

**The relationship between school climate, classroom climate, and emotional intelligence
in primary school learners from Durban, KwaZulu-Natal**

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I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.



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ABSTRACT

This study aimed to determine whether classroom climate or school climate is a greater predictor of emotional intelligence in South African primary school learners from Durban, KwaZulu-Natal, as well as which factors promote and which inhibit its development. A purposive sample of 119 primary school learners from six classes in two government schools in Durban was obtained. The learners assessed their classroom climate with the My Class Inventory (short form) (MCI-SF), and their emotional intelligence with the Trait Emotional Intelligence Questionnaire (Child Short Form) (TEIQue-CSF). The six teachers assessed the school climate with the School Level Environment Questionnaire (SLEQ). Results suggest that classroom climate is a predictor of emotional intelligence while school climate is not; that satisfaction and cohesiveness positively correlate with emotional intelligence levels, and friction, competitiveness, and difficulty negatively correlate with emotional intelligence levels. The identified relationship between classroom climate factors and emotional intelligence warrants further research into the topic.

KEY TERMS

Emotional intelligence; Emotion; Intelligence; School climate; Classroom climate; Middle childhood; Emotional development; Primary school learners; South African schools; Resilience.

OPSOMMING

Hierdie studie het ten doel gehad om te bepaal of klaskamerklimaat of skoolklimaat 'n groter voorspeller van emosionele intelligensie by Suid-Afrikaanse laerskool leerlinge van Durban, Kwazulu-Natal is, asook watter faktore die ontwikkeling bevorder en watter die ontwikkeling daarvan belemmer. 'n Doelgerigte steekproef van 119 laerskool leerlinge van ses klasse in twee regering skole in Durban is verkry. Die leerlinge het hulle klasklimaat beoordeel met behulp van die 'My Class Inventory (short form) (MCI-SF)', en hulle emosionele intelligensie met die 'Trait Emotional Intelligence Questionnaire (Child Short Form) (TEIQue-CSF)'. Die ses onderwysers het die skoolklimaat beoordeel met die 'School Level Environment Questionnaire (SLEQ)'. Resultate dui daarop dat klasklimaat 'n voorspeller van emosionele intelligensie is terwyl skoolklimaat nie is nie; dat tevredenheid en samehorigheid positief korreleer met emosionele intelligensievlakke, en wrywing, mededingendheid en probleme negatief korreleer met emosionele intelligensievlakke. Die geïdentifiseerde verwantskap tussen klimaatfaktore in die klaskamer en emosionele intelligensie regverdig verdere navorsing oor die onderwerp.

SLEUTEL TERME

Emosionele intelligensie; Emosie; Intelligensie; Skoolklimaat; Klaskamerklimaat; Middelkinderjare; Emosionele ontwikkeling; Laerskool leerlinge ; Suid-Afrikaanse skole; Veerkragtigheid.

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TABLE OF ABBREVIATIONS

DSM	Diagnostic and Statistical Manual of Mental Disorders
ECI	Emotional Competence Inventory
EI	Emotional Intelligence
ELRC	Education Labour Relations Council
ESI	Emotional and Social Intelligence
GPA	Grade Point Average
MCI-SF	My Class Inventory Short Form
MEIS	Multifactor Emotional Intelligence Scale
MSCEIT	Mayer-Salovey-Caruso Emotional Intelligence Test
NSES	National School Effectiveness Study
PIRLS	Progress in International Reading Literacy Study
PTSD	Posttraumatic Stress Disorder
SACMEQ	Southern and Eastern African Consortium for Monitoring Educational Quality
SLEQ	School Level Environment Questionnaire
TEI	Trait Emotional Intelligence
TEIQue-CSF	Trait Emotional Intelligence Questionnaire Child Short Form
TIMSS	Trends in International Mathematics and Science Study

CHAPTER 1:

INTRODUCTION

1.1 MOTIVATION FOR CONDUCTING THE STUDY

For the past decade, the researcher has worked in the field of child development and education – working as an au pair during undergraduate studies, completing practical work at Durban Children's home and the Siyakhula Substance Abuse centre in the final year of a Bachelor of Social Work degree, five years of English teaching on three continents, and co-founding a community project in Mozambique. A strong theme that the researcher has noticed throughout this time has been the low levels of emotional intelligence (EI) in many children: an inability to acknowledge and manage emotions, and difficulty in adapting to the ever-changing circumstances of life. The researcher feels strongly that the current system of education is not adequately preparing children to succeed if and when they complete school, and therefore wanted to investigate whether the classroom climate could have a significant impact on the EI levels of learners, and if so, which classroom factors promote, and which inhibit, the development of EI in children. This information could contribute to the development of programmes that could be used in schools around the country to cultivate the development of EI in children.

