emotional state. The results expand the conversation beyond compassions' being "felt" to how compassion is biologically and socially processed. Our study mirrors the findings of previous research [25], which focused on salivary cortisol, while ours examined salivary oxytocin. Although these hormones serve different functions, cortisol is commonly associated with stress regulation and oxytocin with social bonding and compassion, both are influenced by the hypothalamic-pituitary-adrenal (HPA) axis and play key roles in the body's response to emotionally significant situations. Both their study and our study found that hormonal responses to such experiences did not follow the expected patterns. Under certain conditions, the body may downregulate hormones like cortisol or oxytocin, possibly as a protective or adaptive response. These parallels suggest that context, not just content, shapes hormonal shifts. Together, the findings raise compelling questions about how stress and emotional activation interact in learning environments and how biological systems adapt in ways we are only beginning to understand.

Also, there is the emotional fatigue concept from care providers. This happens when individuals experience sustained emotional demands that deplete their emotional resources. This might have occurred for study participants since the simulation is intense, with complex emotional stimuli, even though the goal may be cultivating empathy and compassion, the intensity of the experience could have overwhelmed participants, pleading to emotional fatigue—if students felt overwhelmed and emotionally drained their bodies might down regulate oxytocin production. Asking students to live through stressful, resource-deprived situations can be emotionally taxing. Future research might consider the potential for emotional fatigue in simulation-based learning, particularly for prelicensure nursing student who may already be navigating high emotional demands through their education.

Finally, why does this research matter? Ultimately, this work matters because compassion is central to patient care, patient satisfaction, and even clinical outcomes. As educators, we need to understand which simulations are truly nurturing manageable emotional engagement and in turn avoid those that risk desensitizing students rather than deepening their capacity for empathy and compassion. Pre-licensure nursing students must learn not only to care deeply, but also to regulate their emotions under pressure. This is a skill critical for sustaining compassion over a lifetime of clinical practice. Recognizing how biological markers like oxytocin shift in response to simulation experiences offers new insight into how we might tailor simulation intensity, build in emotional support structures, and foster healthy emotional processing in our students. Early emotional fatigue can be a warning sign for future burnout, and ultimately, our goal is to graduate nurses who are compassionate, resilient, and equipped to thrive long term. This study is an important early step in linking biological indicators to educational strategies that protect and sustain compassion in nursing practice.

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Conflict of interest

The authors declare no conflict of interest.

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Facilitation of Emotional Intelligence in Nursing Students within an Authentic Learning Environment

Gugu Ndawo

Abstract

Nursing is among the highly stressful, physically demanding and emotionally charged professions, and nursing students are not spared as they learn in and experience this environment during their education and training. Their focus and attention are redirected from patients and learning to tending to these emotions instead. Facilitating emotional intelligence among nursing students in an authentic learning environment is an important student-centred pedagogical strategy that can ensure individualised, holistic, altruistic, patient-centred nursing care to those with health needs. Developing emotional intelligence will decrease stress associated with the nursing profession and, therefore, improve nursing students' emotional well-being. This chapter delineates the approaches to facilitate EI in nursing students to develop them into emotionally intelligent individuals who are better able to deal with the stresses of the academic load while rendering individualised, comprehensive nursing care that is personalised and unique to their patients. It introduces the emotions and the role they play in the learning environment, the importance of emotional intelligence in nursing education, the barriers to the development of emotional intelligence in nursing students, strategies to facilitate it in nursing students and lastly, it discusses the limitations of emotional intelligence.

Keywords: authentic learning (AL), emotional intelligence (EI), empathy, nursing student, self-awareness

1. Introduction

Emotions are mental states that the human body uses to rule behavioural reactions to stimuli that induce immediate physiology and conscious cognition. Each emotion gives an individual the immediate need to want to understand why they feel a certain way, therefore, enabling them to change their behaviours to induce or shun such feelings in the future. They allow an individual to better understand oneself within their social world and around other people [1, 2]. Emotions are short-lived and always relate to something specific that an individual experiences within their environment

[3, 4]. They are universal and influenced by society and culture, therefore, shaping how one experiences, perceives, expresses and regulates them [5, 6]. Within a learning environment, they are the foundation of learning and effective, quality teaching. They affect the learning experience of nursing students, and while some emotions will drive it, others will influence such experience [6, 7]. Emotions, therefore, can influence the learning process in many ways by impacting the nursing student's cognitive resources, long-term memory, metacognitive thinking strategies and motivational processes [4, 8]. The cognitive skills that are linked to and influenced by emotions include attention, critical thinking, problem-solving, decision-making and metacognition, all of which play a crucial role in learning [5, 8]. Emotions play a significant role in supporting or undermining teaching and learning as they can be highly contagious to the participants, including the nursing students, the facilitator, the patients and experts within an authentic learning (AL) environment, which includes the classroom, clinical settings and online platforms. They can be experienced individually or shared; therefore, they can shape and influence the dynamic of the learning environment [9, 10]. Emotions can be experienced along a continuum from positive to negative, with positive emotions such as hope making the nursing student feel confident and encouraged that they can succeed, therefore, willing to actively engage with their learning tasks, whereas negative emotions such as anger result in unwillingness to engage.

Negative emotions are notorious for preventing nursing students from engaging in interactive and constructive learning as they quell students' motivation, hinder their learning processes and stifle the development of positive learning behaviours as students perceive the learning tasks to be a mammoth undertaking. Nursing students' focus and attention are redirected from learning to tending to these emotions instead [7, 11]. However, Refs. [12–14] caution against these stereotypes of emotions that things are not as black and white as they seem. They argue on the simplistic labelling and categorisation of emotion as good or bad, and rather suggest that nurse educators should place emphasis on 'the coexistence of diverse emotions and the potential benefits of negative activating emotions' in learning. Some emotions can evoke mixed effects on nursing students' learning, meaning that not all positive emotions are beneficial and not all negative emotions have a detrimental impact on learning. Some negative emotions may evoke a positive impact and vice versa. An AL trigger, which involves a task that is real-life, challenging, complex and ill-defined can evoke ambiguity, uncertainty and cognitive dissonance and nursing student's awareness of lack of information in successfully dealing with the task at hand. An awareness that may result in negative emotions such as anxiety, shame, frustration and disappointment. Yet, at the same time, their interest and curiosity may be stimulated and therefore be challenged to want to know and learn more and successfully complete the authentic task [12, 15].

Nursing is among the highly stressful, physically demanding and emotionally charged professions, and nursing students are not spared as they learn in and experience this environment during their education and training [16, 17]. Within this dynamic and fluid AL environment, they experience intense emotions, helplessness and stress relating to the rigours of the real-life nursing practice that include increased academic and clinical workloads, expectations to deal and cope with complex illnesses, death and dying and tight deadlines. Furthermore, the profession is riddled with challenging interpersonal situations that are inevitable and unavoidable and involve intense encounters with emotions among fellow interdisciplinary students, members of the multidisciplinary team and patients resulting in emotional

exertion [18, 19]. Within such an emotionally stressful learning environment, it is vital to develop their emotional intelligence (EI) to assist them manage emotions now and in future [16, 19, 20].

2. Importance of emotional intelligence in nursing education

The South African Nursing Council (SANC) reported that the average age of most nursing students who commenced their 4-year bachelor's degree in South Africa in 2022 was 20 years, with a minimum age of 18 years [21]. These young adults, some of whom are teenagers at the beginning of their careers, are largely vulnerable and affected by their naïve, volatile nature and unfledged coping capabilities associated with this stage of development. Their vulnerability and unfledged coping capabilities expose them to stressors such as those of personal, academic and clinical in nature that may result in psychological distress and physical health problems [19, 22]. Amid these stressors, emotions reign supreme and have no mercy as they drive judgement and decision-making processes in an emotionally charged clinical AL environment in which these young nursing students are placed. They must learn to care for themselves while putting their patients' first [23, 24], a situation that dictates an ability to balance both their rational and emotional minds [25]. Therefore, EI in nursing students is indispensable as nursing students are expected to deal with interpersonal relationships as well as render not just technical but also relational care [20, 26]. EI is the ability to recognise and understand one's own emotions and those of others and empathically manage responses to these emotions [27, 28]. It is a much-needed bridge between emotions and logical thought that links personal and interpersonal skills. By using it, a nursing student can differentiate between positive and negative effects of emotions and, therefore, can use that differentiation to drive cognitive reasoning and subsequent actions [26]. EI is characterised by four (4) dimensions, namely, self-awareness, self-management, social awareness (with empathy) and social management. Self-awareness is the foundation of EI [29]. It is a simple understanding of how and why an individual feels the way they do, as this information commands how they might respond to others [30]. Self-management or self-regulation is an EI dimension that requires the nursing student to understand of self-awareness first for it to be achieved. It is the ability to keep disruptive emotions, impulses and behaviours under control [30]. Social awareness is the ability to identify, understand and acknowledge the emotions of others and empathise with their feelings and perspectives [31, 32], whereas empathy is the ability to 'take an active interest in others and read their emotional cues, interests and desires ... and be compassionate and supportive toward them' within a culturally diverse learning environment [10, 31].

Social management skill refers to the ability to adjust to social circumstances, adapt during transformational changes and being able to resolve conflicts and manage social interactions successfully [32, 33]. The socially intelligent nursing student possesses skills such as conflict management, teamwork and communication that are needed to manage and persuade other students' emotions effectively, possibly to achieve a common learning goal within an AL environment. At a personal level, an emotionally intelligent nursing student has self-compassion and such kindness to oneself allows them to be attentive to the emotions they perceive and tend to be happy and satisfied with their lives. They also have greater physical and mental well-being and better health as they prioritise self-care through good quality sleep and eating a healthy, balanced diet. They experience lower levels of stress, anxiety and depression

and seldom engage in risky behaviours such as unprotected sex, consumption of alcohol and substances as a coping and adaptive response to stressors [19, 28]. They prioritise protective factors, which include adaptive coping mechanisms that improve their capacity to handle personal, academic and clinical stressors. Academically, nursing students with high EI levels explicitly and openly communicate their emotions. They are better able to deal with the stresses of the academic load and use effective coping strategies such as expression of negative emotions, focusing on solving problems amicably and thrive to be satisfied with learning and as a result, persevere in their studies for better academic performance and productivity [19, 34–36]. Furthermore, they maintain better relations with their patients and their families, peers, experts and other healthcare professionals when working in clinical settings. They are aware of their patients' and their own emotions and respond by using emotional listening and effective communication, therefore, better able to render individualised, comprehensive nursing care unique to their patients. EI enables them to manage conflict through the use of emotionally intelligent skills such as reflection and reframing. They respond respectfully and empathetically to distraught families, leading to positive patient outcomes, enhanced clinical decision making and effective problem-solving [3, 19, 35, 37–39].

3. Barriers to development of EI

EI can be learned, developed and improved; however, these activities take time [40, 41]. Implementing EI-developing strategies in nursing education can be challenging due to various factors that include, but are not limited to, lack of EI adoption in nursing curricula, cultural differences, heavy workloads and limited resources and nurse educator-related barriers.

3.1 Lack of EI adoption in nursing curricula

Nursing education has been seen to put more emphasis on technical skills at the expense of the soft skills of nursing practice that results in a lack of integration of EI into nursing curricula [29, 42]. 'Education 110 in our time should provide the basis for enhanced understanding of our several worlds: the physical world, the biological world, the world of human beings, the world of human artifacts, the world of self' (Gardner [43] cited in [44]). Students' intra- and interpersonal worlds are underappreciated, unsupported and ignored over grades and academic achievements in higher education institutions [44]. Such ignorance results in educated nursing students who are not emotionally intelligent, therefore, not equipped to manage their own and their patients' emotions [42]. Because of a lack of experience in dealing with emotional issues and being underprepared to deal with a highly stressful, physically demanding and emotionally charged profession, most students adopt maladaptive strategies and give in to negative influences around them [45, 46]. Nursing students with lower levels of EI are more likely to make poor choices and engage in risky behaviours to navigate, adapt and cope with the stressors of their emotionally charged training [35, 47]. Therefore, adoption, facilitation, assessment and continuous development of EI in nursing students through inclusion in the nursing curricula are not to be ignored any longer. Assessments within an AL environment are indispensable to the development of EI competencies and should involve students engaging with real-world tasks to evaluate their knowledge, skills, values and attitudes as

utilised in real-life situations [48]. Authentic assessments and constructive, positive and interactive feedback to and from nursing students are a formative quality improvement tool that nurse educators can use to create and shape EI education. They can be used to design specific, appropriate learning outcomes, improve and modify future EI education content. Therefore, such tools must be used to ensure that nursing students are integrating and applying their EI education correctly [29, 49]. Furthermore, nursing students' feedback encourages ownership of course development for future cohorts [50].

3.2 Cultural differences as a barrier to EI development

Huynh et al. [51] argue that it would be challenging for an individual to truly understand EI without contextualising it; thus, EI without culture renders its understanding 'flawed and incomplete'. Different cultures have their unique ways of conveying, understanding and regulating their emotions that could be peculiar to an individual outside of such culture. This knowledge then presents a unique challenge for nursing students and, as such, cements the argument that cultural differences within an AL environment play a crucial role in the way individuals of a particular culture convey and display their emotions [51, 52]. In nursing practice, culturally diverse patients have different health needs. Therefore, when developing EI in nursing students within an AL environment, nurse educators should consider introducing cultural intelligence to foster culturally sensitive practitioners. Cultural intelligence is an 'individual's ability to function effectively in a different cultural climate' [53]. Ignoring cultural differences negatively impacts the quality of nursing care [53, 54]. The absence of cultural intelligence in relationships between nursing students and their patients contributes to a lack of cultural safety, patient dissatisfaction with care, distrust, healthcare inequalities and adverse health outcomes, including poor patient's mental health [54, 55]. Without cultural intelligence, nursing students may struggle to provide safe, individualised, holistic and empathetic care to patients with diverse cultural needs. In the spirit of understanding, including culture in EI completes this construct, as cultural differences can significantly influence individual's understanding of EI as a construct [53, 56].

3.3 Heavy workloads and limited resources

EI training in nursing education needs to be prioritised [52]; however, the scarcity of time and limited resources impede the development and facilitation of EI programmes [29]. Healthcare students, including nursing students, face heavy academic workloads and demanding class and clinical schedules, resulting in difficulty adding extra hours for EI training [29]. To circumvent this, there is less time resource allocated to EI training [57] and human resources that include nurse educators. There are heavy workloads for nurse educators, and as a result, some do not conduct clinical accompaniment due to research publication expectations and other commitments from higher education institutions. It is challenging for them to dedicate time to EI training that requires time-consuming AL tasks and clinical accompaniment. Human resources play a crucial role in the effective facilitation and development of EI in nursing students by being available to them. A nurse educator as a clinical lecturer should spend much time with their nursing students facilitating EI through teaching them, stimulating their higher-order thinking skills through thought-provoking discussions and questioning and observing their performance when interacting

with real patients, families, experts and multidisciplinary team members. They also plan clinical session engagement based on nursing students' learning needs [58, 59]. Moreover, EI training requires shaping of attitudes using appropriate student-centred pedagogical strategies, which requires time, and such shaping should be based on nursing students' experience, motivation and assessment of training [54]. The designing of authentic EI tasks and use of student-centred pedagogical strategies is time-consuming, challenging and demanding for educators [54]. In medicine, it proved difficult to find time to engage in EI training within an already busy schedule for a resident physician, while outsourcing an expert in EI training who has time to teach students may not be feasible and could be expensive [57, 60].

3.4 Nurse educator-related barrier

Nurse educators play a significant role in education as they interact with nursing students to facilitate integration of knowledge [33, 61]. Some educators are unfamiliar with the concept of EI and as a result do not have knowledge, skills, values and attitude as to how it can be facilitated in students [62, 63]. No individual can facilitate what they do not possess. When nurse educators do not possess EI, they cannot facilitate it, and self-awareness of lack of EI competencies is the key. According to Christodoulakis et al. [29], the lack of qualified educators in EI results in students qualifying to care for patients and engage with their families and healthcare team without this important competency. Many compounding factors fuel the situation for educators at large. Nurse educators have many academic roles that must be fulfilled and balanced, all at once. They are expected to teach, facilitate, be researchers and be active in community engagement, at the same time, juggle family responsibilities. Among other stressors, nurse educators experience heavy workloads, poor academic performance of students with declining quality of education, lack of serious attitude from students as well as demands and expectations of stakeholders, including the higher education institutions and society at large. Such stressors result in nurse educators having less time to think about improving their own EI competencies and those of their nursing students, let alone having to think of including EI-related topics in their curricula. The imbalance of all the expected roles, demands and expectations results in emotional turmoil and stress for nurse educators [15, 58]; students under-achieve and have difficulty succeeding academically [33]. Yet, at the same time, Refs. [59, 64] advise that it would be beneficial when nurse educators prioritise the development of their professional and emotional competencies. EI training will assist them in adjusting their emotions and meeting the societal demands that result in emotional imbalance.

4. Strategies to facilitate EI in nursing students

EI neither develops in nursing students in a vacuum nor does it develop by simply reading or regurgitating simple answers relating to the learning content. It requires nursing students to engage with AL tasks and within an AL environment, and as a result, the nurse educator plays a pivotal role in ensuring that the engagement with such tasks is meaningful, constructive and active, therefore, enabling the student to develop EI successfully [15, 65]. Of great importance is that the nurturing and development must start early in the profession at the undergraduate level and in the first year of study. EI is a learnt ability and skill, and it is important to develop it in nursing

students from their first to the last year of study [23, 65], and continuously with increasing complexity of the authentic tasks for maximum growth and development of nursing students as lifelong learners [66]. It is also important that nursing students acquire their knowledge of EI within a cultural context, as multiple exposures to different cultures increase their cultural intelligence and cultural competence [55].

4.1 Evidence-based pedagogical strategies

Nursing curricula should integrate structured EI training using evidence-based student-centred pedagogical strategies [38, 67]. Christodoulakis et al. [29] strongly suggest that the student-centred pedagogical strategies target Goleman's EI dimensions, namely, self-awareness, self-management, social awareness (with empathy) and social management. The brief descriptions of the pedagogical strategies listed below are not exhaustive but examples from which nurse educators can build.

4.1.1 Self-awareness

Nurse educators can employ evidence-based strategies such as reflective writing, scenario-based simulation and case studies with group discussions to improve self-awareness. These strategies prompt nursing students to engage in deeper processing of emotions and experiences that reflect on the self, therefore improving self-efficacy [29, 68]. They are gently nudged to think of ways to improve such experiences, therefore, encouraging them to internalise learning and bringing to the fore the intentionality of their practice [17, 69]. Mindfulness practices, self-care training and digital storytelling with a significant focus on paying attention to 'the attention itself' [57], self-reflection, emotional regulation and personal well-being improve EI, grit and life satisfaction and reduce stress [17, 38, 67]. To foster EI and the newly learnt behaviours, nurse educators should ensure that such behaviours are practiced in real-life contexts until they are mastered and utilised; therefore, they must be taught and assessed regularly [70].

4.1.2 Self-management

Flipped classroom, e-Portfolio and reflective writing can improve self-regulation [29]. The flipped classroom combined with documenting the e-Portfolio allows nursing students to learn and reflect actively through meaningful and constructive engagement with learning materials prior to class. Following independent engagement of nursing students with learning material, the nurse educator reserves class time for practical applications, collaborative discussions, critical questioning and problem-solving and clearing of misconceptions and misunderstandings. Therefore, mastery is facilitated through the provision of immediate, constructive and interactive feedback, peer interaction and sustained practice within a safe, supportive AL environment [71]. Toytok and Firat [72] warn that because the 'success of students in flipped learning environments depends on the extent to which students use their self-regulation skills', student nurses with low self-regulation skills need support through providing them with 'well-planned and structured preparatory activities' to develop their self-regulation skills. It is, therefore, suggested that before these pedagogical strategies are used for the development of EI, nurse educators should assess students' self-regulation levels to guide the development of personalised strategies aimed at enhancing individual student's competencies, in turn, improving their confidence in

achieving this dimension [73]. Through use of these strategies, nursing students could develop a stronger sense of self-regulation and accomplishment [29].

4.1.3 Social awareness and empathy

Simulation, whether face-to-face and/or virtual reality and real-life case studies, are great at developing nursing students' social awareness and empathy skills [29, 36]. Simulation creates a safe, non-threatening environment where nursing students can play out a clinical situation based on authentic case studies. Within this AL environment, student nurses are allowed to play, err and make as many mistakes as possible while learning is facilitated without any fear of causing harm to patients [36, 38, 44]. Furthermore, the AL environment is non-judgmental; therefore, it allows nursing students to be innovative by trialling new things using their creativity. Simulation also allows nursing students to play, which reinforces their self-confidence and reduces anxiety within a group. For senior nursing students, nurse educators may use case studies of real-life patients, therefore, affording them opportunities to genuinely empathise with real patients under their supervision, which creates a safe, non-threatening and controlled AL environment [31]. These strategies enable them to reflect and develop by managing their emotions and communicating effectively with empathetic interactions, therefore, building meaningful relationships [31]. It would be ideal for nurse educators to infuse cultural intelligence within this EI component and that of social management [74].

4.1.4 Social management

There are many collaborative, cooperative learning-based teaching methods; however, interprofessional education, brainstorming sessions and excursions with reflections are highly recommended for students in healthcare professions [29]. Nursing students can be assigned a collaborative AL task within interdisciplinary groups, which include students from other healthcare disciplines such as medicine, emergency medical care, dentistry, radiology and pharmacy. All educators from these disciplines are facilitators of AL and share responsibilities with students such as designing curriculum, common learning outcomes, real-life case scenarios and facilitation of learning in these students. This group of interdisciplinary students is encouraged to actively participate and engage with the AL environment, which includes patients, their families, experts and other healthcare professionals during excursions. Furthermore, collaborative and cooperative efforts, mutual respect for diversity of disciplines and cultures, shared decision-making and problem-solving are fostered over time through interprofessional clinical placements [66, 75]. Emotionally intelligent healthcare professionals with good social skills improve patient outcomes by providing quality care to them, instil mutual trust and respect and implicitly foster adherence and compliance to treatment and improve patient satisfaction. There is reduction in medical errors and patient adverse events, resulting in improved hospital cost savings, fewer conflicts and litigation [29, 66].

The above-mentioned strategies can be used in combination and across EI dimensions since no single strategy can facilitate any dimension on its own.

4.2 Adoption of EI in nursing curricula

Despite its well-documented positive effects in nursing students and, subsequently, patient care, EI is rarely adopted and assessed in nursing curricula. Instead,

it is the regurgitation of information and acquisition of knowledge and skills based on standardised assessments that are continually used as benchmark for nursing students' success in higher education institutions [38, 76]. The inclusion of EI education must be a fundamental part of all nursing curricula. It is achievable and cheap, and its incorporation into any nursing education programme can be achieved with minor revisions to the curricula [42, 70, 77]. Continuous improvement of the developed EI skills in nursing students through training programmes and seminars is essential. Therefore, nurse educators should stay current and adopt evidence-based strategies to strengthen their own and nursing students' EI levels and related skills [23, 38, 67]. Shubayr and Dailah [67] illustrate, by example, how evidence-based results can be used to guide the facilitation and development of EI in nursing students. They state that their findings, which were observed relating to gender differences, highlight the need for personalised training programmes that deal with the diverse emotional learning needs of both students. 'Female students may benefit from advanced emotional labour management strategies, while male students may require interventions focused on emotional awareness and interpersonal communication to strengthen their EI skills'.

4.3 The nurse educator as a key player

Nurse educators' engagement in effective teaching, learning and assessment is positively linked to student achievement [3, 78], yet they battle against struggles and stressors. Such struggles and stressors include the use of student-centred pedagogical strategies that promote deep learning within short periods of instruction time, pressure to facilitate higher-order thinking skills expected of a twenty-first century graduate, heaviness of high-stakes assessments, working long hours and dealing with various stakeholders. Furthermore, there are university demands such as heavy administrative and research workloads, excessive teaching loads and lack of institutional support, all of which evoke strong emotions, leading to stress and burnout [58, 59, 79]. Understanding and better management of emotions for nurse educators is key as those with high EI have better psychological adjustment, interpersonal relationships with their students and colleagues, the ability to accomplish tasks successfully and better emotional skills. They are self-directed, productive at work and flourishing in life than their low emotionally intelligent counterparts [58, 80]. It is, therefore, important that nurse educators improve not only their content and pedagogical knowledge but also their EI competency continuously through personalised coaching sessions and peer support with more EI knowledgeable educators [14, 81]. Their paradigm shift, EI-aligned philosophical beliefs and their impact on the facilitation of EI in nursing students are of great importance for the success of their programmes [29, 82]. An innovative pedagogy of an emotional curriculum could be a solution to the training of future nurse educators.

