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Facilitation of emotional intelligence for the purpose of decision-making and problem-solving among nursing students in an authentic learning environment: A qualitative study

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A B S T R A C T

Purpose: This article aimed to explore ways in which emotional intelligence for the purpose of rational decision-making and effective problem-solving can be facilitated in an authentic learning environment.
Method: A qualitative and contextual research design underpinned by a social constructivism paradigm was used to explore and describe the perspectives of *(n = 20)* qualified nurse educators. Audiotape recorded in-depth, semi-structured, individual interviews were transcribed verbatim and analysed independently by an independent coder and the researcher using the Miles, Huberman and Saldana matrix for engendering a qualitative data analysis method. Trustworthiness was ensured and ethical considerations adhered to.
Findings: Three (3) themes were identified. Nurse educators to (1) engage nursing students in interprofessional teams, students to possess (2) emotional readiness and positive intrapersonal skills, and to use (3) reflection as a powerful strategy. A set of reflective questions were presented that demonstrated the components of emotional intelligence, which can be used by educators to develop it for the purpose of rational decision-making and effective problem-solving among teams of students.
Conclusion: Emotional intelligence for the purpose of rational decision-making and effective problem-solving should be facilitated among students to improve quality of patient care that is altruistic, comprehensive and individualised, while decreasing the stress associated with the nursing profession and improving students' emotional welfare. It is, therefore, recommended that this skill should be integrated as part of interprofessional curricula and be formally and continuously taught, extensively practiced and assessed so as to produce emotionally competent twenty first century graduates.

1. Introduction

The nursing profession involves complex and intense encounters with emotions amongst students, colleagues and patients. It is riddled with challenging interpersonal situations that are inevitable and unescapable (Foster & McCloughen, 2020). In this respect, the majority of nursing students are affected largely by their naïve and volatile nature associated with their particular stage of development in their careers. They lack independence, confidence, applied competence and a position and reputation in the nursing profession. Despite their naivety and the concomitant volatility, they have to face the real-life challenges associated with the healthcare environment such as patients' authentic problems, suffering and death. Moreover, the nursing profession demands that a student is developed into an emotionally intelligent twenty first century graduate capable of dealing with patients' complex

problems in an emotionally charged, dynamic, challenging, ever-changing and unpredictable healthcare environment (Cleary, Visentin, West, Lopez, & Kornhaber, 2018). In such an environment, high levels of rational decision-making and effective problem-solving as well as a broad knowledge base are prerequisites and cornerstones of exceptional nursing practice.

Within an authentic learning environment that engages students in patients' authentic problems that are of a real-life nature, ill-defined, complex and open to multiple perspectives, the success of rational decision-making and effective problem-solving requires emotional intelligence (Lewis, Gerber, Carlson, & Easterday, 2019). According to Ballantyne (2020), emotional intelligence is "the ability to recognise, manage and apply emotional information to everyday decisions making and behaviour". It guides thinking and reasoning, which drives rational decision-making and effective problem-solving that can have an impact

on patients and health professionals alike (Cleary et al., 2018). Emotional intelligence can assist students towards tackling tough conversations regarding complex decision around patient's decisions that may lead to disagreements among interprofessional teams. It can provide team members with the skills and confidence they need to communicate concerns and create mutually respectful relationships, without becoming overly emotional (The University of New Mexico. (2020), 2020).

Problem-solving is a process of discovering solutions for an authentic problem, whereas decision-making is a process that involves choosing the best alternative from the discovered solutions with the purpose of solving such problem (Ali & Nageeb, 2020; Rahman, 2019). In all professions, problem-solving is unavoidable and crucial for human existence, while decision-making is the most important, complicated and risky process of all professional processes including healthcare's. Both processes are affected by personal and environmental variables (Ali & Nageeb, 2020), such as emotions, which are fundamental to the quality of clinical care (Alsufyani, Baker, & Alsufyani, 2020) since, even as they drive judgment, they may certainly also cloud it. It is important for students to provide safe and effective patient care through rational decision-making and effective problem-solving, where they are required to reason effectively through balancing the rational- and emotional mind (Meyer, 2019).