The existing literature on EI shows that low levels of EI in children have many negative consequences, both in and out of the classroom (Blair, Denham, Kochanoff, & Whipple, 2004; Fernández-Berrocal & Ruiz, 2008; Kokkinos & Kipritsi, 2012), yet most schools do not prioritise the development of EI in their learners (Bodine & Crawford, 1999; Hastings & Bham, 2003). The aim of this research was to determine whether the school climate or the classroom climate has a greater impact on EI levels in children during middle childhood.

In Chapter 1, the importance of developing EI in children from as young an age as possible is discussed. EI is then defined within the broader theoretical framework, and the motivation for studying EI in primary school children is justified. The research question, aims and hypotheses are stated. A brief overview of the research methodology is then set out, including sampling, data collection and analysis procedures.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

EI refers to a person's "self-knowledge, self-awareness, social sensitivity, empathy, and ability to communicate successfully with others" (Covey, 2004, p. 51). It is necessary for the development and well-being of individuals (Petrides et al., 2010) and has been found to be a strong predictor of personal and academic success (Bar-On, 2003). It could also explain why individuals differ so significantly with regard to psychological well-being, satisfaction with life, and quality of interpersonal relationships (Palmer, 2003). According to Goleman (1995), success in work, study, and personal relationships are all facilitated by EI, which is seen as the link between intelligence and emotions.

The development of EI should be an educational goal starting from as early an age as possible (Rafaila, 2015). However, developmental skills associated with the various developmental stages determine the youngest age at which specific interventions can be implemented. Eadie (2009) believed that the phase of middle childhood is an especially formative stage since children begin to spend more time with peers and therefore start to better appreciate others' points of view. During this stage, children are increasingly influenced by factors outside of the home such as the peer group and schools. Eadie (2009) explained that middle childhood is also a crucial stage for the consolidation of emotional development and is

therefore a conducive stage in which to initiate EI interventions. This further supports the proposition to focus on EI development in middle childhood.

Ballard (2005) believed that greater personal and mental accomplishments could be achieved by children if the development of their EI was prioritised. According to Elias, Zins, Graczyk, and Weissberg (2003), schools need to realise that a good education requires a focus on the both IQ and EQ. Castillo, Salguero, Fernández-Berrocal, and Balluerka (2013) explained that schools which had implemented social and emotional learning programmes reported an increase in academic success, and in the quality of the relationships between teachers and learners. Problematic behaviours such as drug use, aggressiveness, and bullying reportedly decreased. However, short-term, isolated social and emotional learning programmes at schools seem to be less effective than coordinated, long-term efforts (Leu, 2005; Salovey, Mayer, & Caruso, 2002; Zins, Bloodworth, Weissberg, & Walberg, 2004). In their critical review of EI intervention programmes, Zeidner, Roberts, and Matthews (2002) indicated that EI research has identified the school setting as one of the most beneficial for the teaching and learning of emotional skills and competencies. They concluded that schools should therefore be promoting emotional learning within the school rather than viewing it as outside of their mandate. Due to the prioritising of academic learning, however, schools often fail to develop social learning in their learners, and the ramifications of this lack of attention to the emotional well-being of learners have become a problem that many educators have to contend with (Bodine & Crawford, 1999; Hastings & Bham, 2003).

Low EI may result in behavioural problems among learners in four basic areas: interpersonal relationships, psychological well-being, academic performance, and disruptive behaviours (Fernández-Berrocal & Ruiz, 2008). Behavioural difficulties such as bullying, poor performance at school, and a lack of positive peer relations are also related to poor socioemotional skills (Blair, Denham, Kochanoff, & Whipple, 2004). According to Moosa

(2010), these effects can be clearly seen in some South African schools, where behavioural problems are rife. Research conducted by Liang, Fisher, and Lombard (2007) indicated that over a third (36.3%) of South African learners were involved in bullying behaviour – most as victims, some as bullies, and some as both bullies and victims. A strong correlation has been identified between bullying, victimisation, and low EI (Kokkinos & Kipritsi, 2012).