5. EI assessment instruments used in higher education institutions

EI is a multifaceted construct with no single assessment that can fully capture all its dimensions; as a result, various instruments have been developed to measure it. The variations of the instruments allow nurse educators to use rather a combination of instruments to obtain a comprehensive understanding of a nursing student's EI levels and skills [81]. The majority of the available instruments tend to follow one of

the three conceptual models, namely, the ability model, trait model and the mixed model. The *ability model* refers to 'EI as a cognitive ability that can change over time', and its instruments are used when individual's theoretical understanding of emotions is sought [83, 84]. One example of the instrument that focuses on the ability to use emotions to facilitate thinking is the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT), which was developed by Mayer, Salovey and Caruso in 2002 [81, 85]. The *personality model* refers to 'EI as a component of personality that is fixed over time'. The personality or trait-based instruments are used in stressful situations, and they measure effective EI coping behaviours [83, 84]. The Bar-On Emotional Quotient Inventory (Bar-On EQ-i) is an example of a personality (trait) model instrument that was designed by Bar-On in 1997 [81, 85]. The *mixed model* refers to 'EI as a combination of abilities and personality traits that can change'. The mixed model instruments measure a mixture of EI competencies, traits, social skills and personality and are therefore used to improve workplace performance [83, 84]. The Emotional Competence Inventory (ECI) is an example of a mixed model instrument that was designed by Boyatzis, Goleman and Rhee in 1999 [81, 85].

Based on their knowledge of the content of these conceptual models and their related instruments, nurse educators can adopt, modify, translate and contextualise the available instruments to measure EI in nursing students [40, 86] for baseline EI measurements and decisions on the selection of EI improvement training programmes. The assessment of EI using the available instruments is not without challenges, with documented concerns from researchers. One concern is the lack of agreement on the basic definition of EI and its different theories, leading to a wide range of instruments available to researchers [87], making it challenging to understand research on EI and nursing care [65, 88]. The second concern is the lack of single assessment that can fully capture all EI's dimensions as it is a multifaceted construct. Furthermore, the use of self-report questionnaires may result in biased results and distortions [32, 65, 88], which reflect the subjective and not the objective perception of an individual's EI traits [85]. Hence, the definition of EI by the [89] as 'a broad intelligence that needs to be measured objectively because people can overestimate their EI, and then they are less interested in developing their EI skills' ([89] cited in [32]).

According to Bru-Luna et al. [83], there are 40 EI measuring instruments that they could find. These instruments provide nurse educators with distinct measurements of each dimension of EI they wish to assess in real practice. They are components of the construct that, by their existence, prove that EI has developed or not in nursing students within an AL environment. Nurse educators should take cognisance of the limitations of the listed questionnaires, which may include bias from self-reporting, huge number of items in an instrument that is time-consuming to complete and the cognitive burden placed on nursing students [29]. **Table 1** below shows the 40 available instruments that were located by Bru-Luna et al. [83] and the few that the research found. The table includes the name of the instrument, the author(s) and the model on which the instrument is based.

6. Limitations of EI

Despite the positive side, EI also has a negative one, like any other set of abilities or skills [131, 132], when used in an unethical manner [133]. This point is observed in the basic definition of EI by Austin as 'the assessment, expression and control of

No.	Instrument	Author(s)	Model
1	Trait Meta-Mood Scale (TMMS)	Salovey et al. [90]	Ability-based
2	Schutte Self-Report Inventory (SSRI) [Schutte Self-Report Emotional Intelligence Test (SSEIT) or Schutte Emotional Intelligence Scales (SEIS) or Self-Report Emotional Intelligence Test (SREIT)]	Schutte et al. [91]	Ability-based
3	Multifactor Emotional Intelligence Scale (MEIS)	Mayer et al. [92]	Ability-based
4	Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT)	Mayer et al. [93]	Ability-based
5	Profile of Emotional Intelligence (PIEMO)	Cortés et al. [94]	Ability-based
6	Wong and Law Emotional Intelligence Scale (WLEIS)	Wong and Law [95]	Ability-based
7	Workgroup Emotional Intelligence Profile-3 (WEIP-3)	Jordan et al. [96]	Ability-based
8	Multidimensional Emotional Intelligence Assessment (MEIA)	Tett et al. [97]	Ability-based
9	Emotional Intelligence Questionnaire (EmIn)	Lyusin [98]	Ability-based
10	Sojo and Steinkopf Emotional Intelligence Inventory—Revised version (IIESS-R)	Sojo and Guarino [99]	Ability-based
11	Self-Rated Emotional Intelligence Scale (SREIS)	Brackett et al. [100]	Ability-based
12	Emotional Intelligence Self-Description Inventory (EISDI)	Groves et al. [101]	Ability-based
13	Greek Emotional Intelligence Scale (GEIS)	Tsaousis [102]	Ability-based
14	Situational Test of Emotion Management (STEM)	MacCann and Roberts [103]	Ability-based
15	Situational Test of Emotional Understanding (STEU)	MacCann and Roberts [103]	Ability-based
16	Emotional Skills and Competence Questionnaire (ESCQ)	Takšić et al. [104]	Ability-based
17	Audiovisual Test of Emotional Intelligence (AVEI)	Zysberg et al. [105]	Ability-based
18	Geneva Emotion Recognition Test (GERT)	Schlegel et al. [106]	Ability-based
19	Test of Emotional Intelligence (TIE)	Smieja et al. [107]	Ability-based
20	Videotest of Emotion Recognition	Lyusin and Ovsyannikova [108]	Ability-based
21	Self-Perception Of Emotional Intelligence Questionnaire (EIQ-SP)	Teques et al. [109]	Ability-based
22	Three-Branch Emotional Intelligence Forced-Choice Assessment (TEIFA)	Anguiano-Carrasco et al. [110]	Ability-based
23	Three-Branch Emotional Intelligence Rating Scale Assessment (TEIRA)	Anguiano-Carrasco et al. [110]	Ability-based

No.	Instrument	Author(s)	Model
24	North Dakota Emotional Abilities Test (NEAT)	Krishnakumar et al. [111]	Ability-based
25	Perceived Emotional Intelligence Inventory (IIEP)	Mikulic et al. [112]	Ability-based
26	Mobile Emotional Intelligence Test (MEIT)	Sanchez-Gomez and Bresó [113]	Ability-based
27	Emotional Intelligence Test (EIT)	Sergienko et al. [114]	Ability-based
28	Emotional Quotient Inventory (EQ-i)	Bar-On [115]	Mixed model
29	Emotional Competence Inventory 2.0, (ECI 2.0, Previously ECI)	Boyatzis et al. [116]	Mixed model
30	Emotional Intelligence Questionnaire (EIQ)	Dulewicz and Higgs [117]	Mixed model
31	Emotional Intelligence Inventory	Shanker and Sayeed [118]	Mixed model
32	Emotional Intelligence Appraisal (EIA)	Bradberry and Greaves [119]	Mixed model
33	Emotional Intelligence Scale (EIS)	Akerjordet and Severinsson [120]	Mixed model
34	USM Emotional Quotient Inventory (USMEQ-i)	Saiful et al. [121]	Mixed model
35	Indigenous Scale of Emotional Intelligence	Batool and Khalid [122]	Mixed model
36	Trait Emotional Intelligence Questionnaire (TEIQue)	Petrides and Furnham [123]	Trait model
37	Rotterdam Emotional Intelligence Scale (REIS)	Pekaar et al. [124]	Trait model
38	Genos Emotional Intelligence Inventory (previously SUIET)	Palmer et al. [125]	Others
39	Profile of Emotional Competence (PEC)	Brasseur et al. [126]	Others
40	Group-level Emotional Intelligence Questionnaire	Ghuman [127]	Others
41	Hall Emotional Intelligence Evaluation Scale (EIES)	Hall [128]	Mixed model
42	Adult Emotional Quotient Test (AEQT)	Moon [129]	
43	Emotional Intelligence Scale	Singh [130]	

Table 1.
EI measuring instruments.

emotions as well as the calculated use of emotional intelligence’ [133]. Across various contexts such as health, academic and occupational, there are instances where EI is not helpful and may be destructive to a person or those who interact with them. The negative effects of the destructive behaviours may contribute to undesirable intrapersonal outcomes and interpersonal outcomes [134, 135]. Intrapersonally, an emotionally intelligent individual with a negative side will deal with an emotional situation by engaging a less healthy strategy of suppression wherein they would change their behavioural response [136]. These individuals tend to avoid conflicts with others by

regulating their emotions through effective emotion management. This ability is then used effectively to suppress retaliation against anyone who instigates such conflict [131], a conflict avoidance tactic. Emotionally intelligent individuals are likely to use their well-developed EI skills to 'influence strategically important targets'. They would mask or display certain emotions to their personal gain, shape other people's emotions *via* misattribution and tactically control emotion-laden information to their advantage [137]. Interpersonally, the negative side of EI could manifest through emotional manipulation of others and, therefore, 'management' of others and their emotions resulting in the intentional use of emotional skills to achieve their self-serving desired outcome [138]. Therefore, emotional skills are utilised in a strategic and manipulative way to influence others' emotions.

Many authors caution that the juxtaposing outcomes of EI should never be examined alone but in relation to other social personal traits [131, 132, 134, 139, 140]. While EI may have the dark side, it occurs with other dispositions or personality traits that should be taken into consideration. Dispositions or personality traits such as pre-existing qualities of a person, lower self-perceptions, gender differences and the presence of above average emotional abilities in individuals with antisocial personalities, which might promote or even contribute to more harmful behaviours. The implication is that EI has the potential to lead to both prosocial and antisocial behaviours depending on individuals' personality [131]. Empathy plays a crucial role when paired with EI, as it shapes social behaviour. Without empathy, unbalanced EI could be 'abused' leading to antisocial behaviours such as manipulation of others, aggression or bullying among nursing students with low empathy [131]. Therefore, in nursing education, nurse educators should target to facilitate the development of EI in tandem with other good personality traits such as empathy and moral identity [131], self-awareness [65], effective communication skills and stress management techniques such as mindfulness, self-care training and relaxation exercises [141] to nurture well-balanced, harmonious individuals and for improvement in EI competencies that are enduring [65].

A flip argument to note with EI and empathy is that of individuals with higher levels of empathy. According to Refs. [138, 142], this is an individual known as a dark empath as they use their ability to study and understand other individuals' emotions, thoughts and feelings to their advantage. They are, therefore, dangerous individuals who use certain strategies to manipulate others such as love bombing, intimidation, gaslighting and ghosting. This individual misuses EI and empathy as tools to a self-serving and manipulative end. There is also a strong argument that EI in itself is neither positive nor negative [131, 134, 139], an argument that should be strongly considered by nurse educators when facilitating EI in nursing students.

7. Conclusions

EI in nursing students is a desirable ability and trait needed to assist them navigate and cope within the highly stressful, physically demanding and emotionally charged AL environment. These young adults, some of whom are teenagers at the beginning of their careers, are highly vulnerable and affected by their naïve, volatile nature and unfledged coping capabilities associated with this stage of development. By developing their EI capabilities, through adopting it in nursing curricula and facilitating it within an AL environment, they can improve patient outcomes by providing quality care to them, instil mutual trust and respect, improve their satisfaction and implicitly

foster adherence and compliance to treatment, at the same time taking care of their personal and academic well-being. They will be better equipped to deal with challenges that plague the nursing profession today.

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Chapter 6

Mentoring for Well-Being at Work

Riza Kadilar

Abstract

In today's rapidly evolving workplace, employee well-being has emerged as a key determinant of organizational performance and resilience. This article explores how mentoring—particularly developmental and transformational approaches—can significantly enhance well-being at work. Drawing on evidence-based practices and frameworks such as the EMCC Global competency model and Seligman's PERMA well-being framework, the article outlines how mentoring supports emotional resilience, job satisfaction, and personal growth. It highlights the principles of nonjudgmental dialog, cognitive empathy, and reflective practice as foundational to effective mentoring relationships. Practical guidance is also offered for HR leaders aiming to embed mentoring into their organizational culture. By examining the interplay between mentoring and psychological well-being, the article positions mentoring not merely as a professional development tool, but as a strategic driver of engagement, inclusion, and organizational sustainability in the future of work.

Keywords: mentoring, wellbeing, transformation, culture, resilience, fulfillment, job satisfaction

1. Introduction

1.1 The indispensable value of employee well-being in the modern workplace

In today's dynamic and often demanding professional landscape, the well-being of employees has transcended from a mere “nice-to-have” to a fundamental cornerstone of organizational success and sustainability [1]. The pressures of modern work environments, characterized by rapid technological advancements, evolving market demands, and the constant need for adaptation, can significantly impact individuals at physical, mental, and emotional levels [1]. It is no longer sufficient for organizations to solely focus on productivity metrics; a holistic approach that prioritizes and nurtures the health and contentment of the workforce is paramount.

Research consistently demonstrates a strong correlation between employee well-being and key performance indicators. Healthy and engaged employees not only are more productive and innovative but also exhibit higher levels of loyalty and lower rates of absenteeism and turnover [1, 2]. Organizations that actively invest in fostering a supportive and healthy work environment often witness a direct positive impact on their bottom line, through enhanced efficiency, creativity, and overall resilience

[3]. Furthermore, a focus on well-being contributes to a more positive organizational culture, fostering stronger interpersonal relationships among colleagues and a greater sense of community and shared purpose [3]. This, in turn, can attract and retain top talent, giving businesses a significant competitive edge.

Recognizing the profound impact of work on overall life quality [1], it becomes evident that strategies aimed at enhancing employee well-being are not just beneficial but essential. This chapter will explore one such powerful, yet often underutilized, strategy: mentoring. Specifically, it will delve into how developmental and transformational mentoring can serve as a potent catalyst for improving well-being within the workplace, benefiting both the individual employee and the organization as a whole. By examining the principles of effective mentoring and its practical applications, we aim to provide insights and actionable strategies for HR leaders and business executives seeking to cultivate a thriving, supportive, and resilient work environment where every individual can flourish.

2. The essence of transformational mentoring: Fostering growth and connection

Transformational mentoring, particularly within a professional setting, extends beyond simple knowledge transfer or skill acquisition. It represents a dynamic and reciprocal relationship where both mentor and mentee engage in a journey of mutual learning and development [4]. At its heart, it is about unlocking potential and fostering a deeper understanding of oneself and the broader organizational context. This section will explore the core principles that define transformational mentoring and how it can be a powerful tool for cultivating well-being and resilience in the workplace.

Central to transformational mentoring is the concept of shared experience and wisdom. Unlike traditional models that might emphasize a hierarchical transfer of information, this approach values the unique lived experiences of both individuals [4, 5]. Mentors, drawing from their own journeys, can offer guidance and perspective, not as prescriptive solutions, but as shared insights that empower the mentee to navigate their own challenges and opportunities [6]. This fosters an environment where individuals feel understood and validated, which is crucial for building self-efficacy and confidence.

The effectiveness of transformational mentoring hinges on several key human elements. Unbiased listening is paramount [7]. Mentors must create a safe and open space where mentees feel comfortable sharing their thoughts, concerns, and aspirations without fear of judgment [4]. This requires active listening skills, where the mentor is not just hearing words but truly understanding the underlying emotions and perspectives. Coupled with this is cognitive empathy, the ability to understand and share the feelings of another. When a mentor can genuinely connect with a mentee's experience, it builds trust and rapport, forming the bedrock of a productive mentoring relationship.

Furthermore, transformational mentoring encourages mutual respect and the valuing of diverse perspectives [4, 5]. It recognizes that both mentor and mentee bring unique strengths and viewpoints to the table. This reciprocal learning environment enriches the experience for both parties and can lead to more innovative problem-solving and a broader understanding of different approaches. The process is not about imposing one's views but about facilitating the mentee's own discovery and growth.

Finally, the art of asking insightful, resonating questions is a critical skill for a transformational mentor [4, 7]. Rather than providing direct answers or solutions, which can stifle independent thought, effective mentors use questioning to stimulate critical thinking, encourage self-reflection, and help mentees uncover their own solutions. This empowers the mentee to develop their problem-solving abilities and take ownership of their development, fostering a sense of agency and self-reliance that is vital for long-term well-being and professional growth.

In essence, transformational mentoring, as envisioned in this chapter, is a holistic approach that nurtures not just professional skills but also personal growth and emotional intelligence. By focusing on these core human elements, organizations can cultivate a mentoring culture that genuinely supports employee well-being, leading to a more engaged, resilient, and, ultimately, more successful workforce [8, 9].

3. Principles and definition of developmental mentoring: An EMCC global perspective

This section delves into the principles and definitions of developmental mentoring as championed by EMCC Global, a leading body in the fields of mentoring, coaching, and supervision. Understanding this perspective provides a robust framework for appreciating the depth and impact of quality mentoring relationships.

As per EMCC Global, “Mentoring is a learning relationship involving the sharing of skills, knowledge, and expertise between a mentor and mentee through developmental conversations, experience sharing, and role modelling. The relationship may cover various contexts and is an inclusive two-way partnership for mutual learning that values differences.” (<https://www.emccglobal.org/leadership-development/leadership-development-mentoring/>).

Through the mentor’s nonjudgmental stance and contextual wisdom-sharing dialog, individuals are exposed to diverse perspectives, enabling them to broaden their horizons and challenge their assumptions. Mentoring fosters a deep curiosity, encouraging mentees to explore uncharted territories and embrace innovation. In this dynamic relationship, mentors provide a safe space for mentees to experiment, learn from their failures, and develop resilience [7].

Furthermore, mentoring transcends traditional boundaries, reaching beyond the confines of hierarchical structures [6, 10]. It thrives in shared humanity, where wisdom flows both ways, creating a mutually beneficial exchange of knowledge and experience. Mentoring ignites a flame of compassion, empathy, and connection, bridging the gaps between generations, cultures, and backgrounds. Through these meaningful connections, mentoring catalyzes personal and professional growth, profoundly transforming lives.

4. Mentoring: A conceptual and practical framework

Mentoring is a developmental relationship that facilitates sharing skills, knowledge, and expertise between a mentor and a mentee through developmental conversations, experience sharing, and role modeling.

This relationship is characterized by:

- Valuing differences: Respecting and leveraging the unique backgrounds and perspectives of the mentor and mentee.
- Mutual learning: Fostering a two-way exchange of knowledge and insights.
- Contextual adaptability: Encompassing various situational contexts to address individual needs.
- Inclusivity: Creating a partnership that values and integrates diverse perspectives.

Notably, mentoring refrains from debate, negotiation, or argument. Instead, it fosters a nonjudgmental dialog in which the aim is not persuasion but shared understanding.

5. The role of dialog in mentoring

Mentoring is a unique form of interaction that relies heavily on dialog a process that fosters understanding, growth, and collaboration. It stands apart from debate or discussion, offering a more inclusive and transformative approach to communication.

While often used interchangeably, debate, discussion, and dialog hold distinct meanings and outcomes:

Debate involves holding a fixed point of view and attempting to convince others of its correctness. This approach often entrenches existing beliefs, creating resistance to change rather than openness to new perspectives. Discussion entails having an outcome in mind while being willing to consider and accept other viewpoints. While discussion may lead to modest shifts in perception and compromise, it rarely fosters profound change or mutual commitment.

Dialog, by contrast, is characterized by an open-minded approach to issues [11]. It aims to understand diverse perspectives and potentially co-create new ways of thinking. Dialog often results in a more profound commitment and a genuine willingness to embrace change.

Mentoring employs dialog at a higher level than almost any other workplace activity. This emphasis on dialog fosters a reflective and inclusive environment where both mentor and mentee can engage meaningfully [12]. To truly embody the spirit of dialog in mentoring, the following principles are essential:

- Create a supportive environment: Begin with a setting that encourages calm, thoughtful, and creative engagement. A safe and nonjudgmental atmosphere sets the tone for productive conversations.
- Practice active listening: Prioritize understanding the other person's thoughts and perspectives over formulating your own responses. This level of attentiveness builds trust and encourages openness.
- Respect differing viewpoints: Seek to uncover the reasoning and experiences underlying someone else's perspective, even if it differs from your own.

- Be open to learning: Expect every conversation to offer valuable insights and opportunities for growth.
- Challenge assumptions: Be willing to examine your thinking as rigorously as you would challenge others. This self-reflective approach ensures that dialog remains balanced and respectful.
- Allow for reflection: Embrace moments of pause during conversations to give yourself and others time to reflect. Silence can often lead to greater clarity and deeper understanding.

Dialog serves as the foundation for meaningful connections and transformative learning experiences in mentoring. It shifts the focus from persuading or winning to fostering mutual understanding, collaboration, and growth [13]. By practicing authentic dialog, mentoring becomes a powerful personal and professional development tool.

6. Principles of mentoring

Mentoring operates on several foundational principles:

1. Reflective practice: Reflective practice is a cornerstone of effective mentoring, emphasizing not just the events that occur but the lasting impact these events have on an individual's emotions, cognition, and actions. This practice involves creating a safe space for the mentee to explore and articulate the internal shifts triggered by their experiences. Through reflective dialog, mentees gain deeper insights into the "residues" left by these experiences, the emotions, thoughts, and realizations that influence their future decisions.
2. Reflective practice also encourages a forward-looking approach, asking mentees to consider how their reflections can inform their future actions. This approach helps mentees identify patterns, uncover hidden assumptions, and cultivate greater self-awareness. The mentor's role in reflective practice is to facilitate this exploration through open-ended questions and empathetic listening, guiding the mentee to articulate their thoughts and feelings without imposing judgment or solutions.
3. Furthermore, reflective practice integrates the concept of the "paradox of change," which suggests that meaningful transformation occurs when individuals fully acknowledge and accept their current state. By honoring the resistance to change as a natural part of the growth process, reflective practice helps mentees navigate transitions with greater resilience and clarity. It is not about fixing problems immediately but understanding their roots and implications, enabling mentees to approach their challenges confidently and purposefully.
4. Active agency: Mentoring aims to empower mentees to transition from passive observers to active agents of their own lives. This involves fostering a mindset where the mentee takes responsibility for their reactions and approaches to circumstances rather than attributing outcomes to external factors.

5. Empathy and non-judgment: Mentoring distinguishes between emotional and cognitive empathy. While emotional empathy may lead to biases, cognitive empathy involves understanding another's perspective without judgment. For instance, in challenging situations, the mentor supports the mentee by metaphorically "sitting in the dark" with them rather than attempting to immediately "turn on the light."
6. Present-centered focus: Mentoring prioritizes the present moment over unresolved past issues or uncertain future concerns. The emphasis is on how past and future influences shape the mentee's actions.
7. "Relationship with the Issue"-Oriented Guidance: The mentor's role is to guide the mentee in gaining clarity and new perspectives on their issues. The focus is not on solving the mentee as a person or prescribing solutions to their challenges.
8. Avoidance of advice: Mentoring discourages the mentor from offering advice to which they may become personally attached. Instead, if advice is deemed necessary, it is shared with permission and framed to inspire rather than dictate actions. For instance, a mentor might preface advice: "This may resonate differently for you, but here is an idea to consider..."

7. Situational roles of a mentor

A mentor may assume various roles based on the mentee's needs:

- Coach: Poses questions that encourage new perspectives.
- Storyteller: Shares anecdotes to inspire and guide.
- Discussion partner: Engages in dialogs that challenge the mentee and provide constructive feedback.
- Detached advisor: Offers professional insights without imposing personal ownership of the solutions.
- Knowledge sharer: Provides access to relevant expertise as required.
- Network builder: Assists the mentee in creating and leveraging professional connections.
- Sponsor/Guardian: Offers career guidance and strategic advice.
- Encouraging friend: Motivates and supports the mentee through challenges.

8. Evolving EMCC mentoring competencies

EMCC Global identifies eight key competencies essential for effective mentoring and coaching:

1. Understanding self: Awareness of personal strengths, limitations, and areas for development.
2. Commitment to self-development: Continuous learning and professional growth.
3. Managing the contract: Establishing clear agreements about the mentoring/coaching process and expectations.
4. Building the relationship: Creating a trust-based, collaborative relationship with the mentee.
5. Enabling insight and learning: Facilitating the mentee's ability to gain new perspectives and understanding.
6. Outcome and action orientation: Helping the mentee focus on achieving specific goals and actions.
7. Use of models and techniques: Employing appropriate frameworks, tools, and methodologies.
8. Evaluation: Continuously assessing the effectiveness of the mentoring/coaching relationship and outcomes.