Lack of emotional intelligence results in the individual's inability to cope with emotional demands, decreasing their efficacy and limiting emotionally healthy relationships. This in turn decreases the ability to make rational decisions and solve complex real-life problems due to strained relationships with significant individuals (Hodge, 2020). Moreover, lack of emotional intelligence results in irrational, inaccurate clinical actions that contribute to patient care of an inferior quality and irrevocably negative outcomes for patients (Black, 2019). In addition, students' own emotional welfare takes a knock (Foster & McCloughen, 2020; Raghubir, 2018).

1.1. Problem statement

Rational decision-making and effective problem-solving are extremely difficult for most professionals to master and more so for students, as these skills are emotionally laborious. When students use emotions in decision-making and problem-solving, their emotional state may lead to emotional biases that may result in miscalculations and deleterious effects. This may be due to negative emotional bias that "limits the capacity to obtain as much information as possible about certain dangers" in an authentic learning environment (Meyer, 2019). Regrettably, most students have low emotional intelligence skills and dispositions at the beginning of their training and these skills are not explicitly taught, including those of making rational decisions and solving complex problems. These skills are indispensable in meeting the demands of the healthcare environment in the twenty first century. Given the lacuna in extant training where, despite the fact that it irrefutably is a "critical element of nursing education," emotional intelligence remains "underappreciated" (Lewis, 2020). The research question that emerged was: *How can emotional intelligence for the purpose of rational decision-making and effective problem-solving be facilitated in authentic learning?* The purpose of this research was to discover and build on the deep insight inherent in the perceptions of nurse educators as related to the research question.

2. Method

2.1. Study design and setting

A qualitative and contextual research design underpinned by a social constructivism paradigm was used with faith to achieve the purpose of the study and best answer the research question. This design seeks to gain deep understanding inherent in the perceptions of the participants

(Gray & Grove, 2021). The study setting was a nursing department at a university in Gauteng, South Africa where undergraduate-, post-basic- and postgraduate students were catered for. The department offered a four-year undergraduate bachelor's programme, a two-year post-basic qualification in nursing disciplines, namely nursing education, community nursing science, advanced midwifery, primary health care and general critical care as well as a three-year post-basic bachelor's degree, master's and doctoral degrees.

2.2. Participants

All the participants were initially approached by email followed by face-to-face invitations. They were colleagues of the researcher who was a lecturer of second-year undergraduate fundamental nursing science in the department of nursing. The sample consisted of 20 (n = 20) nurse educators who were purposively selected to participate due to their vast experience in teaching, learning and assessment of students in nursing education as well as their willingness to participate and share their knowledge. Eligibility criteria for participation included that the participants were involved in teaching of students in the four-year undergraduate bachelor's nursing programme, held a nursing education qualification, had teaching experience of three (3) years and above and showed their willingness to participate in the interview. The sample size was arrived at through data saturation, which was achieved at participant number 15 and the subsequent five (5) interviews were conducted to confirm this. The purposive sampling method was used to intentionally select the participants who potentially held in-depth, rich data and who were able best to answer the research question (Johnson, Adkins, & Chauvin, 2020). Fig. 1 below demonstrate the process followed from sampling participants to the time when data saturation and confirmation was achieved.

2.3. Data collection

The data were collected from June 2015 to February 2016. The majority (n = 13) of the in-depth, semi-structured, individual interviews were done in the boardroom of the nursing department, five (5) in participants' offices, while two (2) were conducted at participants'
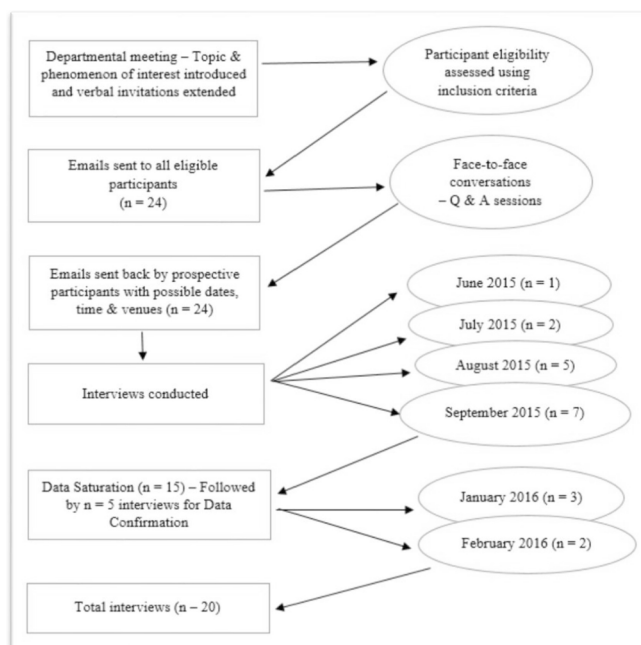