Many different areas of a child's development are significantly affected by their socioeconomic conditions and geographic location (UNESCO, 2011). Regression analysis undertaken by Van der Berg (2011) showed that location, race, economic status, and parent education all influence numeracy and literacy performance in students. Educational attainment alone only accounted for 21% of the variance, whereas educational attainment combined with all the factors mentioned above explained 39%. Further research conducted in South Africa has indicated that a school and its learners' socioeconomic environment are the greatest predictor of learning outcomes (Fleisch, 2008). Many South African schools exist within communities that are plagued with health problems, malnutrition, poverty, and unemployment (Bush, Joubert, Kiggundu, & Van Rooyen, 2010). With a current unemployment rate of 29% (www.statssa.gov.za), with 40% of South Africans living at the lower bound poverty line and 55.5% living at the upper bound poverty line in 2015 (Statistics South Africa, 2017), and with a total of 2 206 million crimes having been reported between April 2014 and March 2015 (BusinessTech, 2015), many South African children grow up in environments that are not conducive to the development of EI. Schools in South Africa are also often poorly resourced, with little to no psychological services available to their learners. Scherman (2002) mentioned crime and violence within schools and shortages of basic resources and funds as being but a few of the many challenges faced by some South African schools. Cortina et al. (2016) believed that despite this, schools have the opportunity to play an integral role in their learners' lives, not only because of the educational opportunities they can provide but also because of the

interactions that learners have with their peers and their teachers. According to Bush et al. (2010), schools provide one of the very few opportunities for disadvantaged children to improve their life circumstances. According to Bodine and Crawford (1999), many youths are not in supportive environments outside of schools, and schools therefore need to compensate for this by creating supportive environments within schools.

Peterson and Skiba (2000) defined school climate as the way that students and staff members feel about the environment of the school over time, and whether these feelings are positive or negative. According to Witcher (1993), the effectiveness of a school can be predicted using measures of school climate, and Fisher and Fraser (1990) indicated that school climate, resources, curriculum, and leadership all greatly contribute to the effectiveness of a school. The climate of a school is vital to its functioning (Fraser, 1998), and it affects learners' personal and cognitive growth, and learners' values and satisfaction (Laugksch, Aldridge, & Fraser, 2007). However, Laugksch et al. (2007) referred to five previous studies that investigated whether any links exist between school climate and classroom climate, all of which indicated that classroom climate is not strongly affected by school climate. Dorman, Fraser, and McRobbie (1997) believed that classrooms can be considered to be "insulated" from the school as a whole. Aldridge, Fraser, and Laugksch (2011) and Koth, Bradshaw, and Leaf (2008) concurred, suggesting that what happens in the classroom is not strongly influenced by the school environment. Creemers and Reezigt (1999) indicated that the effect of school climate can be mediated by classroom climate factors, and that classroom climate exerts a direct effect on cognitive and affective outcomes of the learners.

The behaviour, resilience, feelings, and academic diligence of learners can be positively transformed by establishing a classroom environment that is positive, caring, and encouraging (Lovat & Toomey, 2009). Goal-directed behaviour is more prevalent within positive, supportive classroom environments, whereas avoidance, disruptiveness, and cheating are more

common in classroom climates characterised by negativity, non-supportiveness or ambiguity (Patrick, Turner, Meyer, & Midgley, 2003). Ruthig et al. (2008) also discovered that the academic achievement of learners improves with positive, affective classroom experiences. Aritzeta et al.'s (2016) research corroborated this, suggesting that good academic performance positively correlates with high levels of group EI. In the present study, the learners' perceptions of satisfaction, friction, cohesiveness, competitiveness, and difficulty in the classroom are assessed. Research indicates that learners' benefit from classrooms that are participative (Landau & Meirovich, 2011), cohesive (Adelman & Taylor, 2005), and more focused on learning than on achievement (Brophy, 1999b). Learners are also more satisfied when the work assigned to them is of an appropriate level of difficulty (Solomon, 1981). La Paro and Pianta (2003) indicated that in the ideal classroom, there would be low levels of conflict, appropriate emotional expression, respectful communication, smooth transitions between activities, much interest in and attention to the tasks and activities, a supportive climate, and responsiveness to the individual needs of learners.