A recent comprehensive study by EMCC Global has collected substantial evidence based on feedback from various leading practitioners and academicians. It has been suggested the addition of two new roles, based on observed gaps in current practices:

1. Being a role model:
 - This role emphasizes the mentor's intentionality in using their behavior, experiences, and authenticity to positively influence the mentee.
 - It includes demonstrating humility and acknowledging the two-way learning journey inherent in mentoring.
 - Acknowledging the role of power dynamics in the mentor-mentee relationship and ensuring that the mentor avoids creating replicas of themselves.
2. User of one's professional experience:
 - This role combines the skills of experience sharing and contextual understanding.
 - Mentors are encouraged to use their professional wisdom to guide mentees in navigating specific ecosystems, understanding power structures, and addressing implicit cultural dynamics.
 - The ability to judge when and how to offer contextual information (e.g., models, anecdotes, or observations) enriches the mentee's reflective process and decision-making abilities.

The suggested additions are rooted in the understanding that mentoring is distinct from coaching primarily because it relies on the mentor's ability to draw on personal experiences and contextual insights. These competencies recognize that:

- **Role modeling:** Mentors influence mentees through context sharing and embodying behaviors and attitudes that mentees can observe and adapt. Authenticity, coupled with humility, fosters deeper connections and learning opportunities.
- **Contextual application of experience:** Sharing professional knowledge appropriately and tailoring it to the mentee's context enables more meaningful, actionable mentoring. This competency ensures that the mentoring process adapts to diverse challenges and environments, enhancing its relevance.

Both competencies enrich the mentoring process by incorporating elements that enhance mutual learning, provide practical insights, and adapt to mentees' evolving needs. These recommendations distinguish further mentoring from coaching while maintaining EMCC's commitment to evidence-based practices.

9. Benefits of mentoring for well-being

Mentoring programs, when thoughtfully designed and implemented, offer a wealth of benefits that extend beyond mere skill development. They play a crucial role in fostering a positive and supportive work environment, which directly contributes to employee well-being [8, 9]. Here's how:

9.1 Reduced stress and burnout

Navigating the complexities of the modern workplace can be overwhelming. Mentors provide a safe space for mentees to discuss challenges, gain perspective, and develop coping mechanisms [8]. This support system can significantly reduce stress levels and prevent burnout, leading to a healthier and more engaged workforce.

9.2 Increased job satisfaction

Feeling valued and supported are key drivers of job satisfaction. Mentoring programs demonstrate an organization's commitment to employee growth and development [9]. This investment in human capital fosters a sense of belonging and purpose, leading to higher job satisfaction and morale [8].

9.3 Enhanced skill development and career progression

Mentors act as guides, helping mentees identify their strengths, weaknesses, and career aspirations. Through personalized guidance and support, mentees can develop new skills, gain confidence, and navigate their career paths more effectively [9]. This focus on growth contributes to a sense of purpose and achievement, enhancing overall well-being.

9.4 Improved retention rates

Organizations that invest in mentoring programs often experience lower employee turnover [8, 9]. When employees feel supported and see opportunities for growth and

development within the company, they are more likely to stay. This reduces recruitment costs and helps maintain a stable and experienced workforce.

9.5 Stronger workplace relationships

Mentoring fosters positive relationships between employees, breaking down silos and encouraging collaboration [8]. These connections can lead to a more supportive and inclusive work environment, where employees feel valued and respected. Strong workplace relationships are essential for building a positive organizational culture.

9.6 Knowledge transfer and succession planning

Mentoring programs facilitate the transfer of knowledge and experience from seasoned professionals to newer employees [9]. This ensures that valuable expertise is retained within the organization and helps prepare the next generation of leaders. This continuity contributes to long-term stability and success.

9.7 Boosted productivity and performance

Employees who feel supported and engaged are more likely to be productive and perform at their best. Mentoring programs can help employees develop new skills, gain confidence, and feel more connected to their work, leading to improved performance and efficiency [8, 9]. Companies with mentorship programs have even reported higher profits [9].

9.8 Enhanced creativity and innovation

Mentoring encourages diverse perspectives and open communication, which can spark creativity and innovation. By providing a safe space for employees to share ideas and explore new approaches, organizations can foster a culture of continuous improvement and problem-solving.

10. Mentoring and the PERMA model of well-being

Further underscoring the profound impact of mentoring on well-being, we can examine its contributions through the lens of Seligman's PERMA model, a widely recognized framework in positive psychology that outlines five core elements of psychological well-being and happiness [14, 15]. Mentoring relationships can significantly enhance each of these dimensions:

- **Positive emotions (P):** Mentors often provide encouragement, celebrate successes, and offer a supportive presence during challenging times. This can foster feelings of joy, gratitude, hope, and pride in mentees, directly contributing to their positive emotional state. The validation and affirmation received from a mentor can be a powerful source of positive affect.
- **Engagement (E):** Mentors can help mentees identify their strengths and passions, guiding them towards work and projects that are intrinsically motivating and allow them to experience a state of "flow." By challenging mentees appropriately

and helping them set meaningful goals, mentors can increase their engagement with their work and professional development.

- **Relationships (R):** The mentoring relationship itself is a strong, positive social connection. Beyond this primary bond, mentors often help mentees expand their professional networks, fostering a broader sense of community and belonging within the organization. These supportive relationships are crucial for overall well-being.
- **Meaning (M):** Mentors can assist mentees in connecting their daily work to a larger purpose, both within the organization and in their broader career aspirations. By sharing their own experiences and perspectives on values and impact, mentors can help mentees find greater meaning in their professional lives, which is a powerful driver of well-being.
- **Accomplishment (A):** Mentors play a key role in helping mentees achieve their goals, develop new skills, and overcome obstacles. The sense of competence, mastery, and achievement derived from these successes, facilitated by the mentor's guidance and support, directly contributes to the mentee's feeling of accomplishment and self-efficacy.

By nurturing these five pillars of the PERMA model, mentoring serves as a comprehensive strategy for enhancing holistic employee well-being, moving beyond simply alleviating negative states to actively cultivating positive psychological capital.

In conclusion, mentoring is not just a buzzword; it is a powerful tool for enhancing employee well-being and driving organizational success [8, 9]. By investing in mentoring programs, organizations can create a more supportive, engaged, and productive workforce, ultimately leading to a healthier and more prosperous future.

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11. Building a mentoring culture for a thriving workplace: A practical guide for leaders

Creating an environment where mentoring is not just a program but an ingrained part of the organizational culture is a strategic imperative for leaders aiming to foster employee well-being and drive sustained success [16]. A true mentoring culture transcends isolated initiatives; it becomes a living, breathing aspect of how individuals interact, learn, and grow within the company. This section offers practical guidance for HR leaders and business executives on how to thoughtfully design, implement, and nurture such a culture.

First and foremost, securing genuine leadership buy-in and visible sponsorship is critical [16]. Mentoring initiatives thrive when senior leaders actively champion their value, participate as mentors themselves, and clearly communicate how mentoring aligns with the organization's strategic goals, including those related to talent development, employee engagement, and overall well-being [9]. This involves more than just allocating a budget; it requires leaders to model mentoring behaviors and consistently advocate for its importance.

Next, designing flexible and inclusive mentoring programs is key [8, 16]. Recognizing that a one-size-fits-all approach rarely works, organizations should consider offering a variety of mentoring models. This could include traditional one-on-one mentoring, peer mentoring, group mentoring circles focused on specific development areas or shared interests (like women in leadership or new technologies), and even reverse mentoring, where junior employees mentor senior leaders on topics like digital literacy or emerging market trends [9]. The design should be adaptable to different departmental needs and employee preferences, ensuring accessibility for everyone.

Establishing clear goals, roles, and expectations for all participants is another crucial step [16]. Both mentors and mentees should understand the purpose of the mentoring relationship, their respective responsibilities, and the desired outcomes. Providing clear guidelines on time commitment, confidentiality, and communication protocols helps to create a structured and effective experience. This clarity prevents misunderstandings and ensures that relationships are purposeful and productive.

Investing in comprehensive training and development for mentors and mentees significantly enhances the quality of mentoring interactions [16]. Mentors need to be equipped with skills in active listening, providing constructive feedback, asking powerful questions, and facilitating growth [4]. Mentees, too, can benefit from guidance on how to proactively drive the relationship, set clear goals, and make the most of the mentoring opportunity. This training should not be a one-off event but part of an ongoing learning and support system.

Furthermore, creating robust support systems and resources is essential [16]. This includes providing toolkits, discussion guides, and access to a dedicated program manager or HR contact who can offer support and troubleshoot any challenges that arise. Technology can also play a vital role, with mentoring platforms helping to facilitate matching, track progress, schedule meetings, and provide a repository for learning materials [8, 9]. These platforms can make the administrative side of mentoring more efficient, allowing participants to focus on the relationship itself.

Promoting and communicating the value of mentoring continuously helps to embed it within the organizational DNA [16]. Share success stories, highlight the benefits experienced by participants, and integrate mentoring into broader talent management processes like onboarding, performance reviews, and leadership development programs. Regular communication keeps mentoring top-of-mind and encourages ongoing participation and engagement.

Finally, measuring the impact and continuously refining the approach ensures the long-term sustainability and effectiveness of the mentoring culture [8, 16]. Gather feedback from participants, track key metrics (such as engagement, retention, promotion rates of participants, and perceived impact on well-being), and use this data to make informed adjustments to program design and support. A culture of continuous improvement will ensure that mentoring initiatives remain relevant and impactful.

By thoughtfully implementing these practical steps, HR and business leaders can move beyond simply launching mentoring programs to truly cultivating a pervasive mentoring culture [16]. Such a culture not only enhances individual well-being and development [8, 9] but also strengthens the organization's overall resilience, adaptability, and capacity for innovation, making it a truly thriving workplace.

12. The future of work: Mentoring as a cornerstone for societal and organizational resilience

As we navigate an era of unprecedented technological advancement, shifting societal expectations, and dynamic global markets, the concept of work itself is undergoing a profound transformation. In this evolving landscape, the ability of organizations and individuals to adapt, innovate, and thrive hinges on a critical attribute: resilience [9, 17]. Mentoring, particularly the developmental and transformational approaches discussed earlier, emerges not merely as a beneficial practice but as a cornerstone for building this essential resilience, both within organizations and by extension, within society.

Technological disruption, from artificial intelligence and automation to the proliferation of remote and hybrid work models, presents both immense opportunities and significant challenges [9, 17]. For employees, this can mean the need to continuously upskill and reskill, to adapt to new tools and processes, and to navigate careers that are less linear and more fluid. Mentoring provides a vital human-centric support system in this context. Experienced mentors can guide individuals through these transitions, helping them to identify emerging skill requirements, build confidence in adopting new technologies, and develop the agile mindset necessary to embrace change rather than resist it [9]. This proactive approach to skill development and adaptation is fundamental to individual career resilience and, collectively, to an organization's ability to remain competitive and innovative.

Beyond technological shifts, societal expectations regarding work are also changing. There is a growing emphasis on purpose-driven work, inclusivity, mental health, and work-life integration [3, 17]. Mentoring can play a crucial role in fostering a workplace culture that aligns with these values. By creating spaces for open dialog, empathy, and mutual understanding, mentoring relationships can help bridge generational gaps, promote diversity and inclusion by providing support and advocacy for underrepresented groups, and ensure that employees feel seen, heard, and valued [8, 9]. This sense of belonging and psychological safety is a key component of individual well-being and contributes significantly to a resilient organizational culture that can weather storms and attract and retain diverse talent [17].

Furthermore, the challenges we face are often complex and interconnected, requiring collaborative problem-solving and a systems-thinking approach. Mentoring, by its nature, encourages the sharing of diverse perspectives and experiences [7, 17]. It can break down silos within organizations, fostering cross-functional collaboration and knowledge sharing [9]. This interconnectedness strengthens the organizational fabric, making it more adaptable and responsive to external pressures. As your own philosophy highlights, a society equipped with mentoring competencies and supported by institutions that embrace mentoring is better prepared to tackle complex challenges and foster social peace and consensus. This begins within our organizations.

For HR leaders and business executives, recognizing mentoring as a strategic tool for building future-readiness is paramount [9]. It involves investing in programs that are not just about skill transfer but about cultivating adaptability, critical thinking, emotional intelligence, and a growth mindset. It means fostering a culture where learning is continuous, where seeking and offering guidance is normalized, and where individuals are empowered to take ownership of their development. In doing so, organizations are not just preparing their workforce for the future of work; they are actively shaping a more resilient, equitable, and ultimately, more human-centered professional world [18].

The dizzying pace of change you mentioned requires more than just technical solutions; it demands human solutions. Developmental mentoring, with its focus on wisdom, empathy, and shared growth [4, 17], provides a powerful pathway to navigate this future, ensuring that as our workplaces transform, our people are equipped not just to cope, but to thrive and lead the way.

13. Conclusion: Embracing mentoring as a strategic imperative for well-being and success

As this article has demonstrated, mentoring is far more than a developmental tool—it is a transformative force capable of fostering well-being at both the individual and organizational level. In an age defined by rapid change, rising mental health challenges, and increasing demands on employee adaptability, mentoring provides a human-centered counterbalance. It supports psychological safety, empowers learning, and facilitates purposeful dialog—an antidote to workplace disconnection and burnout [7].

The convergence of mentoring principles with the core pillars of well-being—positive emotion, engagement, relationships, meaning, and accomplishment—presents a compelling case for integrating mentoring as a strategic well-being initiative. Unlike one-size-fits-all interventions, mentoring is inherently adaptable and scalable. Whether delivered through peer programs, mentoring circles, or reverse mentoring, it builds both individual and collective resilience [7].

Moreover, the evidence presented points to mentoring as a catalyst for building inclusive and sustainable organizational cultures [5, 19]. Its emphasis on empathy, reflective practice, and agency directly aligns with the capabilities needed in the future of work. Leaders who embed mentoring not only address current engagement and retention challenges but also future-proof their workforce by cultivating adaptability and emotional intelligence.

However, for mentoring to realize its full potential as a well-being intervention, organizations must go beyond ad hoc or compliance-driven programs. Strategic integration, leadership sponsorship, dedicated resources, and robust evaluation mechanisms are critical to its long-term impact. Equally, mentors must be supported through training and development to ensure the quality and integrity of the mentoring experience [7].

Looking ahead, further research could explore the specific mechanisms by which mentoring impacts well-being across different demographics and sectors. Longitudinal studies examining mentoring's role in post-pandemic recovery, digital transition, and inclusion outcomes would also enrich the current understanding.

In sum, mentoring—when approached with intentionality and aligned with organizational values—emerges not as a luxury but a necessity. It is a cornerstone for building thriving workplaces where well-being and performance are not in competition, but in harmony. As we prepare for a more complex and interconnected future, mentoring offers not only a developmental path but a deeply human one-one that ensures no one navigates the journey alone.

Throughout this chapter, we have explored the profound and multifaceted connection between mentoring and well-being in the workplace. We began by establishing the critical importance of employee well-being not merely as a compassionate consideration but as a fundamental driver of organizational success in the demanding modern professional landscape [1–3]. From this foundation, we delved into the

essence of transformational mentoring, highlighting its departure from traditional models towards a more holistic, human-centered approach rooted in shared wisdom, empathy, active listening, and the art of guiding questions [4]. This form of mentoring, as we have seen, is uniquely positioned to nurture individual growth and foster genuine human connection.

The subsequent exploration of mentoring as a direct catalyst for well-being at work illuminated its tangible benefits [8, 9]. For individuals, this includes reduced stress, enhanced job satisfaction, clearer career paths, and a greater sense of purpose and belonging. For organizations, these individual benefits translate into a healthier and more productive culture, characterized by improved morale, stronger teamwork, increased productivity, and higher retention rates [8, 9]. The evidence strongly suggests that investing in mentoring is an investment in the organization's most valuable asset: its people.

Recognizing these benefits, we then turned to the practicalities of cultivating a pervasive mentoring culture [16]. This is not a simple task but a strategic endeavor requiring leadership commitment, thoughtful program design that embraces flexibility and inclusivity, clear roles and expectations, comprehensive training for both mentors and mentees, robust support systems, continuous promotion, and a commitment to measuring impact and refining approaches. Building such a culture transforms mentoring from an isolated initiative into an integral part of the organizational fabric.

Finally, looking towards the future of work, we positioned mentoring as a cornerstone for building both societal and organizational resilience [9]. In an era of rapid technological change and evolving societal expectations, the adaptive capacity, emotional intelligence, and continuous learning fostered through strong mentoring relationships are indispensable. Mentoring equips individuals and organizations not just to navigate change, but to embrace it, to innovate, and to build a more inclusive, purpose-driven, and ultimately, more human-centered professional world [9]. It echoes the profound sentiment that a society equipped with mentoring competencies is better prepared to face contemporary challenges and build a more harmonious future.

In conclusion, the call to action for HR leaders and business executives is clear. Mentoring for well-being is not a peripheral activity but a strategic imperative [3, 8, 9, 16]. By championing and investing in developmental and transformational mentoring, organizations can unlock significant potential, foster a culture where individuals thrive, and build a resilient and successful enterprise prepared for the complexities of tomorrow. Let us ensure that, as we move forward, no one is left without the profound benefits that a guiding, supportive, and developmental mentoring relationship can provide, enriching both their professional lives and their overall well-being.

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The Interplay of Social-Emotional and Cognitive Competencies: Enhancing Well-Being and Learning Strategies in Educational Contexts

Maryam Hachem

Abstract

This chapter explores the critical intersections between social-emotional competencies and cognitive skills, emphasizing their combined influence on student learning and well-being. Drawing on recent research, including studies on social-emotional competencies and their impact on cognitive performance, the chapter examines how social emotions—like empathy and compassion—and emotional intelligence—encompassing self-awareness, self-regulation, and social skills—shape the way students engage with learning environments. The chapter delves into how social-emotional and cognitive growth are not only parallel but mutually reinforcing, suggesting that an integrated approach to fostering both social-emotional and cognitive abilities is essential for promoting holistic student development. Additionally, the chapter highlights the implications of this interplay for developing effective learning strategies that support academic achievement and overall well-being.

Keywords: social-emotional competencies, cognitive competencies, social emotions, emotional intelligence, learning strategies, well-being

1. Introduction

Cognitive abilities such as reasoning, attention, memory, problem-solving, and language have remained central to educational research and practice [1–3]. Recent studies continue to highlight the importance of cognitive psychology in improving learning outcomes. For instance, Kang discusses how advancements in cognitive psychology have led to practical applications in education, particularly in learning strategies [4].

The relationship between cognitive skills and academic success remains a focal point of research. DiPerna et al. demonstrated that reading, writing, and critical thinking significantly predict academic achievement [5], and more recently, Van

Bergen explored how metacognition and problem-solving strategies contribute to student learning [6].

Social cognition, which refers to how learners process and apply information in social environments, plays a crucial role in education [7]. Classroom settings provide opportunities for students to engage and collaborate, fostering deeper learning. Multiple studies affirm the benefits of social learning for cognition and academic growth. For example, Schunk (1989), Csibra and Gergely (2006), and Powell and Kalina (2009) explored the psychological and cognitive mechanisms that enable individuals to leverage group learning experiences, emphasizing the significance of social cognition in academic achievement [8–10]. More recently, Hachem examined how social-emotional variables directly impact students' perceived cognitive competence and academic performance, reinforcing the importance of social learning [11].

Although cognitive skills form the foundation of learning, they alone do not ensure academic or social success. Researchers acknowledge that cognitive abilities are closely linked to emotional processes [12] and other factors such as motivation and engagement [13, 14].

2. Social and emotional competencies

Fostering lifelong learning in students requires an approach that extends beyond cognitive skills to encompass social and emotional development. Lifelong learning habits thrive within environments characterized by positive social and emotional interactions, such as supportive relationships between students and teachers [15]. In 2003, UNESCO initiated efforts to promote research highlighting the influence of social and emotional factors on learning [16–22].

Both social-emotional abilities (e.g., motivation, resilience, engagement) and cognitive skills (e.g., literacy, critical thinking) contribute to academic success. Over the past decade, research has increasingly demonstrated that social-emotional skills significantly impact academic and social outcomes. For example, these skills have been linked to stronger academic performance, greater persistence in higher education, improved employment opportunities, and higher earnings [23]. A recent meta-analysis by Cipriano et al. systematically analyzed 424 experimental studies on social-emotional learning (SEL), confirming its positive effects on academic achievement, school engagement, and student well-being [24].

While social and emotional competencies are interconnected, their distinctions should be acknowledged. Social skills help individuals interact effectively and navigate social situations [25], whereas emotional abilities involve recognizing, regulating, and expressing emotions [26–28]. Together, cognitive, social, and emotional skills support students in processing and responding to different circumstances [29, 30]. Early development of social-emotional competencies enables children to establish friendships, resolve conflicts, persevere through difficulties, and manage emotions [31].

Academic emotions—feelings directly associated with learning—are particularly relevant in educational settings [32]. Research has demonstrated that these emotions positively influence cognitive abilities and academic success [33–38].

2.1 Social emotions

Integrating the concept of social emotions into the discussion on social-emotional and cognitive competencies enhances our understanding of how emotions shape

student learning and well-being. Social emotions—such as empathy, shame, admiration, and jealousy—uniquely influence cognitive development because they are inherently tied to social interactions and contextual experiences [39, 40]. Unlike basic emotions such as anger or sadness, social emotions require a relational context, meaning that they emerge only in the presence of others or when a student anticipates social judgment [41, 42].

In educational settings, empathy and compassion serve as crucial social emotions that directly impact cognitive engagement, motivation, and interpersonal relationships. Research suggests that empathy enhances perspective-taking, allowing students to mentally simulate others' experiences, thereby strengthening their ability to comprehend complex ideas and engage deeply with learning [43, 44]. Similarly, compassion—while closely linked to empathy—is more action-oriented, motivating students to support one another and foster a collaborative classroom environment [45].

Neuroscientific evidence further supports the connection between social emotions and cognitive processes, demonstrating that empathic responses activate neural circuits involved in self-referential thinking and emotional regulation [46]. This phenomenon, known as the “shared network hypothesis,” suggests that when students experience empathy or compassion, their brains engage similar regions as when experiencing emotions firsthand [47, 48]. This neurological overlap may explain why social emotions play a pivotal role in academic success, as they enhance motivation, resilience, and collaborative learning strategies.

In the broader context of social-emotional learning (SEL) programs, findings from a study I conducted [11] underscore the importance of integrating empathy and compassion into educational curricula to support cognitive development and student well-being. By fostering an environment where students build social connections, develop emotional intelligence, and engage meaningfully in learning, educators can enhance academic achievement while supporting holistic development.

In this study, I examined how social emotions, particularly empathy and compassion, influence cognition and learning. Compassion is known to be a key mechanism for counteracting negative emotions, generating positive affect rather than suppressing distress [46, 49]. While cognitive reappraisal operates through executive control networks to reinterpret emotionally charged situations, compassion functions differently, activating reward-related brain circuits that foster prosocial behavior and emotional resilience [50, 51].

To explore the role of social emotions in learning, I used videos depicting individuals suffering from Alzheimer's disease to elicit responses of empathy and compassion in participants. Empathy allowed them to understand and share the emotions of the individuals in the videos, while compassion motivated supportive action and concern. Both emotions played a fundamental role in shaping cognitive engagement, moral reasoning, and social interactions in the study. By triggering emotional and cognitive responses, these experiences fostered deeper reflection and meaningful learning [11].

Preservice teachers were my focus group, so I sought to understand their experiences as learners engaging with social emotions, as well as their perspectives on how these emotions could shape their teaching practices. I examined how participants conceptualized social emotions and identified strategies to integrate them into classrooms, highlighting their potential to enhance student learning through emotional intelligence.

Through this study, I answered three key questions:

- How did experiencing social emotions influence preservice teachers' learning experiences?
- How did preservice teachers conceptualize social emotions in educational contexts?
- What strategies did they find effective for incorporating social emotions into their future teaching practices?

By analyzing their responses, I gained valuable insights into how social emotions bridge cognition and affect, offering new perspectives on teaching and learning. These findings reinforced the importance of integrating SEL strategies in education to promote student well-being, empathy, and deeper cognitive engagement [11]. More on this in Section 4.

2.2 Emotional intelligence

Emotional intelligence (EI) refers to an individual's ability to recognize, understand, manage, and express emotions effectively in themselves and others [52]. It encompasses key components such as self-awareness, emotional regulation, motivation, empathy, and social skills, all of which play a significant role in personal and interpersonal success [53]. Research has demonstrated that emotional intelligence is a crucial factor in decision-making, problem-solving, and social adaptability, influencing both personal well-being and professional performance [54].