Fig. 1. Flow chart illustrating a qualitative research process used from sampling to data saturation.

homes. They chose their own dates, times and venues for the sake of flexibility, accessibility and availability and to eliminate interruptions to teaching, learning and assessment activities. The question posed to participants was: *"How do you think emotional intelligence for the purpose of rational decision-making and effective problem-solving can be facilitated in students within an authentic learning environment?"* Probing, reflecting, paraphrasing and summarising were some of the facilitative clarifying communication techniques used to collect and elicit far-reaching, detailed, rich data. No pilot interview was conducted and each interview lasted between 60 and 90 min depending on the participant's responses. All interviews were audiotape recorded for accuracy and field notes, which included methodological, theoretical, observational and personal were taken to enrich the collected data as well as ensure credibility (Polit & Beck, 2017). The researcher, who was female, collected all the data with no other persons, other than the participant, present during the interviews. The researcher was a qualified nurse educator who at that stage held a qualitative Master's degree in nursing education, was a qualified psychiatric nurse with extensive interviewing skills to conduct interviews and was well versed with the study.

2.4. Data analysis

The collected data were transcribed verbatim immediately after each interview, whereas data analysis started during collection and throughout transcription. Verbatim transcriptions and analysis were performed manually and no software was used to facilitate immersion in the data. The matrix building qualitative data analysis protocol of Miles, Huberman, and Saldaña (2020) was used. The researcher used the three (3) processes involved in the matrix building data analysis, namely data condensation, data display in matrices and drawing and verifying of conclusions. An independent coder, who held 21 years of experience on data analysis using Miles et al.'s method, was given the audiotape recorded interviews, transcribed data with field notes and the researcher's reflexive journal. A consensus meeting was held between the independent coder and the researcher to verify the accuracy of the independently identified themes. When contradictions emerged around the analysed data, both persons returned to their analyses, recoded the data and supported their decisions with verbatim quotes until consensus was reached. Throughout the study, the researcher held meaningful discussions with supervisors, peers and colleagues, which assisted in the process of self-detachment from the collected data, which resulted in an honest and accurate data analysis process, as expounded by Johnson et al. (2020).

2.5. Ethical considerations

The ethical principles of respect for persons, justice and beneficence and non-maleficence were observed as ethical considerations for this study (see Department of Health (DoH), March 2015). The permission to conduct the study was sought and obtained from the research ethics committee (REC) of the Faculty of Health Sciences of a university in Gauteng (REC-01-123-2014). Before the start of each interview, an introduction session was held with each participant in which the purpose and rationale for the study were explained. Each potential participant read the information letter, was allowed time to think about participating and asked questions that were truthfully answered to facilitate understanding and agreement to participate. After these encounters, informed consent forms to participate and use an audiotape recorder for accurate data capturing were signed. Each participant was also requested to complete a brief sociodemographic questionnaire. They were also notified that they may withdraw from participating in the study at any stage should they wish to do so without any penalties and no participants refused to participate or withdrew from the study. Participants' confidentiality and privacy were ensured by using alphabet letters as their pseudonyms during data collection and in the description of the findings, for example, the first participant was pseudo named

"Participant A". All hard copies of collected data were kept under lock and key and soft copies were kept in a password protected laptop and within password protected documents, which were destroyed three (3) years after the completion of the study.

2.6. Measures to ensure trustworthiness

The four strategies of Lincoln and Guba, namely credibility, dependability, transferability and confirmability were used to ensure trustworthiness as described in Johnson et al. (2020). Credibility was ensured through prolonged engagement during which adequate time was spent with each participant before, during and after the interview to gain deep understanding of the phenomenon under study. To verify the completeness and accuracy of the collected data, member checking was done through follow-up interviews with seven (7) participants who were indiscriminately selected because of their interesting interviews. Transferability was ensured by the provision of thick description of the nominated sample, research methods used and context wherein the study took place. Dependability was ensured through providing thick and rich description of the research method and the study process. The raw data, which included audiotape recorded interviews, field and transcription notes and data coding details, were compiled and kept as confirmability audit (Johnson et al., 2020).

3. Findings

The findings will be described in two (2) sections consisting of participant characteristics as well as the analysed themes.