1.3 RESEARCH QUESTION

It is difficult to address issues such as environment, resource shortages, and funding shortages within a school, but it is possible to alter the climate of a classroom. If classrooms can be viewed as being insulated from the circumstances of a school, could the classroom climate itself have a significant enough impact to affect a child's EI levels? This study focused on the relationship between school climate, classroom climate, and EI in an attempt to answer this question.

1.4 AIMS OF THE STUDY

1.4.1 General aim of the research

The general aim of the research was to explore the relationship between school climate, classroom climate, and EI in primary school learners.

1.4.2 Specific aims of the research

This study aimed to identify whether the classroom environment can be seen as being insulated from the school environment, and whether or not it can have a significant enough impact to affect a child's EI levels. If so, an additional aim was to determine what the most conducive classroom environment for EI development would be. The three specific aims were hence to:

- Determine the EI of learners from six different classes from two public primary schools in Durban, KwaZulu-Natal, and relate these scores to their perceptions of the classroom climate and their teachers' perceptions of the school climate, in order to determine whether classroom climate or school climate is a greater predictor of EI.
- Determine the learners' perceptions of their classroom climate in five domains (Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness) and the teachers' perceptions of school climate in eight domains (Student Support, Affiliation, Professional Interest, Innovation, Resource Adequacy, Staff Freedom, Participatory Decision Making, and Work Pressure). Analyse the scores against the learners' EI scores in order to determine if there is a correlation between any of the classroom and school climate scales and EI, and which is the greatest predictor of EI.

- Compare the EI levels of learners from six different classrooms in two different schools, as well as their perceptions of the classroom climate on the five scales, to see if there are differences between the classes and the schools and where these differences lie.

1.5 HYPOTHESES

The null hypotheses and their alternative hypotheses for this study were:

1. Ho: Classroom climate is not a significant predictor of EI in primary school learners

H1: Classroom climate is a significant predictor of EI in primary school learners

2. Ho: School climate is a significant predictor of EI in primary school learners

H2: School climate is not a significant predictor of EI in primary school learners

3. Ho: There is no correlation between EI and satisfaction in the classroom

H3: There is a positive correlation between EI and satisfaction in the classroom

4. Ho: There is no correlation between EI and cohesiveness in the classroom

H4: There is a positive correlation between EI and cohesiveness in the classroom

5. Ho: There is no correlation between EI and friction in the classroom

H5: There is a negative correlation between EI and friction in the classroom

6. Ho: There is no correlation between EI and difficulty in the classroom

H6: There is a negative correlation between EI and difficulty in the classroom

7. Ho: There is no correlation between EI and competitiveness in the classroom

H7: There is a negative correlation between EI and competitiveness in the classroom.

1.6 CLARIFICATION OF KEY CONCEPTS

It is necessary to have a clear understanding of the key concepts used throughout this study. The meaning of the principal terms used will therefore be briefly clarified here, and more thoroughly explained in Chapters 2 and 3.

1.6.1 Emotional Intelligence

Much debate exists around the definition of, and hence appropriate measurements for, EI. Ability EI advocates see EI as an actual ability related to emotions and cognition (Petrides, Frederickson, & Furnham, 2004), whereas trait EI is defined as a group of emotional perceptions and behaviours that belong to personality (Petrides, 2011). A popular definition of EI is “the ability to monitor one’s own and other’s emotions, to discriminate among them, and to use the information to guide one’s thinking and actions” (Salovey & Mayer, 1990, p. 89). A simpler definition for EI is “the capacity to perceive, integrate, understand, and manage emotions” (Mayer & Cobb, 2000, p. 171).

According to Petrides (2011), emotional “intelligence” is one of many faux intelligences to have seeped into scientific psychology. These intelligences typically cannot be measured using IQ-type measurements and cannot be scored according to objective criteria. He criticised ability measures of EI for relying on tests that require inept scoring procedures that yield psychologically invalid results. Emotional experiences are subjective, which makes it difficult (if not impossible) to develop and administer objective, maximum-performance tests to measure EI, such as is proposed by ability EI theorists (Brody, 2004). Petrides, Pita, and Kokkinaki (2007) explained that self-report measures used by trait EI theorists are more logical since they focus on self-perceptions and are hence in line with the subjectivity of emotions. The researcher agrees with this, and the following definition of trait EI was hence used for this study: “Trait EI (or trait emotional self-efficacy) concerns emotion-related dispositions and self-perceptions measured via self-report” (Petrides, Pita, & Kokkinaki, 2007, p. 273).