Within educational contexts, emotional intelligence has been linked to academic success, student engagement, and cognitive development [55]. Students with higher emotional intelligence tend to exhibit greater resilience, effectively managing stress and frustration, which allows them to stay focused on learning [56]. Additionally, emotional intelligence fosters strong interpersonal relationships, enabling students to collaborate, navigate classroom challenges, and develop critical thinking skills through constructive discourse [17]. Given its role in self-regulation and motivation, emotional intelligence contributes to long-term academic achievement by helping students set goals, persist through difficulties, and adapt to new learning experiences [57].

3. Impact of social-emotional competencies on cognition

Students benefit from a balanced development of cognitive, social, and emotional skills to achieve positive academic and life outcomes [58, 59]. As awareness of their importance grows, research increasingly emphasizes social-emotional learning (SEL). These skills are instrumental in fostering learning, emotional resilience, prosocial behaviors, and diverse thinking [60]. Since they are adaptable, they can be cultivated through explicit instruction [61, 62].

SEL programs are designed to equip students with social and emotional competencies that enhance academic performance [22, 55, 63]. A meta-analysis of 207 SEL studies revealed that participating students exhibited significantly better school performance and standardized test results compared to nonparticipants [17]. In addition to academic gains, SEL students displayed improved social-emotional abilities,

attitudes, and behaviors [17]. Moreover, long-term benefits of SEL interventions included enhanced well-being and interpersonal skills [64].

Recent studies continue to reinforce the importance of balancing cognitive and social-emotional skills. Hachem et al. [65] found that social cognition and social competence directly predict cognitive competence and academic performance. In conducting this study, we sought to explore how cognitive, social, and emotional competencies interact to shape students' learning experiences. While previous research has examined these variables independently, we wanted to investigate their combined influence. Using a student survey, we gathered data from K-12 students in Western Canada to assess their social-emotional skills and their impact on academic outcomes. Guided by existing literature, we developed a theoretical model that categorized these learning components into three domains: social cognition and social competence, academic emotions and emotional competence, and cognitive competence and academic performance. Our primary goal was to provide empirical support for the proposed Structural Equation Model (SEM) to enhance our understanding of how social-emotional variables contribute to students' perceived cognitive abilities and academic success. Based on prior research, we hypothesized that cognitive competence, social cognition, social competence, academic emotions, and emotional competence would all directly enhance academic performance. Through this study, we aimed to highlight the importance of integrating social-emotional learning strategies alongside cognitive development to foster student well-being and improve academic achievement [65].

A pilot study was conducted first to assess the psychometric properties of the newly developed student survey, which was then refined and administered to a large sample of K-12 students in Western Canada. Between October and December 2019, students from 114 schools participated, resulting in a dataset of 29,384 responses from both elementary (40.1%) and secondary (59.9%) students. The survey included a diverse range of grade levels, with nearly equal representation of male (48.3%) and female (47.7%) students.

The survey measured key dimensions of social-emotional learning and cognitive competencies using a 4-point Likert scale, assessing social cognition, social competence, cognitive competence, academic performance, academic emotions, and emotional competence. The items were designed to evaluate students' self-perception in these areas, with higher scores indicating stronger self-reported skills. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were employed to ensure the validity of the scale, leading to the removal of two items that did not meet the required factor loadings.

To test the hypothesized Structural Equation Model (SEM), we conducted analyses using Mplus 7.2, assessing model fit through multiple indices, including the chi-square test, RMSEA, CFI, TLI, and SRMR. While a nonsignificant chi-square was unlikely due to the large sample size, the measurement model demonstrated acceptable fit ($\chi^2(174) = 6613.814$, CFI = .922, TLI = .905, RMSEA = .050), confirming the strength of the theoretical framework. Through this methodological approach, we sought to provide empirical support for the interconnectedness of cognitive, social, and emotional factors in academic success, reinforcing the importance of integrating social-emotional learning strategies into educational contexts [65].

In analyzing the results, we found that the overall model fit was acceptable, with key indicators such as RMSEA (.050), CFI (.921), TLI (.905), and SRMR (.036) supporting its validity. The hypothesized model revealed several important relationships between cognitive, social, and emotional competencies. Cognitive competence

demonstrated a strong positive effect on academic performance ($\beta = .701, p < .01$), reinforcing the direct link between students' intellectual abilities and their learning outcomes. Additionally, social cognition was significantly related to both cognitive competence ($\beta = .530, p < .01$) and academic performance ($\beta = .192, p < .01$), with an indirect effect showing that cognitive competence mediates this relationship.

Interestingly, social competence did not directly impact academic performance. However, its positive relationship with cognitive competence ($\beta = .389, p < .01$) suggests that cognitive skills act as a bridge between social competence and achievement, as confirmed by the significant indirect effect ($\beta = .273, p < .01$). In contrast, negative academic emotions had a negative effect on academic performance ($\beta = -.220, p < .01$). These findings align with previous research indicating that emotional stress and anxiety can hinder academic success.

Further analysis revealed that social competence plays a mediating role in the connection between emotional competence and academic success. While the direct relationships between emotional competence and cognitive competence or academic performance were not significant, the pathway through social competence proved meaningful ($\beta = .801, p < .01$). This suggests that students' ability to navigate social interactions is closely linked to how they process and regulate emotions, ultimately impacting their learning outcomes. Additionally, the indirect effect of emotional competence on academic performance through both cognitive and social competencies was significant ($\beta = .219, p < .01$), reinforcing the interplay between these skills in shaping students' academic success.

Overall, these findings highlight the complex relationships among cognitive, social, and emotional factors in education. They provide empirical support for integrated learning strategies that emphasize social-emotional development alongside cognitive growth, ensuring that students are equipped with the skills necessary for both academic and personal success [65].

Our study reinforces the growing research on the critical role of SEL in students' cognitive development and academic success. Given that the K-12 years represent key developmental periods when the brain undergoes significant changes [66]. Students' social-emotional competencies profoundly impact academic performance, behavior, and overall well-being [67]. As schools increasingly recognize the economic and educational benefits of SEL [68], our findings offer empirical evidence to inform effective, evidence-based interventions.

4. The role of social emotions in learning and development

Emotions, particularly social emotions, play a crucial role in shaping cognition and influencing learning experiences. Unlike basic emotions, which can exist independently, social emotions—such as empathy, compassion, admiration, and shame—emerge through interactions with others and are deeply tied to the social context of learning. My research particularly highlights how these emotions not only mediate cognitive processes but also enhance engagement, memory retention, and reflective thinking in a real and dynamic learning setting, making them essential components of effective learning and development [11].

One of the defining features of social emotions is their ability to foster deep cognitive engagement by prompting learners to process, internalize, and respond to educational content in a more meaningful way. In my study [11], learners engaged

with empathy and compassion, emotions that strengthened their ability to interpret information, reason critically, and relate new knowledge to personal experiences. Interestingly, even after the initial emotional stimulus faded, the cognitive effects remained, demonstrating that social emotions have a lasting impact on knowledge retention and comprehension.

Social emotions also drive self-reflection, a key cognitive mechanism that enables learners to make sense of information through their own experiences, emotions, and perceptions. The findings revealed that when learners encountered emotionally charged educational content, they processed it through internalized reflections and social discourse, reinforcing reasoning and meaning-making. This suggests that educational experiences infused with social emotions are not only impactful but also shape long-term cognitive development.

Furthermore, this study indicates that social emotions contribute to collaborative learning environments, where discourse among peers amplifies understanding and deepens engagement [11]. In interactive settings, learners mirror and internalize emotions, fostering socially driven cognitive processing that strengthens critical thinking and problem-solving skills. These findings align with the notion that learning is fundamentally a social process, where emotions and cognition are continuously intertwined in shaping intellectual growth.

From an instructional perspective, social-emotional learning frameworks should integrate cognitive, emotional, and social dimensions to enhance learning strategies and student development. Schools implementing SEL programs should focus on designing lesson plans that incorporate empathy and compassion, as these emotions support perspective-taking, moral reasoning, and cognitive engagement. The impact of social-emotional experiences extends beyond individual learning—it becomes socially transferable, influencing group discussions and making learning more meaningful for all participants.

Moving forward, future research should further explore how social emotions shape cognition in educational settings, particularly through real-time interactions and discourse. Investigating how emotions mediate knowledge retention, reasoning, and student engagement will be essential for optimizing instructional strategies and SEL practices. Recognizing the powerful interplay between emotions and cognition allows educators to create transformative learning environments that not only support academic success but also foster student well-being.

5. The role of emotional intelligence in learning and development

Emotional intelligence plays a crucial role in shaping how learners engage with educational experiences, process information, and navigate interpersonal relationships within academic settings. Emotional intelligence is defined as the ability to recognize, understand, regulate, and effectively express emotions, and it directly influences motivation, problem-solving, self-awareness, and resilience—all key factors in successful learning outcomes. When students have strong emotional intelligence, they are better equipped to manage stress, adapt to challenges, and stay engaged in cognitive tasks. Research has consistently shown that individuals with higher emotional intelligence perform better academically, as their ability to regulate emotions allows them to focus on learning rather than being overwhelmed by frustration or anxiety.

Beyond individual learning, emotional intelligence also enhances social interactions in educational settings. Classrooms are inherently social environments where students must communicate, collaborate, and work through differences. Emotional intelligence fosters empathy and interpersonal understanding, enabling learners to navigate conflicts constructively and build strong relationships with peers and educators. Moreover, emotionally intelligent students tend to exhibit greater self-motivation, as they can set goals and persist through difficulties without becoming discouraged. By learning to recognize and regulate emotions, students develop greater self-confidence, adaptability, and long-term perseverance, all of which are essential for academic success and personal growth.

Emotional intelligence and social emotions (explained above) are closely connected. Together, they influence how individuals navigate relationships, learning, and personal development. Social emotions, such as empathy, admiration, shame, and gratitude, arise in interactions with others and shape how students process feedback, engage in social dynamics, and develop moral reasoning. Emotional intelligence provides the skills needed to understand, regulate, and utilize these emotions, ensuring they contribute positively to learning rather than hinder progress.

For example, empathy and compassion enable students to connect with others' experiences, build meaningful collaborations, and foster prosocial behavior. Emotional intelligence enhances the ability to manage these emotions effectively by preventing emotional overload while at the same time maintaining strong interpersonal relationships. Similarly, students with high emotional intelligence can navigate difficult social emotions, such as embarrassment or shame, in academic settings, helping them learn from mistakes rather than becoming discouraged. Neuroscientific research highlights that social emotions and emotional intelligence share overlapping brain mechanisms, particularly in regions such as the prefrontal cortex and insula, which regulate emotional responses and enhance social cognition [46]. Ultimately, social emotions reflect lived experiences, while emotional intelligence provides the framework for processing them constructively, hence transforming emotional responses into opportunities for growth, reflection, and deeper engagement.

6. Holistic student development

Holistic student development emphasizes the integration of cognitive, social, and emotional competencies to support students academically, socially, and personally. Learning is not just about gaining knowledge—it is deeply tied to emotional regulation, social interactions, and self-awareness. When students develop strong cognitive skills, emotional intelligence, and social-emotional competencies, they are better equipped to handle challenges, build meaningful relationships, and engage in deep and meaningful learning. This interconnected approach ensures that education nurtures students beyond academic performance, fostering their overall well-being and personal growth.

A truly integrated approach to student development recognizes that cognition, emotion, and social interactions are interconnected. Research on social-emotional learning has demonstrated that when students feel emotionally supported and socially connected, they exhibit higher engagement, motivation, and resilience [17]. By weaving social-emotional learning into academic instruction, educators can help students develop adaptive learning strategies, build emotional intelligence, and improve critical thinking skills. Schools must move beyond traditional models that separate cognitive learning from emotional well-being, instead fostering

environments where students develop self-awareness, regulate emotions, and form supportive peer relationships. This integrated model of education ensures that students not only excel academically but also thrive socially and emotionally.

6.1 Supporting academic achievement through an integrated approach

Academic achievement is deeply intertwined with students' emotional regulation, motivation, and resilience. Research has consistently shown that students who develop emotional intelligence and social-emotional competencies tend to exhibit higher academic performance, persistence, and problem-solving abilities [36, 55]. These factors contribute not only to their ability to grasp complex concepts but also to their capacity to navigate challenges with confidence and adaptability.

One of the most effective ways to support students academically is by fostering strong teacher-student relationships, as positive interactions with educators enhance motivation and self-confidence. When students feel valued and understood, they are more likely to engage actively in their learning and pursue academic goals with enthusiasm. Additionally, the use of emotionally engaging content, such as storytelling, real-life applications, and student-centered discussions, has been found to heighten curiosity and intrinsic motivation, making learning experiences more meaningful [12].

Another crucial factor in academic success is the cultivation of a growth mindset, where students learn to perceive challenges as opportunities for intellectual growth rather than obstacles [69]. Encouraging resilience through reflective practices and constructive feedback helps learners develop perseverance and adaptability in their academic journey. Moreover, providing structured emotional support within educational environments ensures that students feel safe, valued, and empowered to learn. Studies have emphasized that psychologically supportive classrooms contribute to better emotional well-being, which in turn enhances cognitive functioning and academic achievement [22].

6.2 Effective learning strategies

Effective learning strategies incorporate both cognitive and emotional dimensions, ensuring students can process, retain, and apply knowledge effectively. Strategies that blend emotional intelligence with cognitive engagement can enhance problem-solving, creativity, and resilience. Some of the most effective approaches include

- Metacognitive strategies – Encouraging students to reflect on their thinking, set learning goals, and adjust study habits based on their progress [70].
- Emotionally engaged learning – Incorporating storytelling, real-life applications, and student-centered discussions to make content relatable and emotionally meaningful [71].
- Collaborative learning – Leveraging peer discussions, group activities, and teamwork to foster social-emotional skills and develop communication abilities [72].
- Mindfulness and self-regulation practices – Teaching students how to manage stress, regulate emotions, and maintain focus through techniques like deep breathing, journaling, or meditation [2].

By embedding these strategies into instruction, educators create dynamic, supportive learning environments that strengthen both academic success and personal development.

6.3 Supporting overall well-being

Beyond academic achievement, education must also prioritize students' holistic well-being, encompassing mental health, emotional stability, physical health, and social connectedness. Schools play a fundamental role in creating safe and supportive environments where students feel valued and empowered to thrive. Research has demonstrated that fostering positive school climate and SEL programs enhances student well-being, leading to improved academic performance and overall life satisfaction [17].

To effectively nurture student well-being, educators should implement SEL programs that cultivate emotional intelligence, self-awareness, and conflict resolution skills. These programs provide students with tools to manage stress, regulate emotions, and develop interpersonal skills essential for both academic success and personal fulfillment [22]. Additionally, creating inclusive and emotionally safe classrooms fosters a sense of belonging and encourages students to engage more fully in learning. Studies have shown that when students feel respected and understood within their school environment, their overall mental health and motivation improve [73].

Supporting students in developing self-care practices, such as mindfulness, healthy habits, and emotional regulation techniques, has also been linked to enhanced focus, reduced anxiety, and increased resilience. Encouraging positive peer interactions and strong social bonds further strengthens students' sense of connectedness, contributing to greater emotional stability and long-term well-being [74].

When schools integrate well-being initiatives into their educational framework, students not only excel academically but also develop lifelong emotional resilience, interpersonal skills, and a deeper sense of personal fulfillment. By prioritizing well-being alongside academic achievement, educators lay the foundation for healthier, more engaged learners, ultimately preparing students for success in all aspects of life.

7. Conclusion and future directions

Education is most effective when it acknowledges the interplay between social-emotional and cognitive competencies, ensuring that students develop not only intellectual skills but also emotional intelligence and social adaptability. By embedding SEL frameworks into learning strategies, educators can foster academic success, resilience, and overall well-being.

This chapter has explored how social-emotional competencies, including emotions and emotional intelligence, and cognitive development interact to create meaningful, engaged learning experiences. Research supports the view that students thrive when emotional and cognitive dimensions are integrated, reinforcing the importance of holistic learning environments.

Future advancements in SEL and educational psychology will continue to shape how educators, policymakers, and students approach learning, fostering both intellectual growth and personal well-being. As research evolves, exploring personalized and adaptive learning approaches will be crucial. Key areas for further investigation

include neuroscience's role in cognitive development, the integration of AI-driven tools for SEL, enhanced teacher training in emotional intelligence, and longitudinal studies examining SEL's lasting impact on academic performance and well-being. By prioritizing innovative, evidence-based strategies, education systems can create more effective and supportive learning environments for all students.

Conflict of interest

The author declares no conflict of interest.

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The Literature Review of Emotional Intelligence, Well-Being, and Learning Strategies for Gifted Students

Min-Ying Tsai

Abstract

The study tried to review the relevant literature about emotional intelligence, learning strategy, and well-being of gifted students. The chapter introduced the concept and content of emotional intelligence, learning strategy, and well-being. In addition, the chapter presented the current status of emotional intelligence, learning strategy, and well-being for gifted students. The result found that most gifted students have the advanced ability to utilize learning strategies and need to be introduced to using advanced strategies. In addition, there were no insistent results on the difference in emotional intelligence between gifted and average students. Most talented students can be well-adjusted, but must develop their emotional intelligence (EI) capability. Lastly, most talented students have more well-being than average students, except for twice-excepted, highly gifted, and underachiever-gifted students.

Keywords: emotional intelligence, gifted student, learning strategies, literature review, and well-being

1. Introduction

Gifted students have great potential to achieve excellent performances; their parents or teachers always concentrate on their potential development and expect them to behave well. So, the aim of gifted education is to foster exceptional achievement or scholarly productivity and artistry in other fields in gifted students [1]. Based on their learning needs, schools should concentrate on equipping students with the psychological skills and content knowledge necessary to fully utilize opportunities and achieve the levels of success they are capable of and desire, including the highest levels [1]. Instructors must use an inductive, investigative, and inquiry-based pedagogy and help students apply their knowledge and skills to real-world issues and circumstances in ways that simulate the working professional's approach, even if it is less advanced than that of adult experts [2].

Through the instruction and training of gifted education, talented students could reach self-actualization and give back to society.

Students with good learning strategies would easily achieve excellent academic performance, for they know how to study effectively and get amazing scores. Gifted students have fantastic potential for achievement in one or more talented areas. Do they have outstanding academic performances because of their potential or good learning strategies? Based on their learning strength, they often prefer engineering-centered teaching, independent learning, discussions, and teaching games, and teaching methods that are suitable for their learning aptitude and type can maximize the teaching effect [3]. They might have different learning ways, such as self-directed or self-regulated learning. Do they need to adopt learning strategies to get good grades? Or do they have other factors to have great performances? The study tried to explore the learning strategies of gifted students to understand their learning approaches.

Gifted students perform well in school because they are intelligent. However, students who achieve academically may not always excel socially. A person's success can be judged in many ways other than just their intelligence quotient (IQ). Many factors affect students' future success. Studies have indicated that IQ accounts for only 10–25% of success variables [4]. Additionally, there is a substantial amount of evidence that a person can build social and emotional competencies—which are critical for success in nearly any job—by being able to recognize, understand, and control their emotions [4]. Compared to persons with higher EI but ordinary IQ, people with IQ but cloudy emotions have a lower chance of succeeding in life [4]. The importance of emotional intelligence (EI) for success is becoming more widely recognized. The study attempted to investigate gifted students' EI.

Parents and educators expect talented students to achieve because they can do so. They are under pressure from both themselves and the heightened expectations of their parents and teachers. Do talented students struggle with their emotional and social health? The argument continued without a clear conclusion. While some scholars tend to believe that brilliant children are not emotionally deficient [5, 6], they are also at risk of emotional and social difficulties [7]. Asynchronous development may make brilliant people susceptible to feeling different from others [5]; they may feel more strongly than their peers about environmental events [8]. Emotional overexcitability, which is defined by high affective expression, extreme emotionality, and great empathy, is another trait of gifted students [9]. Above all, gifted students' distinct characteristics would impact their emotional and social health. The study attempted to explore gifted students' well-being through literature.

2. Learning strategies

Each student's learning characteristics are different from those of others. Different learning characteristics require different teaching approaches or learning strategies to study effectively. For this to happen, everyone needs to know about the learning process, or “learning to learn” [10]. Learning to learn makes it easier for a person to get the knowledge they require, learn the information they have received, and guarantee that what they have learned will remain. Learning to learn is crucial to providing quality instruction [11]. Gifted students have the learning potential to study effectively and apply what they have learned to solve daily problems. They might have different learning strategies from their peers. Therefore, learning strategies were first introduced, and then the relative concept of learning strategies for gifted students.

2.1 The concept of learning strategies

All students' learning needs are considered while designing the learning environment and surroundings in effective teaching methods. A strategy is a person's method for handling a circumstance or activity. Learning strategies are methods, ideas, or routines that help students complete their assignments independently [11]. This strategy takes into account the way that students plan, execute, and assess learning tasks and their performance [12]. Learning strategies play a significant role in education and give teachers crucial hints to guarantee that students receive the best possible education. It is also vital for students to learn how to learn. Students can adopt different learning strategies for each learning topic or situation and be adjusted and varied learning strategies as needed. Effective techniques can help people do better in school and throughout their lives [13–15]. The requirement for learning strategies throughout life is another factor that makes them more critical [12]. In Taiwan's 12-year national education curriculum, learning strategies is one subject covered in the special needs section. Because students with special needs have different learning difficulties, they need to learn how to improve their study difficulties.

Learning strategies encompass behavioral and thought processes that involve cognitive strategies, guiding and executive cognitive processes, and impacting the student's learning, as well as cognitive strategies such as memory placement and retrieval [16]. Learning strategies are methods that allow a person to process information in long-term memory and transfer the inputs they receive through their senses to both short-term and long-term memory [17]. In addition to facilitating learning, these methods guarantee student motivation and the durability of newly acquired behaviors. Learning strategies also include tasks like choosing and organizing information, mentally connecting new information to previously learned information, analyzing learning materials, making the material more meaningful, and preserving a meaningful learning environment [18]. Giving pupils the ability to direct and manage their own learning is the basic function of learning strategies. It implied that children might study independently and successfully, provided they could employ various learning techniques and create new ones.

Several academics have put forth several different kinds of learning strategies. The three categories of learning strategies—deep, surface, and achieving—that Biggs [19] distinguished each correspond to a particular study motive: intrinsic, extrinsic, and achievement motivation, respectively. Learning strategies are connected to achievement motivation, which affects students' academic performance [19]. Weinstein et al. included measures in the areas of cognitive processing (e.g., “information processing”), motivation (e.g., “motivation”), and some aspects of metacognitive regulation (e.g., “self-testing”) in their inventory [20]. Geisler-Brenstein and colleagues identified five cognitive learning strategies: deep learning, elaborative processing, agentic learning, methodical learning, and literal memorization [21]. A study strategies inventory was established by Tait and Entwistle involving measures related to cognitive processes (such as the deep, surface, strategic, and apathetic approaches) and to study motivation and affection (such as active interest, fear of failure, intention to excel, and lack of direction) [22]. In conclusion, learning strategies contain cognitive aspects, study motivation and affective aspects, metacognitive regulation aspects, and deep, surface, and achievement learning approaches.

In educational programs, learning strategies were employed to help students acquire, retain, and then apply the knowledge they had acquired. These strategies comprise a collection of complex behavioral, cognitive, and self-regulation

skills adapted to the context and purposefully used to accomplish specific learning objectives [15, 23]. Warr and Allan proposed a three-part classification of learning strategies: (1) cognitive (rehearsal, organization, and elaboration), (2) behavioral (interpersonal and written help-seeking, practical application), and (3) self-regulatory (emotion and motivation control, comprehension monitoring) [24]. Cognitive learning strategies include mental repetition of original information, developing mental schemes that link items to be learned, and the links between course material knowledge and its consequences [15]. Behavioral learning strategies include proactive activity to seek assistance from peers, teachers, or any other source that does not require social interaction, in addition to putting newly acquired behaviors or skills into practice [15]. These self-regulation techniques demonstrate the learner's control over anxiety, focus, attention, motivation, and the learning process, including emotion control, motivation control, and understanding process monitoring [15]. These three kinds of strategies correspond to three teaching goals: cognitive domain, psychomotor domain, and affective domain. Educators can arrange three strategies to guide students to achieve teaching goals.

Gagné explained learning strategies in relation to learning processes in accordance with the theory of information processing [25]. Gagné further separated learning strategies into five categories: attention strategies, strategies that increase short-term memory storage, strategies that increase encoding, retrieval strategies, and monitoring strategies [25]. Learning strategies, also known as cognitive strategies, are the actions pupils take to make their learning a reality [26, 27]. The grouped learning strategies are under five headings: recalling, articulation, organizing, and executive cognitive strategies [26]. Weinstein and Mayer classify as recalling, articulating, organizing, monitoring, and affective strategies [28]. Oxford distinguished between direct and indirect strategies [27]. Learning techniques are classified in various ways, but it is reasonable to assume that most categories fall under the general category of cognitive and executive (metacognition) cognition.