3.1. Participant characteristics

Twenty (n = 20) in-depth, semi-structured, individual interviews were conducted by the researcher in the comfort of the participants' places, which they chose themselves. There were 17 females and three (3) males, whom 16 were African, two (2) White, one (1) Coloured and one (1) Asian nurse educators. Their ages ranged from 37 to 65 years and had three (3) to 12 years of teaching experience at a university. Twelve (12) nurse educators held a Master's degree and eight (8) were studying towards their doctoral degrees.

3.2. Themes

The analysis of verbatim transcripts led to the development of three (3) themes on the question of how emotional intelligence can be facilitated in authentic learning for the purpose of rational decision-making and effective problem-solving. Nurse educators perceived that for this skill to be facilitated, students should engage in interprofessional teams; be emotionally ready and possess positive intrapersonal skills; and reflection as a powerful strategy should be used. The themes and field notes that are displayed in bold and in parenthesis were conceptualised with a view to relevant existing literature to enhance the richness of data, as discussed below.

Theme 1: Engagement in interprofessional teams

In spite of the fact that none of the participants were involved in interprofessional education, almost all strongly felt that, when students are engaged and taught within interprofessional teams, they were better suited to develop emotional intelligence for the purpose of rational decision-making and effective problem-solving. This, they said, resulted because the *silos* training that student nurses currently undergo does not equip them with multiple perspectives required for an authentic problem. One participant said:

… *a group of nursing students should not work in silos if we (nurse educators) want to develop their emotional intelligence for decision-making and problem-solving, they must work in an interdisciplinary or interprofessional team* (Nurse educator Q, female, 63 years old)

They felt that, for the assessment of emotional intelligence for the mentioned purposes to develop further, the student must be able to lead the self within an interprofessional team.

[T]he student must be … ready to accept that there will be exchange of opinions, ideas, knowledge, skills, values and attitudes that will be distinct to theirs in order to effectively solve patient's problems in a creative manner (Nurse educator C, male, 39 years old)

Some participants pointed out that an inability to work within an interprofessional team leaves a student with limited thinking, since growth and development of this skill require multiple perspectives. One participant said:

… inability to work in a team such as interprofessional makes one narrow-minded and unable to make real-life rational decisions and solve real complex problems because they (complex problems) require emotional intelligent to entertain multiple, different perspectives that emotional intelligent entertains (Nurse educator S, female, 57 years old)

Theme 2: Emotional readiness and positive intrapersonal skills

All participants stated that, to be able to participate in activities that require emotional intelligence for the mentioned purposes, the student should possess emotional readiness and good intrapersonal skills to engage in challenging, authentic tasks. They stated that these skills assisted students to base their decisions on arguments and not excessively on emotions. The following quotes illustrate the participants' comments.

I realised that when you are dealing with real patients' problems to be solved you must have wisdom to base your arguments … on facts and evidence and never on emotions. Otherwise, someone's life is threatened … **(sounding stressed)** (Nurse educator O, male, 40 years old)

… the way to approach another person without you being emotional about the issues is important because once you start being personal and emotional you will fail to consider multiple perspectives from your teammates therefore fail to learn to solve the patient's problems effectively and creatively… (Nurse educator I, female, 47 years old)

Most participants also expressed that negative emotions, lack of emotional readiness and intrapersonal skills stifle rational decision-making and effective problem-solving.

We also need good intrapersonal skills to deal with other students during solving of patients' complex problems … bad attitude and lack of intrapersonal skills hinders good decision-making and complex problem-solving **(drawn out for emphasis)** (Nurse educator C, male, 39 years old)

Theme 3: Reflection as a powerful strategy

Almost all participants stated that reflection was a powerful tool for developing emotional intelligence for the mentioned purposes among students within an interprofessional team. One participant echoed this as follows:

… reflections, reflections, reflections … are v.e.r.y powerful … **(placing emphasis)** (Nurse educator M, female, 42 years old)

Another participant stated that:

think … **(pause)** *… students must be developed into critically reflective thinkers* (Nurse educator R, female, 65 years old)

One other participant was adamant that:

No emotional intelligence will develop without ANY **(placing emphasis)** *reflection …* (Nurse educator N, female, 45 years old)

4. Discussion of findings

As indicated, the purpose of the research was to gain deeper understanding of the perceptions of nurse educators on how to facilitate emotional intelligence for the purpose of rational decision-making and effective problem-solving among students within an authentic learning environment. The themes analysed demonstrate that for students to develop this skill, it was important for them to be part of interprofessional teams, removed thus from *silos* practice, to be emotionally ready to learn within such teams and have positive intrapersonal skills as well as being engaged in reflective practice. The three themes that emerged are discussed below.

Theme 1: Engagement in interprofessional teams

Emotional intelligence skills develop when students are engaged in teams, whether in face-to-face or virtual manner (Cole, Cox, & Stavros, 2019). Within a team, the authentic problem that needs rational decisions and effective solutions does not only become purely cognitive, but also engages emotional dimensions that demand well-developed emotional intelligence skills (Hess & Bacigalupo, 2014; Pertegal-Felices, Marcos-Jorquera, Gilar-Corbi, & Jimeno-Morenilla, 2017). For this reason, within interprofessional education, students realise and appreciate the value of different views and knowledge required for competent and efficient rational decision-making and problem-solving tasks (Lee, Bristow, & Wong, 2018). By virtue of their nature, patients' authentic problems require more than unilateral solutions that the *silos* practices might offer and the decisions required to solve these problems involve change, uncertainty, anxiety, stress and, ever so often, the unfavourable reactions of others (Kase, 2010). Yet, within a cooperative interprofessional team, the student is enabled to extend their own experience based on the experiences of others, which has a propaedeutic value that nurtures their growth and development. Therefore, the student is enabled to "imagine what he has not seen, can conceptualise something from another person's narration and description of what he himself has never directly experienced" (Vygotsky, 2004). This ability, according to Hontvedt, Silseth, and Wittek (2019), results in the construction of creativity through intellectual capital and sharing of socio-historically developed resources readily available to students within their *silos* practices.

During engagement in interprofessional teams, it is important that each student is able to lead themselves. Leading the self within an authentic learning environment around challenges such as race, gender, diverse cultural backgrounds and superiority related to disciplines (Waite, Mensinger, Wojciechowicz, & Wilson, 2018), is a sign of the healthy interplay of emotional competency, maturity and sensitivity (Appollus, Niemand, & Karodia, 2016; Lone & Lone, 2018). The emotionally intelligent student is motivated to recognise truthfully, interpret honestly and handle tactfully the dynamics of their behavioural pattern (Kairupan, Luddin, & Kambey, 2020). Self-leadership is a process through which a student controls their own behaviour, in effect influencing and leading themselves by using specific sets of strategies (Prinsloo, 2020). An emotionally intelligent student will lead the self by inviting and accepting feelings of willingness and commitment to engage in critical discourse by listening, sharing and exchanging information, ideas, feelings and thoughts. They are open-minded to positive constructive criticism within the team in pursuit of creating meaningful knowledge that will assist in constructing multiple and unique possible solutions to patients' complex problems (Lee et al., 2018).

Interprofessional teams are hubs that generate emotional intelligence in students. According to Weeks and Farmer (2017), when students are left within their own professional group and to their own devices in making rational decisions and solve complex problems, they may demonstrate "insular thinking." Being narrow-minded may result in the desire to protect one's status and professional turf, which may manifest in behaviours that do not show respect for members of other professions (Weeks & Farmer, 2017). Being open-minded to positive constructive criticism assists students to realise that differences in

perspectives can and should complement each other. They develop intellectual humility, which assists them in understanding that each member of the interprofessional team brings valuable professional knowledge and necessary perspectives to make rational decisions and effectively solve authentic problems (Pullon & Symes, 2019). Different views are necessary for the purpose of rational decision-making tasks (Lee et al., 2018). The participants of the present study felt that emotional intelligence assists students to be receptive and committed to willingly share their knowledge, opinions, skills and viewpoints with significant others of dissimilar professions to make rational decisions and effectively find unique solutions to solve authentic problems. However, Aritzeta, Mindeguia, Soroa, Balluerka, Gorostiaga, Elorza, and Aliri (2020) warns that team emotional intelligence (TEI) is emotional intelligence that results from group interaction, which differs from the emotional intelligence traits that are possessed by individual members of that team. To develop and nurture the skills in focus here among team members, educators should facilitate team emotional intelligence, since these processes involve high emotionality and interdependence and their success might depend on the quality of the interactions between the teammates to a greater extent than on their own insulated individual abilities.