Basically, learning strategies in the most general form can be classified as Meaning, Monitoring, Understanding, Organization, Affective, and Repetition Strategies [10, 29]. When students use meaning techniques, they give the new knowledge they want to learn context and integrate it with previously taught material they already have in their long-term memory. Comprehension monitoring strategies assist students in identifying, planning, carrying out, and keeping track of their learning characteristics [29]. Organizational tactics ensure that the content being taught is reorganized, structured, and given meaning to improve the student's comprehension of the new material [30]. Affective strategies are those that assist in removing emotional and motivational barriers in the learning process [30]. Basic repetition techniques include students naming and recalling the information offered while learning [31]. Learning strategies have various classifications made by different researchers. Students can adopt the learning strategies classified by Gagné to study effectively in their learning processes.

2.2 The strategies of gifted students

Gifted students make up a distinct group because they differ from their peers in terms of their learning and development. These different characteristics they possess also require different arrangements in their education [11]. To make the teaching-learning process more efficient and effective, educators who will be involved in it set up their classrooms according to these qualities. According to the National

Association for Gifted Children in 2006, a gifted person is someone who excels in one or more areas or has the capacity to do so [11]. These areas include leadership, creativity, general intellectual ability, specific academic talent, and the visual and practical arts [11]. Compared to their rapid development in other areas, gifted children exhibit a more noticeable rapid mental development tendency. Children with talent have advanced abilities in knowledge transfer, generalization, and relationship recognition [32]. The learning styles, viewpoints on events, thought processes, responses, and interests of gifted children differ from those of their peers. Students' success is largely dependent on the learning pathways they take during the process. To make sure that the teaching-learning process designed for gifted children is suitable for them, it is helpful to understand the learning methods that they use.

Do gifted students' learning strategies differ from average-ability students? Studies demonstrate that gifted students learn faster and more efficiently than others [33–35]. Gifted students approach problem-solving tasks differently than their peers and process information in a way different from average-ability students [36, 37]. Gifted students have more information about practical strategies and how, where, and when to use them [38]. Gifted pupils are acknowledged to know how to apply study techniques and appear to be more motivated. Gifted learners in the fifth and sixth grades were compared to non-gifted learners after learning a mnemonic strategy to recall words; the gifted students not only outperformed the non-gifted but also generated more strategies independently for encoding novel factual information [39]. High-ability junior high school students had higher scores than average-ability students on attitude, motivation, anxiety, concentration, selecting the main idea, study aids, and test strategies [40]. Zimmerman and Martinez-Pons indicated that gifted students can capitalize on instruction on strategies better than non-gifted students can [41]. It seems their cognitive ability is too valuable to their learning not to need cognitive acquisition techniques.

Renzuli described the traits of talented people as having above-average abilities in abstract reasoning and information processing and claimed that the motivation to explore and the desire to learn are what propel people to complete tasks [42]. Additionally, gifted kids put more effort into completing a task since they approach the learning process with excitement and curiosity [43]. Sternberg presented that “gifted individuals are people with a high level of capacity to organize and relate information, as well as analyze and evaluate components that constitute a phenomenon” [44]. Gifted students perform excellently based on their great cognitive ability and learning motivation. Gifted children also organize the problem-solving process with a more systematic approach [45]. In this process, they effectively employ skills such as describing the problem, organizing the information, using strategies, monitoring, and controlling the solution process [44]. Therefore, the traits of gifted students are similar to those of the deep learning technique, which is classified by an intrinsic drive and learning-based approach.

It is also stated that gifted students use high-level strategies such as elaboration, memory-aiding cues (mnemonics) in the learning process [46, 47]. Konaş reported that gifted students frequently used effective strategies. Female gifted students used elaboration, comprehension monitoring, and organizing strategies significantly more than males, and males frequently used students used the rehearsal strategy significantly more than females [11]. Sixth-grade gifted students used comprehension monitoring strategies significantly more than 7th-grade students [11]. Sixth-grade gifted students used organizing strategies significantly more than 7th- and 8th-grade students [11]. Beyaztaş and Metin reported that intellectually gifted children

employed lower-level learning methods like highlighting and repetition more often and upper-level learning strategies like an outline and beginning letters strategy less frequently [48]. Gifted students might use lower-level learning strategies efficiently but need to practice upper-level ones.

Self-regulation is defined by Zimmerman as the capacity of an individual to take charge of their learning process in terms of cognition, motivation, and behavior [49]. According to a literature survey, three characteristics of self-regulation have surfaced, even though different theories represent self-regulation in various ways. First, students who believe that self-regulation techniques work consciously use unique techniques, approaches, or reactions to enhance their academic performance [50]. The second feature is the availability of a feedback cycle, which aids students in evaluating the efficacy of the techniques and approaches they use in the teaching-learning process [50]. Motivational elements that encourage students to employ self-regulation techniques, responses, and processes constitute the third common characteristic [50]. Moreover, self-regulated learning strategies and academic achievement are closely related [51]. Self-regulated learning techniques help students achieve learning immersion, after which they can focus on the learning process and take proactive steps to keep themselves out of situations that hinder their learning ability [52]. Hence, if gifted students can regulate their study plan and immerse themselves in learning, they will accomplish their tasks fluently.

Based on self-regulation, Zimmerman and Martinez-Pons identified 14 self-regulatory techniques and found that gifted students were superior in only 4 of the 14 strategies than average students [53]. Self-regulatory learning strategies include self-assessment, organizing and transformation, goal-setting and planning, information-seeking, record-keeping and monitoring, environmental arrangement, drawing one's conclusions, revision and memorization, seeking social assistance, and reviewing records [54]. Regarding these fifth-, eighth-, and eleventh-grade students' self-regulation techniques, older students performed better than younger ones in general, and gifted students employed more techniques than average students in terms of organizing and transforming techniques through peer support, note-taking, and self-consequences [53]. Intellectually gifted students started studying by setting goals, arranging the environment in line with their goals, searching for information, and receiving help [48]. They have been used to organize their learning and behave as self-regulating learners. Gifted students have the potential to develop self-regulation and cultivate their metacognitive ability in the affective development area.

In recent years, except for learning strategies literature concerned with twice-exceptional students, gifted students with learning needs, or gifted underachievers [55–58], self-regulated learning is more emphasized in gifted education literature associated with motivation and learning processes [59]. Based on self-regulated learning, Stoeger and Zeidner frame the dynamic systems model of role identity (DSMRI), emphasize several interdependent roles for high ability in the use of self-regulated learning techniques, and place student role identity formation [59]. Each of these interdependent factors contributes to the student's utilization of particular self-regulated learning strategies in a given task and situation, including the cultural meanings of high ability, features of the social context that make specific abilities and student characteristics salient, the subject domain and academic task with their ability requirements, and the student's dispositional attributes [59]. Furthermore, Anastasia Efklides explains that self-regulated learning is critical not only for talented students' cognitive growth but also for their overall well-being [59]. Her metacognitive and affective model of self-regulated learning (MASRL) presents self-regulated

learning as a dynamic and intricate process that includes the learning task, on-task metacognitive, meta-motivational, and affective experiences (at the level of the task–person interactions), and different person characteristics (personality dispositions, cognition, metacognition, motivation, and affect) [59]. Efklides examines how each component interacts with the others and examines previous empirical research, concentrating (where appropriate) on studies including underachievers and bright, talented, and high-achieving populations [59]. It appears that self-regulated learning has an impact on talented children's well-being in addition to their cognitive growth and academic achievement.

Sixth-grade gifted elementary children had more than the general independent, competitive, participatory learning style and learning flow, and they used personal, behavioral, and environmental self-regulation strategies more often [52]. For both gifted and general students, the more independent and participatory the learning style, the more self-regulated learning and learning flow; the more self-regulated learning is used, the more learning flow [52]. If the participation and independence of the primary children were higher, the more they used environmental and personal self-regulated learning strategies and the more learning flow [52]. In addition, Kirişçi discovered that female students were more likely than non-gifted students to employ extrinsic attention, test anxiety, self-regulation, and cognitive strategy [60]. In contrast, gifted students were only more likely to use self-regulation in mathematics [60]. Both gifted and non-gifted students exhibited strong self-regulation abilities in science; however, in terms of mean scores, gifted students outperformed non-gifted students in time management, organization, help-seeking, metacognitive self-regulation, and repetition, while non-gifted students outperformed gifted students in critical thinking and effort regulation [61]. There appeared to be differences between gifted and average students in using self-regulated learning strategies in various subjects.

Academic achievement is encouraged by self-regulated learning (SRL), which needs to be modified according to task demands [62]. Gifted students need to get the opportunity to engage in optimally challenging projects to develop SRL [61]. The way gifted kids approach strenuous activities now depends on their prior experiences—or lack thereof—with such assignments, which influences how they will approach obstacles in the future. Ridgley et al. discovered that talented students showed less effort, worse performance evaluations, and lower self-efficacy when working on challenging assignments [62]. Additionally, when faced with a difficult activity, students reported employing more surface-level methods instead of a deeper strategic approach when working on an easy task [61]. Even though talented students might be aware of more complex, successful tactics, they might not apply these abilities to challenging learning assignments. Gondia and colleagues also found that only one out of five talented students showed this most adaptive profile of goal orientations, which was associated with beliefs in the benefits of help-seeking and intentions to ask for instrumental help when needed [63]. The motivational profiles among the academically talented students varied according to their achievement-goal orientations, which, in turn, related differentially to academic help-seeking [59]. It seems that not all gifted students are adept at applying self-regulated learning techniques. Therefore, teachers have to teach gifted pupils to employ self-control techniques to complete various tasks.

With the advent of the Internet, people may now access almost limitless resources to learn independently, and an increasing number of people are using self-directed learning to further their education. When Leddo et al. compared the learning outcomes of gifted teenagers in various instruction, they discovered that while gifted

and talented students performed equally well with and without a teacher, non-gifted and talented students performed at a level that was lower when they did not have a teacher but equal to the gifted and talented students when they did [64]. For gifted and talented kids, self-directed learning is just as effective as teacher-led instruction; however, traditional education may be more advantageous for non-gifted and gifted students than self-directed learning. When high school students were studying advanced biology, Nittala et al. found that while talented kids performed better on their own than with a teacher, typical students performed better with a teacher than without one [65]. The performance of teacher-led versus self-directed learning improved more for gifted primary children than for typical primary students, and both types of kids learned better with teachers than on their own [64]. Younger talented students may not be ready to learn effectively on their own yet, but having a teacher may help them acquire the skills they will need to learn well on their own in the future.

3. Emotional intelligence

Emotion facilitates adaptation by optimizing sensory intake, improving the detection of threatening stimuli, preparing behavioral responses, aiding in decision-making, improving memory for significant events, and directing interpersonal interactions [66]. Everyone needs emotional control to adjust to their surroundings. Researchers from various backgrounds have worked to understand how emotions might be best handled for optimal functioning because they are important factors determining how well we function in daily life. Emotional intelligence has focused on understanding who makes the most of his/her emotions. The following was the initial introduction to emotional intelligence, followed by the concept of emotional intelligence for brilliant students.

3.1 The concept of emotional intelligence

Since the popularization of the emotional intelligence (EI) concept in the early 1990s, the conception of intelligence has been expanded to include not only cognitive abilities but also the experience, expression, and regulation of emotions [67]. Thorndike [68] distinguished between three types of intelligence: abstract, social, and technical. Social intelligence was defined as “the ability to understand and manage men and women, boys and girls to act wisely in human relations” ([69], p. 228). In general intelligence, Wechsler offered non-intellective elements, such as all affective and cognitive capacities that influence global behavior in any way [70]. This trend has been supported through the works of several psychologists, most notably Gardner, Sternberg, and Mayer and Salovey [67, 71–73]. In 1983, Howard Gardner proposed seven kinds of intelligences in *Frames of Mind: The Theory of Multiple Intelligences*, in which he differentiated between two kinds of personal intelligence: interpersonal (social) and intrapersonal (introspective–emotional) [74]. Gardner defined interpersonal intelligence as “the ability to notice and make distinctions among other individuals and, in particular, among their moods, temperaments, motivations, and intentions” ([75], p. 239). Interpersonal and intrapersonal intelligence has apparently belonged to social intelligence, and social intelligence recognized as a kind of non-intelligence factor, which was the ability to deal with the relationship between people and themselves including people’s affective aspects.

Meyers and Salovey originally defined emotional intelligence (EI) in the early 1990s as a form of social intelligence that includes the capacity to notice, distinguish, and use one's own emotions and those of others to inform one's thoughts and behavior [73]. In their enlarged definition, Meyers and Salovey included "the verbal and nonverbal appraisal and expression of emotion, the regulation of emotion in the self and others, and the utilization of emotional content in problem-solving" [76]. Emotional intelligence (EI) can be defined as the ability to read, comprehend, and respond appropriately to emotional cues from both oneself and others [73]. These abilities enable people to consider, respond to, and learn a variety of environmental circumstances, including empathy, problem-solving, optimism, and self-awareness [76]. Apparently, people view EI as the capacity to recognize and control emotion. EI gained more attention in the 1990s, particularly after Goleman's popular book *Emotional Intelligence: Why It Can Matter More Than IQ* was published in 1995. This revolution had an impact on a number of fields, including education, business, nursing, and medicine [77]. Evidently, EI is crucial for everyone in a variety of fields.

Although EI has been conceptualized in various ways, most models fall into one of two general categories: ability models or trait and mixed (dispositional) models [78]. In particular, ability models conceptualize EI as a cognitive ability or "intelligence" and are extensions of information-processing theories of intelligence [79]. They see emotional intelligence (EI) as a collection of cognitive skills related to recognizing, comprehending, utilizing, and controlling emotional information and an additional aspect of intelligence that conventional definitions of intelligence cannot quantify [80]. Mayer and Salovey's four-branch ability model is the most well-known conception of this type [67]. This framework divides emotional intelligence (EI) into four branches or aspects: perception (the ability to identify and express emotions), assimilation (the ability to integrate emotions into thought processes), understanding (the ability to comprehend the antecedents, effects, blends, and transitions of emotions), and management (the ability to regulate emotions in order to sustain and enhance positive emotions and modulate negative emotions) [67]. Based on the ability model, those with high EI will perceive and regulate their emotions well.

Both trait models [81] and mixed (dispositional) models [82, 83] view emotional intelligence (EI) as a set of interrelated abilities, skills, talents, personal attributes, and personality traits [80]. Emotional intelligence (EI) is viewed in this model as a noncognitive trait or personality disposition that is best assessed using self-report measures like the Trait EI Questionnaire [84] and the Schutte Self-Report Inventory [67, 84, 85]. As a collection of emotional, personality, and motivational qualities and dispositions, this model's proponents have been interested in the connections between EI, personality theory, attributes, and related concepts. These scales consist of a few subscales and brief sentences that must be answered on a Likert scale [86]. For example, the Emotional Quotient Inventory has five composite measures of intrapersonal, interpersonal, adaptation, stress, and overall mood [83]. A person's views on emotional self-efficacy can also be referred to as trait EI [84]. According to the mixed or trait model, emotional self-efficacy and mood stability are traits of people with high EI.

The main components of both types have similarities. They agree that emotional intelligence (EI) is a multifaceted construct that includes cognitive and emotional elements [80]. It comprises the capacity to recognize, address, and integrate emotional information into daily decision-making and behavior [80]. They both believe that a person with greater EI can connect emotions and logic, use emotions to support reasoning and make sense of feelings [80]. To measure EI, all approaches employ a

standardized self-assessment questionnaire. The assessments' validity, consistency, and cross-cultural applicability vary along with the degree of similarity among individual assessment questions [80]. Significantly, an individual's emotional intelligence (EI) differs from their propensity to feel a particular emotion [87]. Additionally, an individual's emotional intelligence (EI) is not correlated with the intensity of their emotional experiences; instead, it measures how much their emotions influence their cognitive abilities and how well they are managed cognitively [80]. Both ability-based and mixed or trait models of emotional intelligence (EI) predict a wide range of outcomes linked to adaptive coping with stress and well-being, suggesting that emotionally skilled pupils are likely to thrive [67]. People's cognitive skills and emotional management have connections, and their EI differs from their propensity to feel particular emotions. After providing an overview, the EI approach models are explained in detail.

Specific-ability approaches to emotional intelligence (EI) concentrate on one or a few core skills, such as emotional identification or perception, thinking with emotional information, and reasoning about emotions [88], and beginning with accurate emotional perception. Interpreting social cues like power dynamics and intimate relationships and accurately identifying emotional expression are all part of nonverbal perception [88]. One model, for instance, sought to determine how well a person perceived emotion in the faces, voices, and postures of children and adults [89]. If people's emotional perception and identification are strong, they will have positive interpersonal relationships. Furthermore, emotions can help people make better decisions or prioritize thinking [90, 91]. Some feelings can encourage particular ways of thinking. Positive emotions, for example, can boost creativity in some situations [88, 90, 92]. Understanding how to incorporate and reject emotions from thought is a component of emotional facilitation [88]. Higher EI individuals may show reduced interference from emotion words [88, 93]. People with good EI are not easily affected by emotional words and keep positive thinking more frequently.

Regarding overemotional reasoning and understanding, emotion-appraisal researchers have created decision criteria for matching a certain feeling to the type of situation that triggered it [88]. The ability to explain one's own and other people's feelings may be a component of emotional understanding [88]. For instance, when someone feels afraid, he is likely in a dangerous situation, thinks something horrible will happen, and desires to get away [94, 95]. Positive emotions foster creativity and relationships, while negative emotions make people want to avoid danger. Emotion could apparently influence people's decisions and behaviors. Some theorists have suggested that emotionally intelligent responses may be characterized by accurate evaluation [96, 97]. Individuals may misinterpret an event or its ramifications and respond inappropriately if their assessment process is flawed [54]. Emotional self-management is another pertinent skill area. Reframing situations and the notion that people frequently exercise significant emotional self-control at work can help people become more emotionally optimistic [98, 99]. Research on emotional self-management and regulation, notably in child development (Eisenberg 2000), has grown significantly concurrently with emotional intelligence [100–102]. Emotional intelligence is obviously directly related to emotional regulation, particularly in children.

Integrating many specialized skills to create a comprehensive sense of emotional intelligence is a crucial component of integrative models of EI [88]. Izard's Emotional Knowledge Approach and the Four-Branch Model were two methods for studying emotional intelligence based on the integrative model [88]. Instead of using the term emotional intelligence, Izard occasionally uses the term emotional knowledge [103].

In Izard's Emotional Knowledge Test (EKT), test-takers are asked to recognize emotions in faces and match an emotion, such as grief, with a scenario, like "your best friend moves away" [103]. It offers an integrative emotional intelligence assessment with a specific emphasis on emotional observation and comprehension. In addition, Izard's test is significant compared to previous EI tests since it is intended for use with younger age groups (e.g., as early as 3–4 years old) [88]. Psychologists frequently discuss a continuum of aptitude and knowledge [104]. On this continuum, aptitude is the ability to reason and learn, whereas knowledge is the actual knowledge that a person has acquired [88]. Knowledge and intelligence tests both use the same methodology and evaluate an individual's level of knowledge [88]. This definition places both concepts under the umbrella of emotional intelligence (EI) research, which assesses people's emotional knowledge and skills.

Another integrative method is the Four-Branch Model of Emotional Intelligence, and the model considers overall emotional intelligence (EI) as combining skills from four domains: (a) accurately perceiving emotion, (b) using emotions to facilitate thought, (c) understanding emotion, and (d) managing emotion [79, 88, 105]. It is believed that each of these areas develops starting in early childhood [88]. When it comes to emotion perception, a person's capacity to identify basic facial emotions will likely come before their capacity to identify fake emotional expressions [105]. As one's ability to perceive emotions improves, so will other abilities, like comprehending and controlling emotions. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) consists of eight individual tasks, and each branch of the model is measured using two tasks [106]. For instance, asking participants to recognize emotions in faces and landscapes is one way to gauge their emotional perception [88]. To assess the emotional control of both oneself and others, test-takers are shown vignettes depicting social situations and asked how they would handle their emotions in those circumstances [107]. Apparently, the EI test mainly measured people's emotional reactions to different situations.

The third approach to emotional intelligence, known as the mixed-model approach, makes use of comprehensive definitions of the concept, such as "dispositions from the personality domain", "noncognitive capability, competency, or skill", and/or "emotionally and socially intelligent behavior" [83, 108, 109]. Tett et al. used the original EI model developed by Salovey and Mayer, but they interpreted it more broadly and in a mixed-model manner than the authors had intended [79, 105, 110]. Concretely, the majority of tests in this category evaluate one or more EI qualities, like accurate emotional perception, but also incorporate other measures of happiness, stress tolerance, and self-esteem to varied degrees; adaptability, (low) impulsiveness, and social competence; and flexibility, creative thinking, and intuition versus reason [80, 108, 110, 111]. Although the variables included in mixed models, like assertiveness and the need for achievement, are undoubtedly essential to study, these mixed-in attributes do not primarily focus on emotional intelligence (EI) about the conceptual development we discussed above [88]. It makes more sense to think of Emotional Intelligence (EI) as a discrete variable and then examine it in connection to these other traits [88]. Some theorists have positioned EI, the need for achievement, and other diverse traits in the context of personality, while others have studied EI about stress tolerance, positive and negative affect, and stress tolerance [88, 97, 102, 112, 113]. These latter models align with the nomological networks of most psychologists by linking EI to related variables [88]. The mixed model places more emphasis on EI's relationship to other psychological constructs. Following the introduction of the importance of EI for gifted students, the EI of gifted students is presented.

3.2 The emotional intelligence of gifted students

In the educational process, emotion is a significant factor that may influence students' concentration and memorization [114]. Understanding and applying a variety of emotional dynamics can inspire people to perform tasks or work [115]. By contrast, students who cannot control their emotions in the classroom will find it difficult to concentrate and retain information, resulting in poor performance [116]. Students will become emotionally disturbed due to this circumstance, which will cause them to feel anxious and frustrated [117]. Teens who are constantly nervous, depressed, and agitated find it difficult to be perfect or exceptional students because they typically struggle to take in information accurately and efficiently or feel unable to manage information effectively [118, 119]. Anything that has an impact on students' emotional states has an impact on their academic performance as well. Therefore, students must possess emotional intelligence (EQ) skills to help them control their emotions when encountering difficulties during the learning process.

Sternberg believed that EI was a set of abilities that helped people succeed in their learning, careers, marriages, and health [44]. Among gifted and talented students, there was a strong positive correlation between academic achievement and EI competency, which includes self-awareness, self-regulation, self-motivation, empathy, social skills, spirituality, and maturity [115]. Furthermore, it has been discovered that EI competencies improve interpersonal relationships, adaptability, and attitudes of self-direction or self-directedness while also reducing stress and anxiety. Research has demonstrated that EI is a reliable indicator of students' evaluations of educational programs and self-efficacy or self-confidence [120]. The majority of research recommended that EI competencies be used in all subject areas, including gifted and talented education programs [117, 121–123]. Schween et al. emphasized the importance of emotional intelligence in developing gifted students [124]. Therefore, talented students need to be guided with knowledge and emotional management skills to maintain their exceptionality and reach their full intellectual potential in both education and life.

Gifted children differ in their emotional and social realms in addition to their cognitive intelligence and academic and/or artistic talent. When tested as a characteristic rather than an ability, emotional intelligence (EI) was more closely linked to mental and psychosomatic health [125]. Several meta-analyses found a moderate correlation between trait EI and personality but not ability EI, as well as non-significant relationships between trait EI and intelligence and a positive relationship between ability EI and verbal IQ and crystallized intelligence measures [126–128]. It is speculated that intellectually gifted students should have good ability EI but not trait EI. However, mental health is not a prerequisite for EI ability. Conversely, students who possess high trait EI also have good mental health. Furthermore, Zeidner et al. discovered that the operationalization of emotional intelligence (EI) determined the differences between gifted and non-gifted students [129]. Similarly, meta-analytic research showed that the type of IE measures used affected the relationship between emotional functioning and emotional intelligence [125, 130]. The results of comparing typical and gifted kids would differ when employing different EI instruments. The following presents gifted kids' emotional intelligence (EI) and contrasts it with typical students.