Theme 2: Emotional readiness and positive intrapersonal skills

According to the empirical findings, the student must be emotionally ready to engage in rich arguments and critical discourse and be wise enough to base their arguments on facts and evidence and not on excessive emotions. According to Black (2019), Cole et al. (2019) and Kairupan et al. (2020), emotions reign supreme in highly difficult, emotionally challenging situations such as those requiring the making of rational decisions and finding unique solutions for an authentic problem. It is, therefore, important that students working within a team are emotionally ready to deal with such complex problems. Emotional readiness is student's emotional preparedness to assume responsibility for their own learning and open themselves up to learning by demonstrating enthusiasm and willingness to positively adapt to uncertain, ambiguous situations that result in cognitive dissonance. It is a state of being comfortable with self-direction and autonomy in learning while respecting the intrinsic value of learning (Foster & McCloughen, 2020; Sutrisna & Barliana, 2019). A wise, emotionally intelligent student strives to understand the big picture by asking what is important, meaningful and ethical and successfully use such understanding to facilitate opportunity-generating thinking, from which a myriad of possibilities may emerge (Cleary et al., 2018). Thus, efficiently making rational decisions and creatively and effectively solving an authentic problem. They use critical self-regulation and intellectual humility to guard against making unwarranted assumptions and be aware of their own bias (Black, 2019).

The participants also cited that the manner in which a student must approach patient's complex problems is to remain unemotional about issues. Contrary to this statement, Black (2019) and Hess and Bacigalupo (2014) state that it is impossible and impractical for a student not to use emotional reasoning when engaged with an authentic problem in a team, because emotions and rationality are inextricably linked. Moreover, heightened, checked emotions that are effectively used can actually promote better decision-making. However, unchecked emotions often cloud one's judgment by influencing the cognitive functioning negatively. This leads to emotional decisions and responses that result in prevention of making critical, rational decisions that could have led to effective authentic problem-solving (Ballantyne, 2020; Black, 2019). Black (2019) and Hess and Bacigalupo (2014) then advise that good use of emotional intelligence serves as the necessary bridge between emotions and rationality, where harnessing and articulating emotions could enhance rationality and that individuals would be better served to work *with*, rather than against, their emotions. Students with high emotional intelligence do not allow their emotions to govern them, since they are enabled to recognise and understand emotions that are utilised in reasoning, decision-making and problem-solving. As a result, they are

better enabled to balance their emotions with reason and adjust them to guide and enhance cognitive and rational processes, which allows the student to obtain new, diverse perspectives, make rational decisions, effectively solve authentic problems and minimise the deleterious effects served by such problems (Cassano et al., 2020; Foster & McCloughen, 2020; Idogho & Osuya, 2020).

Most participants stated that positive intrapersonal skills assist students in gaining clear perspectives of others and, therefore, successfully engage in meaningful, critical discourse and effectively deal with significant colleagues, which leads to rational decision-making and effective complex problem-solving. Parvari, Strider, Burchell, and Ready (2017) advocate for intrapersonal intelligence, which is the understanding of oneself through appreciation of one's feelings, fears and motivation relative to the authentic activity at hand. A student with higher degrees of intrapersonal intelligence is enabled to recognise their personal feelings and realise how such feelings influence their rational decision-making and authentic problem-solving abilities. They also realise that lower intrapersonal intelligence might derail them and interfere with these abilities resulting in failure. Students with negative intrapersonal skills have difficulty in considering other significant individuals' multiple perspectives that might be proposed to deal with an authentic task. Failure to recognise others' perspectives results from limited flexibility which, in turn, limits the development of higher order thinking skills required for the purpose of rational decision-making and authentic problem-solving. Furthermore, such failure challenges the development of organising principles indispensable to dealing with an authentic task (Hess & Bacigalupo, 2014).

Theme 3: Reflection as a powerful strategy

Almost all participants indicated that, when it came to nurturing and developing emotional intelligence for the purpose of rational decision-making and effective problem-solving among students, reflection is a strategy that must be used and inculcated by them as nurse educators. Reflection is conscious, desired thinking and practice that is displayed by an emotionally intelligent individual at all times which, in turn, improves their learning, behaviour and practice (Holder, Sim, Foong, & Pallath, 2019; Raghubir, 2018). The student involved in rational decision-making and problem-solving should be encouraged to undertake critical self-reflection, which assists them in the identification of gaps in their practice. As a result, they are better able to create action plans that would improve patient outcomes and further improve their reflective skills (Alharthi, 2020; Raut & Gupta, 2019).

Reflection assists students to develop higher order skills such as critical thinking, innovative and creative thinking, lifelong learning, deep learning and the metacognition necessary for the purpose of rational decision-making and effective problem-solving (Mahlanze & Sibiya, 2017). As critically reflective thinkers, they use their competencies based on the empirical-analytical, historical-hermeneutic and critical/self-reflective knowledge to evaluate previous experiences and authentic situations and frame problems within their context. This knowledge enables them to easily acclimatise to the uncertain and ambiguous, unfamiliar social contexts in which they find themselves (name redacted to maintain the integrity of the review process). Furthermore, they use reflection to learn about themselves, their emotional experiences and perceptions of the emotional responses of others in order to handle stressful situations afforded to them by authentic problems. During self-reflection, students express their feelings, relive, recognise and understand them. In this way, they can face emotional experiences, thus, their understanding of them is deepened. They develop the ability to identify and analyse problems and provide suggestions for solving them, which in turn develops and nurtures emotional intelligence for the purpose of rational decision-making and problem-solving (Reljić, Pajnkihar, & Fekonja, 2019).

For reflection to improve emotional intelligence, it must be purposeful, focused and thought-provoking (Ballantyne, 2020). Individual student must be encouraged to identify the emotions that they felt during an incident, which will enhance their emotional intelligence

Table 1

Questions that can be used as a guide in solving complex problems using emotional intelligence skills.

Emotional intelligence skill	Decision-making and problem-solving questions	Reflective questions
Self-awareness: evaluating the role of the problem solvers	Who is the best problem solver for this particular problem? Is the potential problem solver aware of their problem-solving skills and styles? Would others describe the problem solver as inclusive or exclusive in problem-solving processes? Is the problem solver confident in their problem-solving skills?	Were the reasons for inclusive or exclusive methodology used communicated to others?
Social awareness: assessing the problem-solving environment	What individuals, groups or constituents will be most affected by the problem and the solution? Should those most impacted by the problem and solution be involved in the problem-solving process? What problem-solving processes are most appropriate given the culture, values and/or beliefs of the organisation?	How will the problem, solution and problem-solving process be viewed in retrospect? How did the negative consequences that were experienced make others feel? How should the problem-solving process have been executed? Which of the organisation's culture, values and beliefs were violated when assessing the effectiveness of the solutions? How could the solution have been handled to be more consistent with the values of the organisation?
Self-management: determining the motivations for problem-solving	Are we merely focused on our pursuits or are we truly interested in achieving the best solution results? Are we focusing too much on the desire for a speedy result? How can a problem-solving process be used to build trust among the appropriate constituents? Are we willing to adapt to new problem-solving processes rather than relying on the established processes of the past? Are we willing to quickly admit to and correct our misjudgements?	Was there a negative outcome? Did the solution decrease the level of trust others have in us as problem solvers? How could others have been involved in the problem-solving process? What actions could have been taken to develop the problem-solving skills of someone else? What impacts or consequences did the failure because when we failed to acknowledge and correct a misjudgement? How could the scenario have played out differently if we had openly acknowledged and corrected the mistake?
Relationship management: managing the problem-solving process	Are the solutions a means of developing or furthering relationships with those with whom we (problem solvers) work? How do we (problem solvers) communicate with others engaged in the problem-solving process? Are communications in conflict situations regarding management of problem-solving direct and forthright? What are our attributes in managing conflict as problem solvers?	Who was negatively impacted? From your perspective, how could the process have been handled to lessen the conflict or controversy (inquiring from the negatively impacted person/s)?

From Hess & Bacigalupo (2014).

(Alharthi, 2020). However, such critical reflection requires sufficient training (Ishii & Horikawa, 2019). Therefore, clear guidance and structure is needed around reflective writing when it comes to developing higher order thinking skills including emotional intelligence for the purpose of rational decision-making and effective problem-solving (Reljić et al., 2019). Hess and Bacigalupo (2014) suggest the use of self-reflective questioning to develop students' emotional intelligence for the mentioned purposes and further describe the practical application of this skill, especially within a team or community of students using the four characteristics of emotional intelligence, namely self-awareness, social awareness, self-management and relationship management, as presented in Table 1 below. However, reflective questioning without a conducive environment where students feel welcome and confident and where they receive non-judgmental feedback, is fruitless (Mahlanze & Sibiya, 2017; Reljić et al., 2019).