Research comparing gifted and non-gifted individuals' emotional intelligence produced inconsistent results. Research indicates that gifted individuals exhibit higher levels of emotional intelligence than their non-gifted peers [129, 131–133]. From 1990 to 2018, 21 studies comparing gifted and non-gifted students were found by searching

published and unpublished studies in Arabic and English [133]. Gifted students also performed better on EI than non-gifted students [133]. Talented students exhibited statistically significantly higher mean scores than non-gifted students in all three emotional intelligence dimensions, including emotion evaluation, emotion use, and emotion regulation [131]. Gifted children had higher EI competency scores than their peers who were not gifted [129]. Compared to students who are not identified, gifted students have higher overall emotional intelligence scores and higher intrapersonal and adaptability sub-dimensions [134]. Negative perfectionism and positive impression were negatively correlated in the unidentified group, but these variables were positively correlated in the gifted participants [134]. It seems that gifted students have higher EI than average students, and EI competency helps mitigate the adverse effects of gifted students' perfectionism.

Other studies found that overall emotional intelligence scores did not differ between gifted and non-gifted participants [135–140]. Comparatively, gifted people's EI scores were lower than those of their peers who were not gifted in some studies [140, 141]. Nevertheless, some research showed that the gifted sample outperformed the non-gifted sample in some EI subtests but underperformed in others [124, 135, 138, 142]. The measurement model used in these studies could be one explanation for the discrepancies in these results. For instance, gifted students were more adaptable than non-gifted students, but non-gifted students were better at managing their stress [135]. Regardless of gender, gifted students scored higher on adaptability but lower on stress management and impulse control ability than the normative sample [138]. Gifted students rated their intrapersonal and adaptability skills significantly higher than non-gifted students, while non-gifted, average-achieving students rated their interpersonal skills markedly higher than gifted students [124]. Furthermore, the study discovered a weak correlation between the ability and trait EI scores, and that gifted children scored lower on EI trait tests than their non-gifted peers [129]. There are still inconsistent findings, and the differences in emotional intelligence between gifted and non-gifted samples seemed to depend on the specific measurement model used in the study.

4. Well-being

Human well-being is a vague term with many frequently conflicting definitions and no universally accepted definition [143]. These terms—the quality of life, welfare, well-living, living standards, utility, life satisfaction, prosperity, needs fulfillment, development, empowerment, capability expansion, human development, and, more recently, happiness—are frequently used interchangeably with well-being without any clear explanation of their differences [143]. It seemed that the concept of well-being is multifaceted and shares similarities with other terms. Since well-being is the closest thing to “the ultimate good” in the modern world, it is vital for everyone and what everyone strives for. The following is an introduction to the idea of well-being and the well-being of gifted students.

4.1 The concept of well-being

Well-being is an abstract concept that everyone has their own definition of. People constantly strive for well-being or quality of life, which is a key factor in judging governments and societies [144]. It is generally accepted that various ideas,

attitudes, and feelings are connected to the concept of well-being [145]. The phrase “well-being” refers to all the positive ways people perceive and assess their lives [146]. There are numerous ways to understand what it means to live a positive life. While some think well-being is a sustained state of contentment, others define it as wellness, such as having good physical and mental health [146]. Still, others equate well-being with happiness [146]. Apparently, well-being is a feeling that results from an overall assessment of life satisfaction as well as positive and negative emotions experienced, including cognitive evaluation and positive and negative emotions [147]. Over the last few decades, a significant advancement in this area has been the understanding and increasing acceptance that there are numerous components to well-being and that no single metric can adequately capture it [146]. It seems that theory is evolving, and the concept of human well-being has changed.

Many academics have put forth various notions of well-being. It is commonly believed that whatever well-being is, it will have significant moral and personal meaning [145]. Altruism is the pursuit of well-being for others, while egoism or pure selfishness is the constant pursuit of well-being for oneself [145]. We should advocate for it for ourselves, our loved ones, and even complete strangers. The distinction between hedonic and eudaimonic well-being is a useful and comprehensive method of categorizing well-being [148]. Hedonic well-being is defined as pleasure and positive feelings. Even the philosophers Aristippus, Epicurus, Hobbes, Locke, and Hume supported the desire to pursue as much pleasure and hedonic well-being as possible [149]. On the other hand, eudaimonic well-being describes a feeling of fulfillment, meaning, and purpose in life. Plato, Aristotle, and Fromm supported this kind of well-being and argued that pursuing virtue was more valuable than pursuing hedonic happiness [148]. It appears that well-being can be conceptualized in two ways.

The first method, known as hedonic well-being (HWB), focuses on an individual’s assessment of their own life, both cognitively and emotionally, including frequent positive emotions, infrequent negative emotions, and a general assessment that life is fulfilling. Hedonic well-being is typically measured in terms of positive and negative emotions and life satisfaction [128]. A person with high hedonic well-being is believed to have low levels of negative emotions and high levels of life satisfaction and positive emotions [128]. This tripartite model is known as subjective well-being [150] because it emphasizes an individual’s evaluation of their life’s progress and whether they are obtaining the things they desire without paying particular attention to what these “things” are. The term “subjective well-being,” which includes life satisfaction and negative and positive emotions, is frequently used to group some of these measurements [151]. Positive and negative emotions define affective well-being, while cognitive well-being is defined by life satisfaction [128]. Subject well-being appears to encompass both cognitive and affective aspects of people’s feelings about their lives.

This approach is taken by both Diener and Kahneman, but they have different ideas about what “happiness” is [151, 152]. Kahneman stresses the “experiencing self” by using the total of all fleeting emotions as a gauge of well-being, while Diener views “life satisfaction,” which is more reflective and evaluative, as a better indicator of well-being [152]. Kahneman’s study on the peak-end effect, which causes people to evaluate past events based on their most intense emotional experiences and how those experiences ended, highlights the biases in people’s assessments [152]. As a result, people’s perceptions of their lives may not match their actual experiences. While some commentators link Subjective well-being (SWB) to hedonic pleasure, others highlight its dual nature, stating that “SWB includes diverse concepts ranging from momentary moods to global judgments of life satisfaction, and from depression to euphoria” [153].

Apparently, the entire notion of subject well-being requires the inclusion of temporary emotions and general assessments of life satisfaction.

High subjective well-being is linked to and may even be the cause of a number of advantages [90, 140]. People with high SWB typically have better health and may even live longer [154], rather than being solely caused by these positive outcomes [90], high subject well-being is causally implicated in a wide range of positive outcomes, including improved health, ethical behavior, social relationships, and work performance [155]. Diener also discovered that SWB was valued more highly than income in many countries [151]. Advocates have argued that SWB indicators, combined with objective measures, can provide information that standard indicators cannot [153, 156, 157]. SWB has also been promoted as an alternative to standard economic and social indicators (such as gross national product (GNP) and levels of education, crime, and health) as a measure of quality of life [158].

The second approach, which includes several ideas collectively referred to as eudaimonic well-being (EWB), begins with the premise that specific needs or attributes are necessary for a person's psychological growth and development; meeting these needs allows a person to realize their full potential [148]. There is frequent variation in the precise definitions and measurements of eudaimonic well-being [128]. Self-acceptance, good relationships with others, autonomy, environmental mastery, personal growth, meaning in life, self-actualization, and self-acceptance are all indicators of eudaimonic well-being [148, 159]. Researchers generally assume that eudaimonic well-being goes beyond pleasant emotions and feelings, even though there are numerous ways to measure it [128]. The concept of eudaimonic well-being seemed to be broader than that of hedonic well-being.

One example of the EWB tradition is the concept of psychological well-being [160]. Ryff [160] proposed six characteristics of people doing well in life, drawing on the theories of Erikson, Jung, Maslow, and Rogers (among others) [146, 160]. These individuals should be mature enough to follow their internal standards (autonomy), be able to trust and love others (positive relations), be able to handle external stressors and take advantage of opportunities (environmental mastery), have a positive self-perception (self-acceptance), have significant goals and objectives (life purpose), and embrace new challenges as opportunities for personal growth [146, 161]. In keeping with Aristotle's idea of eudaimonia as living by one's true nature (or daemon), other EWB approaches emphasize living up to one's potential [146]. According to this viewpoint, EWB is based on pursuing objectives and pursuits that align with one's identity and values [162, 163]. Apparently, hedonic well-being appears to be related to subject well-being, while eudaimonic well-being appears to be related to psychological well-being. The following introduces the well-being of gifted students. The well-being of gifted students is explained below.

4.2 The well-being of gifted students

Subjective well-being refers to the subjective assessment of one's life from an emotional and cognitive perspective [150, 163]. In psychology, subjective well-being is associated with happiness, which is the most important goal people strive for in their lives [164]. Subjective well-being includes an overall positive mood or an emotion that can change based on the situation and is frequently used interchangeably with happiness [151, 156]. People can be highly subjective if they are delighted with their lives, have positive emotions frequently, and have negative emotions infrequently [165]. The term "subjective" in the above context refers to the fact that a person's

evaluation of happiness is determined by their own internal experiences, feelings, and perceptions rather than by objective or externally measured criteria [166]. The sub-dimensions of subjective well-being include life satisfaction, contentment in important areas like marriage and work, positive emotions like joy, pride, pleasure, and delightfulness, and negative emotions like stress, depression, guilt, and shame [167]. It is believed that the superior characteristics of gifted people cause variations in their moods, affecting their subjective well-being. Due to their uniqueness, gifted people's subjective well-being is introduced in the following.

Subjective well-being (SWB) is an important aspect of childhood and youth because it establishes the foundations for mental health [168]. Subjective well-being exhibits significant stability over time and moderate stability during adolescence [169, 170]. Temporal stability can be attributed in part to temperamental factors that are biologically based [169]. However, it can also reflect stable individual differences in how people process important events cognitively, such as self-regulation, coping, and appraisal [171]. Gifted student experience similar developmental tasks (e.g., puberty, identity, and autonomy) to their chronologically aged peers [172]. However, because of their asynchronous development and the uneven development between mental age (intellectual ability) and chronological age (physical and emotional abilities) among gifted students, gifted students may experience those developmental tasks qualitatively differently [172]. Gifted students may have different levels of well-being than typical students based on unique social and emotional characteristics.

Contradictory findings have been found in the scientific literature regarding the well-being of infants and adolescents with intellectual giftedness [173]. Diener views intelligence as a variation in personality, claiming that there should be a positive relationship between intelligence level and subjective well-being [150]. Adolescent subjective well-being is influenced by positive communication and family acceptance and might be influenced by income, education, and gender at a lower level [173]. Assessing students' subjective well-being with normal intelligence classified as gifted is crucial because providing them with the right kind of support influences their social and emotional traits [174]. It appears that gifted students who are happy and feel they are contributing to the greater good and improving life are also more likely to flourish and eventually benefit themselves and society as a whole [175]. As one measure of subjective well-being, Kim and Yoo discovered that gifted students have higher life satisfaction than their peers [146]. Chan reported that primary students (grades 2–6) rated themselves significantly higher than secondary students (grades 7–12) on life satisfaction, and positive perfectionism primarily affected life satisfaction [177]. Both gifted children groups (supported and unsupported) in the 5–6–7–8th grades of secondary schools have considerably higher levels of subjective well-being compared with the normal group [164]. Therefore, gifted students with the correct support and resources may have more well-being than average students.

Ideally, the gifted should be at least as well-adjusted as average-ability individuals because high intelligence should help them better cope with (or avoid) stress and problems in life, supporting SWB [178]. However, the studies found that the subjective well-being of the gifted has either no or minor differences to average-ability students [179–184]. When the entire group of intellectually gifted children or adolescents is examined, no differences appear in different indicators of subjective well-being, seemingly regardless of gender. If differences occur, they are small and favor the gifted [179]. Conversely, Chen et al. found that gifted girls in grades 10, 11, and 12 scored statistically higher than gifted boys on satisfaction with life (parent trust, parent communication, peer trust, peer communication, and optimism) [185].

In reverse, gifted boys scored higher than gifted girls on positive affect, creativity, and academic performance [185]. Gifted students are well-adjusted as average students without adverse effects from their unique characteristics, such as developmental asynchrony, perfectionism, and sensitivity. However, Chan reported that positive perfectionism of primary gifted students affected life satisfaction and positive affect, whereas negative perfectionism primarily affected negative affect [177]. Moreover, general self-efficacy, apart from its direct effects on subjective well-being, could also mediate the effects of perfectionism, especially positive perfectionism, on the three components of subjective well-being [177]. In the Chinese context, primary gifted students might have lower academic pressure than secondary gifted students, so they have better well-being. In addition, talented students with positive perfectionism and more self-efficacy also have more well-being.

In addition, Zeidner analyzed a small-scale meta-analysis of the six available studies providing empirical data on differences among educational groups in their happiness and found that this study failed to reveal mean reliable differences among educational groups in happiness, supporting the position that giftedness is more of a protective resource than a vulnerability factor [173]. Vötter found that intellectually gifted adults' resilience (but not their self-control) and academically high-achieving adults' self-control (but not their resilience) mediated the relationship between the crisis of meaning and subjective well-being [186]. Thus, intellectually gifted adults could benefit particularly from supporting their ability to cope with adversity, while academically high-achieving adults could benefit particularly from strengthening their willpower to modify undesired emotions, behaviors, and desires [186]. Moreover, Kara and Aslan revealed significant indirect effects of cyber victimization on those gifted in subjective well-being through self-esteem and social support [164]. It showed that higher levels of self-esteem of gifted youths predicted greater perceived social support, which subsequently contributed to improved subjective well-being [164]. By contrast, only a few studies find more psychosocial problems among the gifted than among the non-gifted on average. However, these studies are based on highly selective samples and lack adequate comparison groups [179]. Two minority groups of gifted, namely gifted underachievers and highly talented, especially seem to display psychosocial problems [179]. Students with gifted underachievement or extremely gifted have lower well-being and more psychosocial problems. If educators positively cultivate gifted students' self-esteem, self-control, and resilience and provide proper social support, their well-being will be enhanced.

Lewis Terman started his ground-breaking Genetic Studies of Genius in the early 1920s, and his findings confirmed that gifted people outperform the general population regarding their academic performance or mental health [182]. Holahan examined the participants in Terman's study and discovered that three-goal scales—autonomy, involvement, and achievement motivation—were utilized to predict psychological and physical well-being [187]. This showed that life goals directly and indirectly impacted health and well-being through activity participation [187]. Golparvar et al. showed that gifted students attending regular schools had considerably better psychological health than gifted high school students [188]. It showed that gifted students in regular schools had much higher acceptance, autonomy, life purpose, personal development, and environmental mastery than gifted students in gifted high schools. However, there was no discernible difference between the two groups' positive interpersonal relationships [188]. Talented high school students may experience too much academic pressure and competition, which could negatively impact

their well-being. However, students who attend gifted schools are more accepted and independent, have a greater sense of purpose in life, can grow personally and master their surroundings, and are generally happier.

In total, 29 studies directly compared gifted and non-gifted learners' mental health and psychological well-being, and revealed that gifted and talented children and young people have more positive scores on mental health and psychological well-being measures than non-gifted individuals [189]. However, the mean effect size is small and thus unlikely to be significantly meaningful when generalized to real-world populations [189]. Maaulot et al. indicated that gifted university students at the National Gifted Center have a moderate level of psychological well-being and that these students' psychological well-being is unaffected by their gender, race, or ethnicity [190]. Students in general education and the International Baccalaureate (IB) program reported similar levels of internalizing psychopathology symptoms and overall life satisfaction [176]. Except for friend satisfaction, the psychosocial adjustment of gifted IB students was comparable to that of their high-achieving peers [189]. Specifically, gifted learners reported the highest happiness levels with their friendships [176]. Some studies showed that gifted students at different educational levels have similar well-being to average students. If gifted students have good interpersonal relationships, they might have more well-being.

Some studies showed differences in psychological well-being levels between different kinds of students. For example, highly creative first- and second-grader-gifted children experienced lower feelings of well-being than less creative, talented children [188]. In contrast, high-performing gifted children showed higher psychological well-being than underachievers [191]. Generally, the differences in well-being between the first- and second-grader gifted and the comparison group were relatively small [191]. However, gifted children experienced lower self-worth and social acceptance [191]. In addition, grit, failure tolerance, and psychological well-being of science-gifted students in fifth- and sixth grade were significantly higher than those of the general students, and Grit of science-gifted students had a positive correlation with all sub-factors of academic failure tolerance and psychological well-being [192]. Gross reported that most studies on the psychosocial well-being of intellectually gifted and academically talented students have found that these individuals display positive adjustment [193]. The human values and psychological well-being levels of eighth-grade secondary school gifted/talented students were higher than those of their peers with standard development, and the gender variable did not play an effective role in the psychological well-being of gifted/talented students, and human values significantly increased psychological well-being [194]. Different types of students' psychological well-being appear to vary.

Studies have shown that slightly higher well-being is linked to improved social relationships, academic success, and resilience [195]. Wisdom was a reliable predictor of academic vitality and psychological well-being in gifted students, and wise students had higher academic vitality and psychological well-being [196]. Additionally, the sense of well-being for low-income, high-ability secondary students was directly correlated with their perceptions of their ability to focus on their studies, meet homework deadlines, or use various learning strategies [197]. The study indicated a meaningful and direct relationship between spiritual intelligence and secure attachment to parents with psychological well-being and its components in gifted students, and attachment to parents reflects 37% of changes in psychological well-being [198].

The results also showed that the gifted girls' psychological well-being score was better than that of boys, but gender had no moderating role [198]. Kaoutari Esfahani et al. found that spiritual intelligence training significantly improved the positive subjective well-being of gifted high school students, but had no apparent effect on the students' negative affect or life satisfaction [199]. Therefore, students with better social relationships, academic success, resilience, wisdom, self-regulated learning skills, spiritual intelligence, and secure attachment to parents can enhance their psychological well-being.

5. Conclusion

In order to create harmony both inside and outside of oneself, education is essential for the development of one's physical, social, emotional, and intellectual faculties [199]. Reaching this condition led to good physical, mental, and social well-being [200]. This type of education is known as holistic education, and it should be approached in a multidisciplinary and transdisciplinary manner in order to treat each student as a whole person composed of a balance between body, heart, mind, and spirit [201]. Education in many European nations, including Finland, strives to promote the development of the whole person rather than just the cognitive area [202]. This type of education recognizes the significance of social and affective dimensions in student development, including emotional and spiritual issues. It is possible to continuously push pupils to acquire new things in many intellectual domains by incorporating twenty-first-century qualities such as an open-minded attitude and a growth mentality to learning [203]. To allow talented children to reach their full potential in their many intelligences, educators and students must be prepared for this type of attitude [204–206]. As a result, it is critical for educators and parents to promote gifted and talented students' development into entire people with good health. Parents and educators must be concerned about the overall development of gifted students, including cognitive and affective domains.

Regarding learning strategy, gifted students have the advanced ability to transfer knowledge, generalize, and recognize relationships that help them study efficiently. Most studies prove that talented students have more information about practical strategies, such as problem-solving, abstract reasoning, and processing information. Rather than cultivating the basic learning strategies, they need higher-level strategies, such as self-directed learning. In recent literature, self-regulated learning is more emphasized in gifted education, except for learning strategies literature concerned with twice-exceptional students, talented students with learning needs, or gifted underachievers. Studies found the differences between gifted and average students using self-regulated learning strategies in various subjects. Talented students favor time management, organization, help-seeking, metacognitive self-regulation, and repetition, and non-gifted students adopt critical thinking and effort regulation more often. Educators need to cultivate gifted students' self-directed strategies to achieve lifelong learning.

When it comes to emotional intelligence, talented children outperform their classmates who are not gifted in areas such as emotion evaluation, emotion usage, and emotion management. Additionally, they are more adaptable and have superior interpersonal skills than typical students. Some research, however, has shown that

there are no appreciable distinctions between kids who are bright and those who are not. It has even been demonstrated in several studies that gifted students have lower EI scores than their counterparts. Regarding the distinctions between gifted and non-gifted pupils, it seemed that insufficient evidence was reached. According to conjecture, different EI measurements might produce different outcomes. Additionally, the emotions of gifted children are susceptible to shift depending on the significant other or their immediate surroundings. Their particular set of gifted traits, such as idealism, sensitivity, and perfectionism, can exacerbate their emotional fluctuations. If educators do not cultivate students' emotional regulation strategies, their performance of EI is not nice. Students' emotional intelligence performance is poor if teachers do not help them develop their coping mechanisms. To ensure steady learning and long-term well-being, teachers should develop the emotional intelligence (EI) capability of talented pupils.

According to studies, gifted students exhibit greater subjective well-being and life satisfaction than their peers. Secondary gifted students are less satisfied with their lives than primary gifted students. However, some research revealed that students with average ability and gifted students did not differ in their subjective well-being. Most gifted students are well-adjusted as average students, free from the adverse effects of their distinctive traits, including sensitivity, perfectionism, and developmental asynchrony. In contrast, a few studies have found that the gifted have more psychosocial problems than the non-gifted on average, particularly gifted underachievers and the exceptionally gifted. Negative perfectionism primarily influenced negative affect, but general self-efficacy may also mediate the effects of perfectionism on well-being. Research has indicated that enhancing gifted students' resilience, self-control, self-efficacy, and willpower is advantageous for their overall well-being. The cognitive and affective development of gifted students must be balanced, and educators must be concerned about the well-being of special gifted groups, including twice-exceptional students, gifted underachievers, and highly gifted students.

Compared to gifted high school students, gifted students in regular schools exhibited significantly higher levels of acceptance, autonomy, life purpose, personal growth, and environmental mastery regarding psychological well-being. Furthermore, when it comes to measures of psychological well-being and mental health, gifted and talented kids and teens score higher than non-gifted people. Most research on the psychosocial well-being of intellectually gifted and academically talented students has found that they exhibit positive adjustment. However, the well-being of gifted people is also impacted by their various kinds. High-performing gifted children demonstrated higher psychological well-being than underachievers, while highly creative gifted children felt less well-being than less creative, talented children. The degree of creativity and accomplishment would impact the well-being of gifted students. Most talented students have well-being and are suitable for learning in regular school. Educators need to recognize that higher creativity could lead to lower well-being, but higher achievement could lead to higher well-being. Therefore, promoting gifted and talented students' well-being is the most important thing for educators and parents to achieve the goal of holistic education.

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The Role of Emotional Intelligence in the Learning Process and Academic Performance

Afra Selcen Taşdelen

Abstract

The aim of the review chapter is to provide a comprehensive evaluation of the significance of emotional intelligence (EI) in education by conducting a thorough examination of how EI can facilitate student learning and promote academic achievement. The chapter discusses the various dimensions of EI and its contribution to academic achievement at both the cognitive and non-cognitive levels. The objective is to provide an in-depth understanding of emotional intelligence's role in the holistic development of students and its impact on their overall academic performance. The chapter also provides practical recommendations for educators and policymakers on different pedagogical approaches and intervention strategies for developing students' EI in school settings.

Keywords: emotional intelligence, learning, academic engagement, student engagement, achievement

1. Introduction

Academic achievement, generally measured by grade point average (GPA), has been shown to be strongly associated with success and well-being from the school years through adult life [1–3]. There is strong empirical evidence that there is a strong relationship between academic achievement and life outcomes. Research has shown that students with high levels of academic achievement are more likely to obtain further education and training, secure employment and achieve professional achievement [4, 5]. On the other hand, students with low academic performance have been found to be more disadvantaged in terms of increased incidence of substance abuse [6–8], increased risk of suicide attempt [9], poor mental health outcomes [10], and reduced chances of completing school and entering university, and therefore more disadvantaged position in the labor market [4, 11].

Cognitive abilities have been demonstrated to be a reliable predictor of academic achievement at school, but only to a certain extent [12]. Cognitive ability is only one aspect of an individual's capabilities and thus does not fully capture the individual's potential [13]. Developing a comprehensive understanding of the factors predicting students' academic performance has critical importance in providing students with

the necessary support to facilitate their academic success. In this regard, multiple psychological and social factors need to be considered together to fully explain academic achievement [12]. As emotional intelligence (EI) reflects a set of emotional and social competencies that are essential for coping with academic challenges and promoting effective learning behaviors, examining the role of emotional intelligence in the learning processes and academic achievement may enhance the accuracy of predicting academic performance beyond traditional cognitive measures [12, 14].

Emotional intelligence was found to be a significant predictor of an individual's academic performance even after controlling for the effect of general intelligence [15, 16]. Emotional intelligence was found to be a strong predictor of both high (correctly identifying 82% of students with high GPAs) and low (correctly identifying 91% of students with low GPAs) academic achievement among students [17]. This could be because students with lower intelligence quotient (IQ) scores on intelligence tests with higher EI did better at school because they were more likely to get help and support from others [18]. Given the growing recognition of emotional intelligence as a critical predictor of academic achievement, recent studies have increasingly focused on understanding how emotional processes affect learning and academic performance, such that the impact of emotions on the learning process has become one of the key areas of interest in current educational research [19]. This chapter explores the specific impact of emotional intelligence (EI) on educational outcomes by examining how emotions affect learning and academic performance. Drawing on empirical studies and theoretical frameworks, the chapter highlights how emotional intelligence facilitates learning, enhances academic engagement, and ultimately influences students' academic performance in educational settings. Finally, implications for educational practice and future research directions are discussed.