Table 1 below shows the reflective questions that Hess and Bacigalupo (2014) suggest can be used by potential decision makers and problem solvers to facilitate the development of emotional intelligence for the purposes under discussion here within a team of students. Questions used with permission from Prof Hess (see attachment 2).

5. Implications for practice, limitations and recommendations

5.1. Implications for practice

Educators should attend workshops on emotional intelligence to raise their own emotional competencies before they should support students' emotional development (Koç, 2019; Pertegal-Felices et al., 2017). Emotional intelligence for the purpose of rational decision-making and effective problem-solving training should be integrated as part of interprofessional curricula and must therefore be formally and

continuously taught, practiced (Pertegal-Felices et al., 2017; Raut & Gupta, 2019) and assessed (Black, 2019; Pertegal-Felices et al., 2017) to produce emotionally competent graduates. Pertegal-Felices et al. (2017) found that when the emotional intelligence training duration was intermittent and shorter than 15 weeks, a lack of improvement in the overall level of emotional intelligence occurred. Thus, it is proposed that training should include a series of seminars than a once off occasion. Furthermore, educators must ensure that students are personally motivated to learn these emotional intelligence skills by allowing them to practice extensively to reinforce their newly acquired skills. Students should be given non-judgmental, constructive feedback (Reljić et al., 2019). Careful measures must be taken to ensure provision of an environment that promotes intellectual engagement and open-mindedness around using emotional intelligence to make rational decisions and solve patients' authentic problems (Mahlanze & Sibiya, 2017; Raut & Gupta, 2019; Reljić et al., 2019). It is thus important that educators assist students shifting from intuitive and emotional thinking to logical and rational thinking so as to improve their decision-making and problem-solving skills (Hess & Bacigalupo, 2014).

5.2. Limitations

The current findings should be considered in light of the following limitations. Nurse educators who participated in the study were not involved in interprofessional education, however, suggested its use to assist students acquire the sought emotional intelligence skill. Nonetheless, they contributed rich data that can be integrated in everyday teaching. The study explored emotional intelligence for the purpose of rational decision-making and effective problem-solving within a specific setting, namely a higher education institution, which contributed to a homogenous group of participants, all employed in a similar profession.

Therefore, the findings of this study may not be generalised. The sample size was a limitation. However, it was adequate for the present purpose, namely that of a qualitative study.

5.3. Recommendations

It is recommended that tools to measure emotional intelligence for the purposes focused upon here be developed and used to assess this skill among individual students as well as students within an interprofessional team. Furthermore, quantitative studies may be conducted to effectively bridge the lacuna created by this qualitative study. Further studies should consider a mixed-methods approach in order to achieve deeper understanding of how emotional intelligence can be facilitated for students within an authentic learning environment with a view to the mentioned purposes. It is recommended that studies on interprofessional emotional intelligence for these purposes be explored by interviewing educators within the professions who are involved in this educational focus and data be compared for comprehensive, concise findings.

6. Conclusion

The present article adds to the body of existing literature around emotional intelligence by exploring how it, in relation to the purpose of rational decision-making and effective problem-solving, can be facilitated among students within an authentic learning environment. Patients' authentic problems are of a real-life, ill-defined, complex and open nature and relate to multiple perspectives (Lewis et al., 2019), while they further require that students possess and use their emotional competency, maturity and sensitivity when dealing with them. Students must be trained to work and cope with the challenges encountered in emotionally charged, dynamic, challenging, ever-changing and unpredictable healthcare environments to deliver altruistic, comprehensive, individualised nursing care (Reljić et al., 2019). Emotional intelligence for the purposes of rational decision-making and effective problem-solving will improve the quality of patient care delivered, while decreasing the stress associated with the nursing profession (Hodge, 2020) which, in turn, will enhance students' emotional welfare (Foster & McCloughen, 2020; Raghubir, 2018). Emotional intelligence for these purposes can be effectively taught to students so as to improve their authentic learning for the future. It was also evident that the development of emotional intelligence for these purposes is a challenging, labour-intensive and time-consuming but worthy exercise for all educators involved. Thus, continuous emotional intelligence for training aimed at these purposes at the start of the programmes will develop and nurture this skill. The findings of this study can be integrated in healthcare training to build on students' emotional intelligence competencies and better prepare them for future practice (Foster & McCloughen, 2020).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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