2. Emotional intelligence in facilitating learning process and contributing academic performance

Emotion is an 'umbrella' term encompassing a range of emotional, cognitive, behavioral, expressive, and physiological responses [19]. Emotions are triggered by external factors and provide individuals with instinctive, automatic reactions that help them cope with familiar challenges that are necessary for survival. It is believed that these emotional responses are evolutionary adaptations that first evolved to help maintain balance (homeostasis) within the body. While emotions are largely automatic, the way they are expressed and controlled is also influenced by an individual's previous learning experiences and memory. This suggests that emotional responses may change over time through cognitive processes. Emotions have a role in two distinct but connected capacities. Firstly, they enable rapid responses to immediate situations. Secondly and perhaps more importantly, they allow individuals to form unconscious predictions about future outcomes. This ability is exemplified by the capacity to predict whether a future experience will support or potentially harm one's long-term well-being [19].

Learning is a multifaceted phenomenon involving acquiring knowledge, skills, and adaptive changes in behavior or beliefs [20]. Emotions play a crucial role in the learning process [21]. When emotions and cognitive processes work together, individuals can understand and process complex information more effectively. Emotions have a significant impact on different dimensions of learning, particularly in relation to managing one's own learning process [22]. Emotions serve to signal and provide

valuable insight into what is important and meaningful for an individual to know. Therefore, emotional information can be used effectively to guide learning for those who are highly aware of their emotions [23]. By strategically directing their time and energy toward activities that align with their current emotional state, individuals can optimize their cognitive performance [22]. This means that their ability to understand, manage, and regulate emotions can facilitate their learning. Therefore, emotional intelligence (EI) plays a significant role in shaping students' learning experiences and can have a direct impact on their academic success [23]. The concept of emotional intelligence (EI) is defined as the ability to understand emotions, use emotions to facilitate thought and manage emotions in beneficial ways. It encompasses a range of competencies, including the ability to accurately name emotions, use emotions to inform thought and decision-making processes, understand emotional meanings, and regulate emotions in ways that support both emotional and mental growth [24]. As Salovey and Mayer [25] suggested, individuals with high emotional intelligence show a greater ability to use their emotions to drive themselves toward the achievement of important goals.

Individuals with high emotional intelligence (EI) can accurately perceive and understand emotional information and manage it effectively by integrating it into their cognitive processes [24]. They have a strong ability to assess problems from multiple perspectives, connecting information in unusual ways [26]. Consequently, they need less cognitive effort when making decisions and solving problems. Specifically, individuals who excel in emotional intelligence tend to show heightened performance in verbal, social, and general cognitive domains. Furthermore, these individuals tend to exhibit higher levels of extroversion, harmony, and tolerance, which can result in a number of positive outcomes, including effective communication, academic success and enhanced life satisfaction. Emotional intelligence, therefore, encompasses a broader range of competencies, including the ability to adapt socially and regulate behavior. These competences serve as significant predictors of social success and academic performance [24]. In addition, emotional intelligence enhances students' academic self-efficacy and intrinsic motivation, both of which are important contributors to academic success. Students with high EI tend to believe in their abilities and find personal meaning in learning, which increases their academic engagement and helps them to achieve [22, 27, 28]. On the contrary, negative emotions have been shown to result in extrinsic motivation, which in turn leads to the avoidance of failure. This extrinsic motivation has been seen to primarily drive students' efforts through the desire to avoid failure, rather than through genuine interest or personal growth [29].

In order to take a closer look at the influence of emotions on the learning process, we need to understand the emotions that are experienced in educational settings and the impact that they have on learning. Academic pressures, such as examinations, assignments, and deadlines, often elicit emotional responses- including frustration, anxiety, and boredom- that can significantly affect a student's cognitive performance and learning outcomes. These emotions have been found to influence several factors, including, but not limited to, the ability to focus, the problem-solving abilities, and overall cognitive performance. Additionally, it has been observed that the specific subject under study can evoke varied emotional responses, which have the potential to either facilitate or hinder a student's capacity to learn, to retain information, and to engage with material in an effective manner [19]. Positive emotions play a crucial role in learning because they signal to students that a wide, expansive mode of cognitive processing is appropriate, increasing their receptivity to new information [30]. Students who experience positive emotions during a learning task, express positive

emotions, such as happiness, and effectively regulate their emotions tend to remain engaged, exert greater effort despite challenges, and achieve better performance through increased academic motivation and classroom participation, that is, engaged in learning task [31, 32]. Positive emotions give students a sense of achievement, which motivates them to take action [23, 33]. That is, high levels of emotional intelligence have been shown to foster positive emotions, which in turn can boost motivation and learning by increasing interest and enjoyment in each task [34]. On the other side, students who experience negative emotions, such as frustration, anxiety, or anger, during a learning task are more likely to believe they do not have the resources to achieve their goals and feel incompetent, so they lose interest in their studies and withdraw from the learning process [32, 33, 35]. So, negative emotions can interfere with effective learning [23]. Moreover, anxiety and other negative emotions can also impair attention and cognitive functioning. Negative emotions can be a barrier to effective learning and undermine students' engagement and academic performance [28].

The emotions experienced by students affect their self-regulated learning toward the topics studied. These in turn can hinder or contribute to their academic performance [36]. Self-regulated learning is a learner-centered process where students actively engage, set goals, and monitor their performance. That is, the students take ownership of their own learning, using metacognitive, motivational, and behavioral strategies to manage and direct their efforts toward academic success [37]. Because students need to take responsibility for their own learning without constant external guidance, self-regulated learning is often challenging. In the initial stages of this process, especially when encountering difficult or unfamiliar content, learners often experience negative feelings such as confusion, irritation, and dissatisfaction. These feelings have the potential to reduce motivation and hinder progress. It is therefore crucial to be able to find and control these emotional responses. The achievement of their learning goals depends on the student's ability to keep focus, persist in their study efforts, and persevere in the face of obstacles [23]. Students scoring high on EI tend to show better emotional regulation [38, 39]. In contrast, those with low EI tend to be more impulsive and vulnerable to immediate temptations, which may compromise their pursuit of long-term academic goals [38].

Lastly, students' engagement in academic courses is significantly influenced by their emotions, and it is critical for their success [40]. Student engagement refers to students' behavioral participation, emotional engagement, and cognitive dedication to learning, all of which are crucial for motivation, academic success, and a positive school experience [41]. Studies revealed that students who have higher levels of emotional intelligence have been shown to exhibit greater levels of engagement and achieve higher levels of success [34, 42]. These students can cope with stress, remain positive, and adapt to changing circumstances, all of which help them stay motivated and actively engaged in their studies [28]. So, student engagement has a positive impact on their motivation and dedication in educational settings, reduces dropout rates, and improves social relationships, and emotional well-being, making it essential for academic success [30, 41].

3. Emotional intelligence, learning, and academic achievement across age groups

Emotional intelligence is a fundamental skill that develops over the lifetime of an individual, contributing to the learning process. Brouzos et al. [43] investigated the

relationship between emotional intelligence (EI), socio-emotional adjustment, and academic achievement in children between the ages of eight and thirteen. They found that the predictive value of EI differed by age. Using self-report measures of EI and teacher-rated measures of school adjustment, they found that EI scores predicted academic achievement only in older children (11–13 years), but not in younger children (8–10 years). In contrast to the earlier study, the present study highlights the extent to which the effect of EI on school performance is influenced by age. Thus, progress in children's emotional knowledge and beliefs about their emotional competence is associated with improvements in their ability to manage their behavior in the context of school [43]. Adolescents who can recognize and manage their emotions, cope with difficulties, and control their stress levels are better equipped to cope with the demands of school and tend to outperform their peers in terms of academic achievement [17, 43].

The results of Parker and colleagues' [44] study was the consistent with the previous study and highlights the important role that emotional intelligence (EI) plays in predicting academic success among adolescents. Overall, EI explained a considerable proportion of the variation in GPA. In the study, the highest-achieving students showed significantly higher levels of interpersonal skills, adaptability, and stress management than their lowest-achieving peers. It was seen that students with elevated levels of EI were able to establish more developed interpersonal relationships, adapt better, and manage stress more effectively compared to their peers with medium and low levels of EI. Thus, the results showed statistically significant differences between students' EI scores by achievement level and a tendency for socio-emotional competencies to improve over time. These findings highlight the importance of developmental maturity in the observed effects of emotional competencies on school-related outcomes. Nevertheless, we need to take into consideration that the use of self-report measures of students' developmental readiness in younger populations may lead to incorrect responses if young adolescents do not have the emotional maturity and self-awareness to reliably assess their own EI abilities [45]. The reliance on self-report measures, which may have limited the ability of younger children to adequately assess and reflect on their emotional competencies, may have contributed to the lack of notable findings in the younger age group. Further research is therefore needed to gain a more comprehensive understanding of how EI affects learning and achievement.

One study examined the relationship between emotional intelligence and academic performance in a sample of 290 students (aged 11–12), controlling for the effects of IQ, personality, and self-concept dimensions. There was a positive and significant correlation coefficient between EI and overall academic achievement. Emotional intelligence was a significant contributor to the prediction of general academic achievement after controlling for intelligence, personality, and self-concept [46]. There is also a moderate correlation between EI scores and academic performance among high school students that EI showed a statistically significant positive association with students' academic performance, even after controlling for the variables of personality, self-perception, and intelligence quotient (IQ) [38, 44, 47, 48]. These findings overall suggest that emotional intelligence can have a significant impact on academic achievement when considered in isolation as a factor.

Shengyao et al. [28] studied with university students and found that emotional intelligence (EI) was positively associated with positive psychological traits, psychological well-being, and academic performance, with these associations being particularly strong among postgraduate students. That means that students with higher emotional intelligence levels showed a greater ability to cope with the challenges and

demands of university life. As a result of their increased emotional awareness and ability to regulate their emotions, their academic performance was found to have improved. These improved their ability to concentrate, improve their study habits and interact more effectively with peers and teachers. The study conducted by Shengyao et al. [28] lends further support to the prevailing conceptions within the domain of emotional intelligence theory, which posits that emotional intelligence exerts a substantial influence on both psychological well-being and academic achievement. Shafait et al. [49] found that high emotional intelligence positively affects students' learning outcomes (social, cognitive, personal development, and satisfaction with university experience) in Chinese higher education institutions and that these outcomes increase students' academic competence and success. In addition, the meta-analysis conducted by Perera and DiGiacomo [50] revealed that there is a small to moderate positive relationship between EI and academic achievement and that EI plays a significant role in predicting academic achievement.

The impact of emotional intelligence on the learning process and on the academic performance of students has been well documented. There is strong evidence to suggest that emotional intelligence develops and strengthens over the course of a lifetime. Most empirical data in the study of emotional intelligence (EI) for academic success and socio-emotional functioning comes from samples of undergraduate students or adolescents (e.g., [15, 23]). This is because most EI measures were developed for the adult population, and earlier research has used samples of pre-adolescents as the youngest age group studied. The lack of instruments specifically designed to assess emotional intelligence in younger age groups is the reason for this discrepancy. However, recent developments in the assessment of EI in children and adolescents are contributing to the research that is exploring the role of EI in academic achievement [46]. Due to a lack of appropriate measures, the impact of this construct in early childhood is still inadequately understood. In order to gain a more complete understanding, it is essential to continue the empirical investigation in this topic with different age groups.

4. Implications and suggestions for educational practice and research

The literature on the role of emotional intelligence in the learning process and academic achievement has important implications for educational practice. Firstly, it is important to recognize the emotional aspects involved in the learning process; the emotional aspect has been identified as a significant driver of learning, underlining its crucial role in educational outcomes. Emotional intelligence (EI) explains a substantial amount of variance in academic performance beyond that explained by IQ alone. A decrease in the level of EI has been shown to be associated with an increase in the incidence of problem behavior, anti-social behavior, and substance abuse [24]. The integration of emotional intelligence (EI) abilities into the educational curriculum from early years not only supports students' academic, social, and emotional development but also improves their immediate learning outcomes and has the potential to significantly contribute to their long-term academic success and career readiness. This is because the modern labor market requires graduates to have a wider range of skills, including emotional and social skills that are not usually part of traditional university curricula. Emerging empirical evidence supports the notion that higher education can be crucial in helping students build EI abilities and become more prepared for the workforce after graduation [51]. Emotional intelligence should be included in the higher education curriculum as it is a key skill that students of all ages need to develop.

Moreover, self-report instruments have been used to assess the level of emotional intelligence of students. However, self-report measures are inherently vulnerable to response biases such as social desirability or inaccurate self-reporting. The reliability of self-report measures is also a concern for younger populations, as students may not be emotionally mature enough to respond accurately [45]. To increase the validity and objectivity of future research, the use of behavioral or performance-based measures is suggested [42]. In addition, future studies could use such kind of measures in order to assess the emotional intelligence abilities of younger age groups. So, the analysis of the role of emotional intelligence (EI) in learning processes will be facilitated by the development of appropriate assessment instruments that can accurately assess EI levels in young age groups. This approach would allow for a more comprehensive and less biased assessment of EI and its associated outcomes.

Although it is widely accepted that emotion has a significant role in learning processes and academic performance, further research is necessary to identify the broader effects of emotions and EI abilities on the learning process. Researchers are examining how emotions can either facilitate or impede various learning aspects. Nevertheless, there is yet insufficient evidence to figure out the full extent and direction of this influence of emotions on learning outcomes. So, further research is needed to better understand the overall impact of EI on learning outcomes [19] and more diverse, theoretically, and methodologically sound research to fully understand the role of EI in academic achievement [28].

5. Conclusion

This review chapter examines the role of emotional intelligence (EI) in facilitating student learning and academic achievement. Existing research on this topic suggests a relationship between higher levels of EI and increased engagement in learning activities, improved emotional regulation in academic contexts and, so, improved academic performance. The findings provide further evidence to support the argument that emotional competencies are increasingly recognized as essential components of the learning process. The literature shows that students are better able to cope with academic stress, engage in learning, keep motivated, build positive relationships in the learning environment, and be more successful academically when they are better equipped to understand emotions, to use emotions to facilitate thinking, and to manage emotions. Supporting emotional intelligence in the educational setting contributes to the development of more adaptable, resilient, and successful students by enhancing their well-being, facilitating their learning processes, and improving their academic performance.

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Unheard Voices in the Digital Age: Transforming Holocaust Narratives through the MEMORISE Learning Platform

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and Stefan Jänicke*

Abstract

The MEMORISE project (funded by the EU Horizon program) merges interdisciplinary expertise in history, pedagogy, and technology to preserve and disseminate the Heritage of Nazi Persecution (HNP) in innovative ways. Its Distant Learning Platform (DLP) provides a user-friendly web environment that integrates personal testimonies, contextual information, and reflective prompts, allowing learners worldwide to explore Holocaust narratives at their own pace. An accompanying Mobile Companion enhances on-site experiences at memorial sites. Anchored in the principle “Humans Take Center Stage,” the DLP emphasizes individual voices and uses an educational, color-coded design to balance historical context with the raw human dimension of Holocaust experiences. Features like the “Unheard Voices” initiative counteract the overshadowing of lesser-known testimonies. Although the platform increases accessibility and fosters deeper empathy, it also poses ethical and technical challenges in managing personal data and maintaining historical accuracy. As a flexible framework, the DLP holds promise for broader applications in cultural heritage and beyond.

Keywords: digital storytelling, Holocaust education, Heritage of Nazi Persecution (HNP), Distant Learning Platform (DLP), artificial intelligence in history, personal testimonies in education, design patterns for learning platform design

1. Introduction

The MEMORISE project exemplifies an innovative interdisciplinary approach to preserving and disseminating the Heritage of Nazi Persecution (HNP). Funded by the European Union Horizon program,¹ the project integrates history, pedagogy, and advanced technological methods, including artificial intelligence and digital

¹ MEMORISE is funded by the European Union’s Horizon Europe research and innovation program under grant agreement No. 101061016.

storytelling, to transform Holocaust narratives into accessible, emotionally resonant learning experiences. The components of the project are a “Distant Learning Platform” (DLP) and a “Mobile Companion,” which facilitate both remote engagement and on-site exploration, enabling diverse audiences to interact with Holocaust histories in meaningful ways via digital storytelling.

Chapter 2 outlines the conceptual foundation of MEMORISE, emphasizing its interdisciplinary strategy to curate, personalize, and humanize historical data. It introduces a framework for developing visual exploration and storytelling interfaces. Chapter 3 focuses on the technical and educational implementation of the MEMORISE platforms, emphasizing the guiding principle of “Humans Take Center Stage.” It highlights features such as the Distant Learning Platform’s concept of “Curated Stories.” These are told through color-coded content categories—diary excerpts (yellow), contextual information (red), and reflective prompts (blue)—which structure narratives to balance emotional engagement with historical context. Additionally, the chapter introduces an innovative concept called “Unheard Voices.” This prioritizes lesser-known testimonies and encourages users to engage with such narratives, as they often go unnoticed. Chapter 4 critically examines the opportunities and challenges inherent in this digital framework, including enhanced accessibility, ethical considerations in the treatment of sensitive narratives, and the complexities of integrating diverse historical materials. Chapter 5 explores the potential for future applications of the MEMORISE platform, proposing its adaptation for broader contexts such as cultural heritage preservation, human rights advocacy, and educational innovation.

2. The MEMORISE project: Preserving and disseminating the Heritage of Nazi Persecution

The MEMORISE project is dedicated to preserving and disseminating the Heritage of Nazi Persecution (HNP) through innovative digital means. Bringing together interdisciplinary expertise in history, pedagogy, information technology, and user experience design, MEMORISE aims to create interactive platforms that foster deeper, more empathetic understandings of Holocaust narratives. Its broader vision encompasses not only the curation of archival materials and survivor testimonies but also the ongoing development of tools that personalize and humanize historical data for diverse audiences.

The visualization-based storytelling triangle (see below) aids as a theoretical framework to develop visual exploration and storytelling interfaces in MEMORISE. The triangle’s horizontal axis stands for the extent of free interaction a user interface allows, stretching from fully interactive with very limited guidance on the left to a fully guided (or scripted) story with limited exploration capability on the right. The vertical axis addresses the type of guidance for narrated content. Consequently, the three extremes in the framework (the three corners of the triangle) define three actor types:

- *Visitor-driven storytelling*: is unguided and thus resembles free visual exploration. In other words, visitors create their own stories by creating their own paths through digital collections using visualization tools. Each story is thus very much dependent on a visitor’s interests and engagement, making each story subjective and different from other visitors’ experiences.

- *Expert-driven storytelling*: means that a story is developed by an expert in history, which may include curators, historians, teachers, and related actors that restructure and retell stories based on original HNP data. A typical example would be a story presented in a scrolly-telling interface style where the expert decides how and in what order HNP data elements are combined into a narrative.
- *Witness-driven storytelling*: gives the authority to the actual victims of Nazi persecution to tell their story in a modern way. Personal documents such as diaries, testimonies, or letters inhere a narrative that can be used for visual storytelling purposes. A purely witness-driven scenario would be a straight-forward visual representation of a diary in the form of a graphic novel or a film adaptation or the visual narration of an automatically extracted narrative from a testimony.

MEMORISE attempts to develop a diversity of solutions that cover the whole spectrum of the proposed framework. The *Distant Learning Platform (DLP)* and *Mobile Companion* serve as key digital storytelling instruments right in the triangle's center, as they offer a mix of guided and unguided, as well as expert-curated and witness-driven stories. They further bridge the gap between remote users and on-site experiences by offering immersive, user-centric explorations, making them crucial for the dissemination of narratives of victims of Nazi persecution (**Figure 1**).

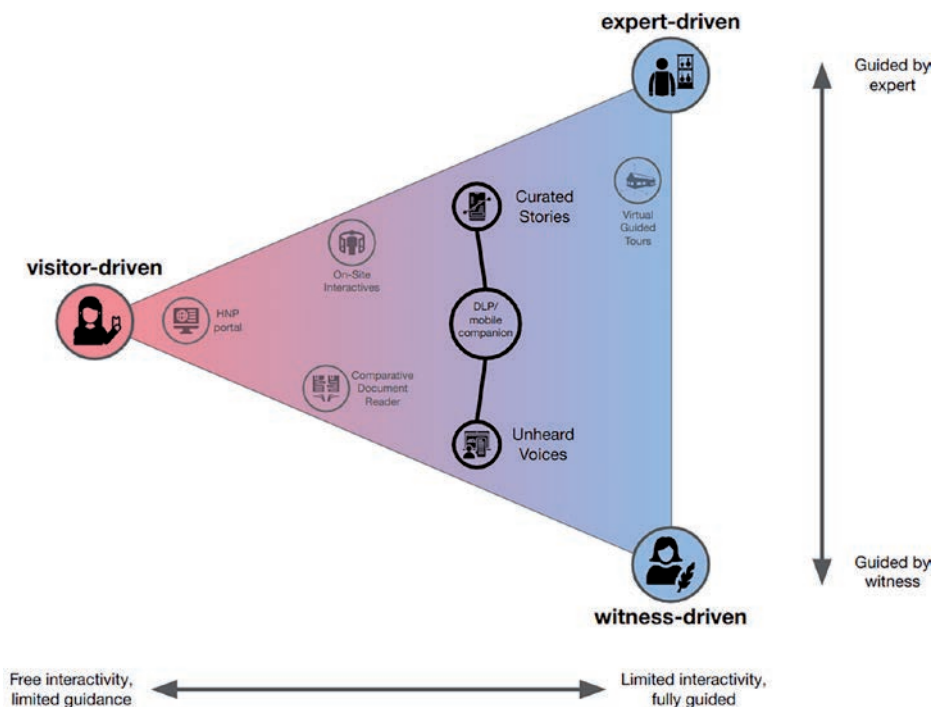


Figure 1.
 Visualization-based storytelling triangle.

3. The MEMORISE Distant Learning Platform

The Distant Learning Platform and its Mobile Companion are dual-platform solutions created within the European Union Horizon Program-funded MEMORISE project to bring Holocaust narratives to life through digital storytelling. While the DLP provides a web-based environment for remote engagement, the Mobile Companion will focus on the experience on site and attempt to support educators and curators at the respective memorial sites. The importance of enabling those who are not able to visit a memorial site to still be presented with the opportunity of engaging with a variety of materials [1]. Both tools draw from the same data corpus of Heritage of Nazi Persecution (HNP) sources, which is at the core of the MEMORISE Project.

By foregrounding personal stories and emphasizing user-driven interaction, the DLP and Mobile Companion exemplify how contemporary digital storytelling technologies can meet a great number of educational goals.

Throughout the development and conceptualization phase, the prototype of the DLP has moved through a variety of stages. Now, it has been decided that there are two main concepts that will be realized within the digital companion and the Distant Learning Platform: Unheard Voices and Curated Stories. While both concepts will have distinct strengths, there are basic goals shared between them: the design philosophy Humans Take Center Stage and thus generate empathy in users.

3.1 From data to stories

Modern technology has radically expanded how we collect, process, and present historical records. The MEMORISE project addresses this shift by using advanced data analysis and artificial intelligence to glean insight from a corpus of archival materials on Nazi persecution. Rather than simply digitizing diaries, letters, and testimonies, MEMORISE systematically analyzes these sources with natural language processing (NLP) techniques that identify names, dates, places, and nuanced emotional cues often overlooked by conventional research. This interdisciplinary, digital humanities approach, which fuses computational methods with historical science, enables the project to map personal accounts onto broader timelines and geographic contexts, revealing deeper layers of historical complexity. Machine learning and semantic analysis further highlight recurring themes—such as hope or despair—and verify them against established historical facts and expert review, ensuring the data maintains both academic rigor and ethical sensitivity.

Through a curated interface, the DLP weaves together direct survivor quotations, contextual details, and reflective prompts, allowing visitors to discover the human dimensions of historical events. Rather than merely listing diary excerpts in chronological order, the platform allows curators to tell an impactful story by including modules requiring user engagement and utilizing multiple media formats (**Figure 2**). A color-coded design enables users to recognize the different modules while engaging with the platform (see below in detail). Teachers, independent learners, and museums can integrate these interactive story modules into educational settings, helping diverse audiences confront the Holocaust's moral complexity without geographic constraints. Complementing the DLP, a Mobile Companion will enable curators to connect the stories users interacted with in preparation for the visit with the on-site

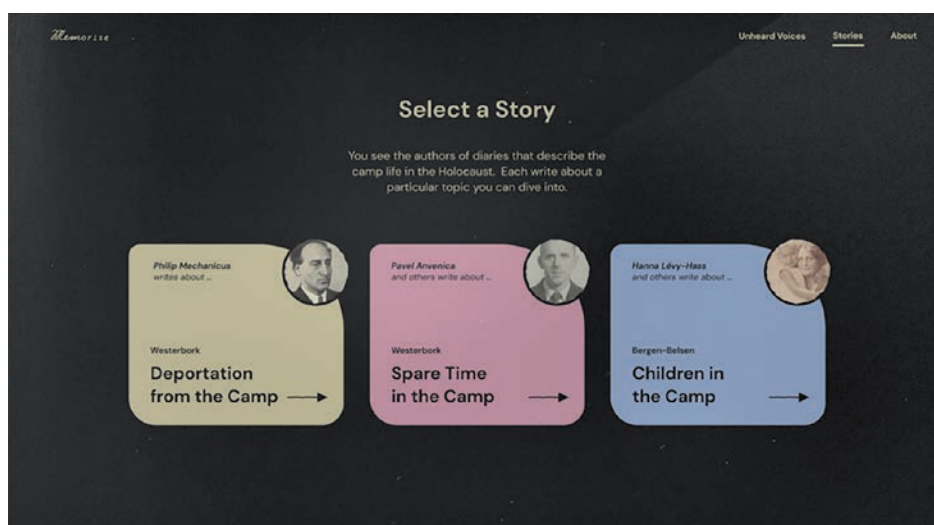


Figure 2.
 MEMORISE Distant Learning Platform.

experience. The experiences are to be seen as interconnected and continuous. This interplay of remote and on-site engagement illustrates how modern data processing, when connected with digital storytelling, can produce immersive and empathetic learning experiences that bridge the gap between raw information and meaningful historical understanding and learning.

3.2 Design philosophy: “Humans Take Center Stage”

A central guiding principle for the DLP is “*Humans Take Center Stage*.” Rather than presenting users with broad historical overviews, the platform positions individual stories—especially diaries and personal reflections—as the main conduit through which the Holocaust is explored. This approach is anchored in two complementary insights: first, researchers in Holocaust education emphasize the importance of grounding historical awareness in the real-life experiences of those who lived through the events, and second, studies of digital storytelling show that focusing on personal testimonies fosters user empathy, identification, and deeper ethical engagement [2]. By highlighting firsthand accounts, the DLP seeks to counteract any tendency to view large-scale atrocities as mere statistics or faceless narratives. Instead, users are prompted to engage with the humanity behind each story, resulting in a more nuanced and emotionally resonant understanding of historical realities. Through this focus on lived experiences, the DLP illustrates how thoughtful digital design can transform the way individuals encounter and internalize crucial moments of the HNP, encouraging meaningful reflection and sustained empathy.

To ensure that this concept is carried through to the design of the DLP, whenever possible, names and pictures of the authors are presented. The concept and design aim at highlighting the humanity of those described, presenting their lives, biographical information, quotes, words, thoughts, and reflections in an unaltered and accessible manner (Figure 3).

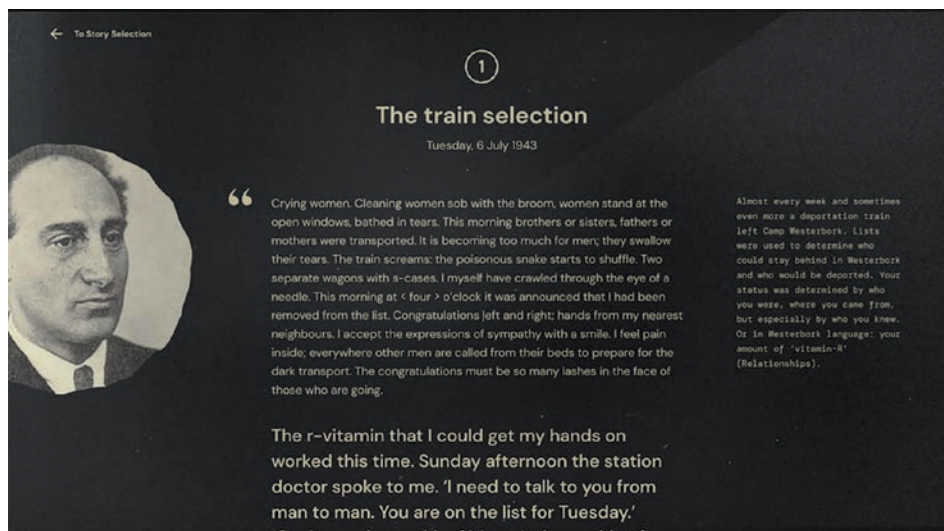


Figure 3.
Mediation of “lived experiences” through biographical information, their quotes, words, thoughts, and reflections.

3.3 Educational goals

In general, well-designed programs offered through digital tools have been found to have a positive impact on Holocaust education for different ages and target groups [1]. Despite this, a lack of research in the area of Holocaust education in comparison to Holocaust remembrance has been lamented [3]. In order to attempt to fill this gap, a number of educational goals have driven the design and conceptualization process. They expand on solely factual learning and seek to provide the user with a variety of opportunities to learn. Below, a list of educational goals is listed with a brief description.

3.3.1 Enhancing historical awareness

While a lot of people might have a basic idea of the historical events, they might be missing a more holistic understanding of the past. By providing them with personal narratives as well as telling stories in a multimodal way, they are able to connect the past better with the present. Historical knowledge can be brought into contemporary society.

3.3.2 Preserving cultural and historical memory

A major problem faced by Holocaust education is the reducing number of witnesses that can give students of today a personal account of what happened. By digitizing and preserving materials such as diaries, letters, and reconstructions of memorial sites, future generations can have access to a world of information and tap into this historical memory.

3.3.3 Supporting emotional literacy and promoting empathy and human connection

Teaching empathy is a very complex undertaking—it involves creating opportunities for individuals to understand and share the feelings and perspectives of others.

It requires intentional strategies that engage both cognitive and emotional processes. Learners must not only comprehend another person's situation intellectually but also connect with it on a deeper personal level. Activities such as participating in guided storytelling or simulated reality can immerse individuals in different and novel perspectives, enabling them to experience, even briefly, what it might be like to have lived a different life. Furthermore, teaching empathy also involves addressing barriers such as biases or stereotypes. By helping users to identify and overcome these obstacles, educators can pave the way for more open and compassionate engagement with others.

3.3.4 Building analytical and research skills

Students today get a lot of information in a structured and curated manner. A method to enhance their analytical skills is by providing them with historical sources, such as diaries, photographs, and testimonies. Encouraging them to do this in a collaborative manner and exploring those narratives allows them to hone their research skills.

3.3.5 Cultivating ethical responsibility

Cultivating ethical responsibility involves nurturing a worldview that emphasizes fairness, compassion, and integrity. It provides students with essential tools to navigate a complex world where prioritizing humanity, justice, and shared accountability is paramount. From a project perspective, it is vital to recognize our society's ethical duty to preserve, share, and make accessible resources that authentically portray the horrors of the Holocaust. Moreover, cultivating ethical responsibility can have broader positive effects, such as inspiring meaningful contributions to society and encouraging active participation in democratic processes—a mindset essential for sustaining an equitable world.

3.3.6 Enhancing media literacy and critical thinking

In today's information-rich world, where individuals are constantly exposed to various forms of media, enhancing media literacy is a key goal. By improving media literacy, users are able to develop the critical skills needed to analyze, evaluate, and interpret the information they encounter. Media literacy helps to question and reflect on the narratives users are presented with, explore the context behind the information, and understand the powers and key benefits of a story told in a compelling way. Fostering media literacy ensures that users are able to navigate the complexities of modern media while making informed decisions about the content they consume and share.

3.4 Curated stories: Structuring content through color-coded categories and micro-units

To balance historical rigor with emotional immediacy, the DLP structures its core content in *micro-units* of information. Each micro-unit, or “story module,” contains a brief excerpt from a diary or testimony, a short contextual note, and a prompt that invites reflection. These story modules are presented in three *color-coded* categories:

1. *Yellow content (diary excerpts)*: Users encounter direct quotes from survivor diaries, revealing intimate personal observations and emotional responses to Nazi persecution. This module is designed to provide enriched diary entries from prisoners, offering a detailed glimpse into a specific day in their lives. It aims to highlight primary sources and reflections of the lived experiences of incarcerated individuals. By reading these diary entries, users are not just learning about the Holocaust—they are walking alongside individuals as they navigate life in the concentration camps and other harrowing environments. Diary modules come in two main variants: a concise “soundbyte” version for quick insights and a full-length entry for a more in-depth exploration, showcasing their resilience, suffering, and humanity. This module, in particular, is an example of content-driven design.
2. *Red content (multimodal narrative)*: These modules allow for a variety of media formats to be included in a story. Films, artwork, 3D models, or 360° images might be included here. In addition, statistical data may be represented here in a way that allows users to have visual support in understanding numbers too great for the imagination.
3. *Blue content (thought-provokers)*: Prompts or open-ended questions might encourage users to pause and reflect on the moral, ethical, and emotional implications of testimonials. These prompts could ask, for instance, “What would you do in this situation?” or “How might this experience challenge your assumptions about resilience?” By nudging learners to insert themselves into historical scenarios, this module aims at challenging users’ perspectives and evoking emotional and intellectual reactions through (provocative) statements. Users are invited to respond by rating their level of agreement with these statements, ranging from “strongly disagreeing” to “fully agreeing.” This module is designed to spark critical thinking, encourage self-reflection, and stimulate meaningful dialog around complex or contentious issues.

This micro-content approach is rooted in research from educational psychology and constructivist theories, which suggest that piecemeal, interactive learning can enhance user engagement and knowledge retention [4]. Simultaneously, it addresses the unique challenges of presenting profoundly emotional material in digital form, ensuring that users can process the information incrementally. For each created story, a variety of combinations of the above-mentioned micro-content types can be chosen. A story could, theoretically, comprise only thought provokers.

3.5 Unheard voices

One of the DLP’s most innovative features is the “*Unheard Voices*” concept, developed to highlight testimonial fragments that might otherwise remain underexplored. An internal mechanism tracks usage patterns, identifying which diary entries have been opened and read the fewest. Those testimonies will be sorted to the top of the list for all users, ensuring a more equitable distribution of attention across the entire dataset. This is in alignment with the overall aim of the concept: to ensure that each voice of the past has reached at least one person living today.

This system addresses a perennial concern in Holocaust and genocide studies: the inadvertent marginalization of lesser-known voices. Because certain testimonies or diaries garner more immediate public interest—perhaps due to the author's post-war prominence or the existing canonical status of their story—less famous testimonies risk being overshadowed. The “Unheard Voices” concept exemplifies how digital algorithms can actively democratize historical memory, ensuring that smaller, less publicized stories also receive an audience. At its core, it is an antithesis to modern recommendation systems where popularity outweighs lesser-known actors and content.

At its core, it is a collection of testimonies from unknown or anonymous persons. The source material in this case is the DEGOB database, where testimonies of around 5000 survivors were collected by the National Committee for Attending Deportees [5]. It has to be noted, however, that it is thinkable to extend or exchange these testimonies. For each person, only a few pieces of information are known: initials of first and last name, place of birth, date of birth, a profession, and the ghettos and camps they have been imprisoned in. However, sometimes, not all of this information is available for all testimonies. The platform attempts to bring these “Unheard Voices” to the users and get them the appropriate recognition and respect. One goal is clear: have each of these “voices” heard and seen by at least one person. As can be seen in the image below, the user is shown this message on the first screen: “You see the initials of people that gave a testimony describing camp life in the Holocaust. Help these unheard voices be heard.”

Below this invitation, a great number of circles follow. Each circle represents one testimony, and the initials show the person that has given it. Below the circles, there is an indicator showing how often the story has been heard. Initially, all stories will not have had anyone read them yet, and the order in which they are shown will be randomized. However, as soon as a story has been read, it will be moved to the end of the list. This will always place those stories that have had the smallest audience (**Figures 4 and 5**).

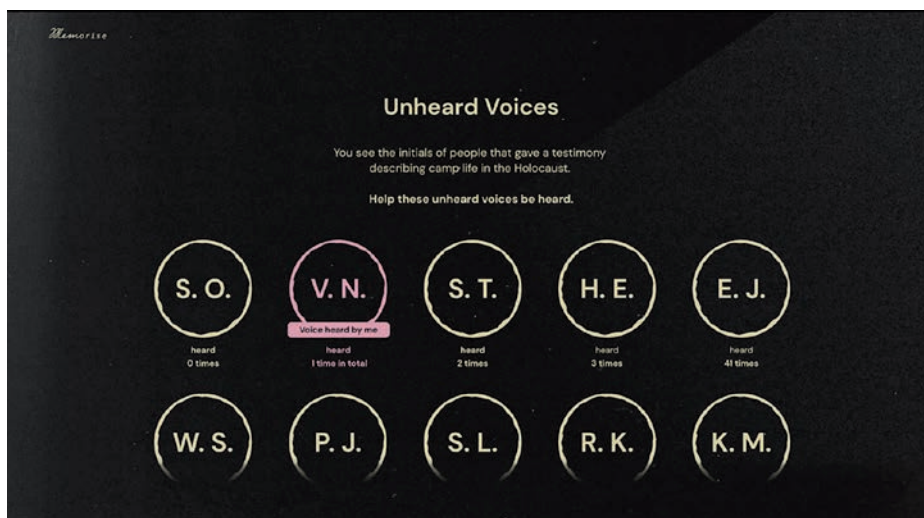


Figure 4. “Unheard Voices” concept. Since the DEGOB database does not contain full names, this design relies on initials.

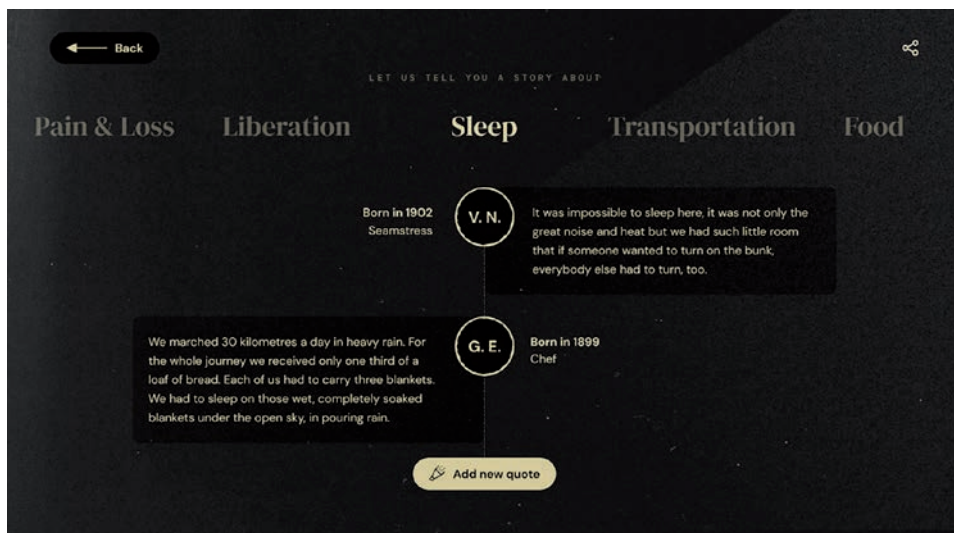


Figure 5.
Interlinking personal experiences via storytelling categories.



Figure 6.
MEMORISE "Mobile Companion."

3.6 Educational and emotional synergy with the Mobile Companion

The Distant Learning Platform is designed for remote access. Therefore, the Mobile Companion was developed, which supports on-site learning at memorial locations such as Bergen-Belsen and Westerbork (**Figure 6**). Both platforms draw from the same MEMORISE data corpus, yet each is tailored to a distinct use context. The Mobile Companion offers geolocation features, interactive maps, and the potential for augmented reality, enabling visitors to connect diary entries with actual physical locations. In contrast, the DLP facilitates deeper pre- or post-visit reflection in a controlled environment—be it a classroom or a personal computer at home.

This dual-platform strategy encapsulates MEMORISE's broader approach to digital storytelling: memory is not confined to a static exhibit or a single website but rather flows dynamically between remote and on-site engagements. Users can begin their exploration of a diary or theme online, expand their knowledge by physically visiting a memorial site, and later return to the DLP for more contemplative or classroom-based study. The synergy of these platforms underscores the transformative potential of digital storytelling, which can extend learning experiences across time, space, and media.

4. Opportunities and challenges

The Distant Learning Platform (DLP) developed by the MEMORISE project offers substantive opportunities to enhance Holocaust education through the application of digital storytelling frameworks. By facilitating remote engagement with historical sources, the platform significantly broadens access to diaries, testimonies, and contextual materials, particularly for audiences unable to visit memorial sites or archival collections in person. Its modular narrative design—incorporating first-person accounts, carefully curated historical context, and reflective prompts—fosters both cognitive and affective engagement with the subject matter. These interactive elements encourage understanding of the Holocaust's complexity, as users are prompted to grapple with moral and ethical dimensions rather than merely absorbing factual data. The DLP's capacity to highlight underrepresented perspectives further advances democratized remembrance, ensuring that voices commonly overlooked in established canons receive equitable attention.

Nevertheless, the deployment of the DLP also raises a series of practical and ethical challenges. On a technical level, developing and maintaining robust data processing and multimedia capabilities requires substantial resources, including consistent funding, reliable technical infrastructure, and specialized technical expertise. From a historical-critical standpoint, the integration of diverse source materials necessitates rigorous vetting to ensure accuracy and to avoid interpretive bias. Ethical concerns arise in balancing the preservation of personal narratives with the imperative to respect survivor privacy and dignity; diaries and testimonies may contain sensitive or potentially distressing material, requiring careful curation and, in some instances, consent procedures. The project must also address data governance issues, particularly if user engagement metrics (e.g., least-listened testimonies) are collected to guide content prioritization. Such practices can be instrumental in bringing marginalized voices to the forefront, yet they demand transparent data handling and user-informed data policies to maintain trust and safeguard personal

information. From the perspective of UX design, the bite-sized content, balanced text lengths, and multimodal approach are intended to drive engagement and, thus, foster learning.

While the DLP demonstrates how digital innovation can catalyze deeper public engagement with Holocaust history, its full implementation underscores the need for sustained ethical vigilance, robust technological infrastructures, and collaborative scholarly oversight.

5. Future use and new opportunities for the DLP

Building on the achievements of the MEMORISE project, the Distant Learning Platform (DLP) and its underlying technology bear potential for future digital storytelling adaptations across a wide range of cultural, historical, and educational contexts. Although originally designed to facilitate remote engagement with Holocaust and Nazi persecution (HNP) narratives, the core system has the flexibility to be tailored for other types of memorial sites, museums, and institutions seeking to promote remembrance, empathy, and critical reflection through digital storytelling. By presenting diaries, testimonies, and contextual information in narrative-rich, interactive formats, the DLP structure can be readily adapted to local histories and thematic focuses, effectively communicating complex subjects to diverse audiences.

Several key use cases illustrate the potential of these applications (**Figure 7**). For Holocaust and Nazi persecution memorials, ongoing enhancements to the DLP can deepen both on-site and remote visitor experiences, highlighting underrepresented narratives and enabling real-time engagement through curated story modules. General memorial sites and cultural heritage organizations can likewise benefit from the DLP's customizable design, using it to integrate personal testimonies and multimedia resources into coherent stories that enable the understanding of wars, genocides, or human rights violations across different historical settings. Educational

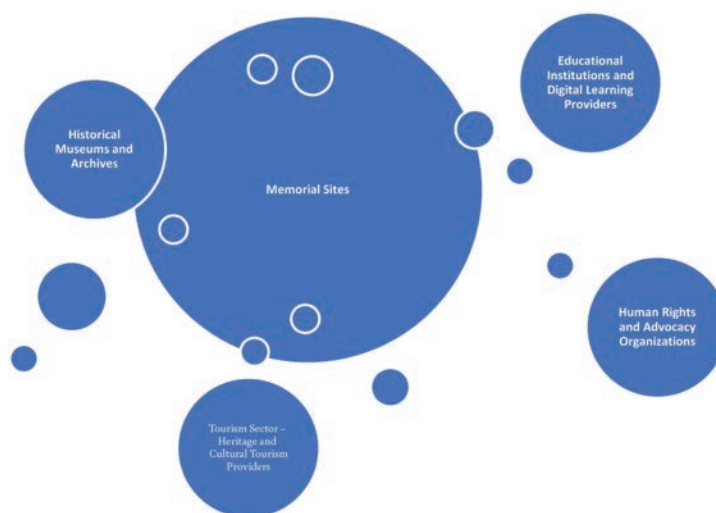


Figure 7.
Potential contexts/audiences for the developed DLP technology: Digital remembrance stakeholders.

institutions at multiple levels can integrate the platform into their curricula, leveraging its capacity for interactive storytelling to prompt ethical discussions and encourage critical historical thinking. Similarly, human rights and civic organizations might adapt the DLP to spotlight issues of justice and civil rights, extending its use to broader dialogs on civic responsibility and collective memory.

A strong technical foundation underpins these prospective applications. The DLP's modular architecture, which includes a web-based platform and an on-site mobile component, supports both remote and location-based learning. Its backend accommodates various content formats, while consultation services—such as content curation, user experience design, and narrative development—can guide institutions in tailoring the DLP to their specific historical materials and pedagogical goals. This combination of flexible software, storytelling strategies, and professional support ensures that each institution can create an approach aligned with its particular mission and audience.

Going forward, the MEMORISE project's exploitation plan underscores the importance of maintaining and refining the DLP infrastructure so it remains both up-to-date and adaptable to new contexts. Enhanced multimedia features, user analytics, and opportunities for collaborative content creation could all augment the platform's potential reach and educational impact. By connecting strong historical research, user-centric technology, and engaging narrative formats, the DLP represents a powerful tool for transforming archival data and personal testimonies into meaningful, reflective learning experiences. Its ongoing evolution promises to support a digital storytelling culture of digital heritage and remembrance, enabling institutions around the world to illuminate the past in ways that resonate with contemporary audiences.

6. Conclusion

The MEMORISE project represents a pioneering effort in the digital preservation and dissemination of the Heritage of Nazi Persecution (HNP), integrating historical scholarship, pedagogical innovation, and advanced digital technology. By developing a sophisticated framework for engaging with Holocaust narratives, the project ensures that personal testimonies, historical contexts, and reflective elements are presented in a structured yet flexible manner. At the heart of MEMORISE is the Distant Learning Platform (DLP), a digital environment that enables users to explore curated narratives at their own pace, fostering deeper understanding and critical engagement with historical events. Complementing this, the Mobile Companion enhances on-site learning at memorial sites, allowing visitors to connect digital narratives with their physical surroundings, thereby creating a more immersive and reflective educational experience.

A key strength of MEMORISE lies in its commitment to amplifying diverse voices, particularly through the “Unheard Voices” initiative, which brings attention to lesser-known testimonies that might otherwise remain in the shadows of mainstream Holocaust discourse. The project's color-coded storytelling framework ensures that emotional engagement is balanced with historical accuracy, guiding users through complex narratives in an accessible and meaningful way. Additionally, the integration of artificial intelligence and interactive digital storytelling facilitates new modes of exploration, making historical content more engaging, adaptable, and relevant to modern audiences.

While MEMORISE significantly expands access to Holocaust education, it also presents ethical and technical challenges in the handling of sensitive data, the curation of personal testimonies, and the preservation of historical authenticity. Addressing these concerns, the project adopts a user-centered approach that prioritizes both scholarly integrity and emotional resonance, ensuring that digital storytelling remains both educationally effective and historically respectful.

Beyond its impact on Holocaust education, MEMORISE offers a scalable and adaptable model for broader applications in cultural heritage preservation. Its innovative combination of remote learning tools, AI-driven curation, and location-based digital engagement provides a roadmap for institutions seeking to enhance public access to historical knowledge through digital means. As the project evolves, ongoing research will be crucial to refining its methodologies, assessing its educational outcomes, and ensuring its long-term sustainability. By bridging past and present through cutting-edge digital tools, MEMORISE not only safeguards the memory of Nazi persecution but also sets a new benchmark for how digital heritage education can be designed and experienced.

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Edited by Francisco Manuel Morales-Rodríguez

This book contains several relevant chapters that will facilitate further progress in the fields of Emotional Intelligence, Well-being, and Learning Strategies, as well as the application of their findings in various contexts. It contributes to the ongoing generation of knowledge through the advancement of research, while also establishing a comprehensive foundation to inform future investigations and applied practices within educational, social, health, and academic domains.

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