1.6.2 School climate

Freiberg (1999) defined school climate as the quality of the school’s environment and explained that it is reflected in people’s interactions with one another. According to The National School Climate Council (2007, p.5), “School climate refers to the quality and character of school life. It is based on patterns of school life experiences and reflects norms, goals, values, interpersonal relationships, teaching, learning and leadership practices, and organizational structures.”. The climate of a school refers to its atmosphere and is a reflection of the attitudes (like respect, cohesiveness, trust) shared by the learners, teachers, and school population as a whole (Aldridge, Laugksch, & Fraser, 2006). Haynes, Emmons, and Ben-Avie (1997) explained that the cognitive, psychological, and social development of children are all influenced by their daily interactions within school, and that the quality and consistency of these interactions create the school climate.

Schools can be viewed as organisations, or social groups, with their own rules and regulations, roles, hierarchies, goals, and patterns of communication (Dorman et al., 1997). The climate of a school is influenced by the social, community, district, school, and classroom environments (Lunenburg, 2011). According to Fraser (1998), climate is vital to the life of a school. Not only does it influence the cognitive outcomes of learners, but also personal growth, values, and satisfaction (Vyskocil & Goens, 1979). Schools can be emotionally and academically stabilising for children (Wang & Halcombe, 2010), and can determine a learner's perception of the educational experience (McNeely, Nonnemaker, & Blum, 2002).

Lunenburg (2011) explained that school climate can be measured indirectly by, for example, examining records and observing the environment, or directly through gathering information from major stakeholders through surveys and interviews. Direct measures rely on people's perceptions to determine school climate, and perceptions lack objectivity by their nature (Creemers & Reezigt, 1999). The perception of the climate of a school will be different depending on who you ask (Scherman, 2002). The advantages of perception measures, however, are that they are economical and are based on experiences (Fraser, 1998).

1.6.3 Classroom climate

Classroom climate includes aspects of "interpersonal relationships, learner-teacher relationships, peer relationships, teachers' beliefs and behaviours, teachers' communication style, classroom management, and group processes" (Allodi, 2010, pp. 89-90). A more simplified view of classroom climate is that it is made up of the management efforts of teachers, and the participation of learners (Brekelmans, Den Brok, Van Tartwijk, & Wubbels, 2005). Classroom management refers to the creation of a learning environment that is both safe and stimulating (Djigic & Stojiljkovic, 2011). Evans, Harvey, Buckley, and Yan (2009) explained that the classroom climate consists of a large number of factors, but believed that classroom

management and instructional style are the most important, both of which are a result of the emotional relationship between the learners and their teacher. They explained that this emotional climate and the manner in which teachers address affective states would, however, be very difficult for the learners themselves to summarise. Many measures of classroom climate, such as the My Class Inventory, hence only measure the teacher's influence indirectly.

For effective classroom management to occur, teachers need to consider the needs and backgrounds of their learners (Land & Hannafin, 2000). This task is facilitated by positive classroom climates, as such an environment allows teachers to more effectively manage a range of students with different ability levels, cultures, and learning styles (Evans et al., 2009).

Research into classroom climate became popular when it was realised that a relationship exists between positive classroom climates and the engagement, motivation, and participation of learners (Evans et al., 2009; Patrick, Kaplan, & Ryan, 2011). Classrooms provide better learning opportunities if they are characterised by goal-direction and cohesion, rather than disorganisation and conflict (Djigic & Stojiljkovic, 2011). Other essential elements within a classroom are mutual respect and understanding. High levels of conflict within the classroom, as well as dependency on the teacher, have been linked to learner behavioural problems (Hamre & Pianta, 2001). According to Aldridge et al. (2011), the classroom is somewhat insulated from the school environment as a whole, and changes at school level do not greatly affect the climate of a classroom.

1.6.4 Middle childhood

For the purpose of this study, the focus was on primary school learners between the ages of 8 and 11, or "late" middle childhood. Middle childhood refers to the period of childhood from 6 to 11 years of age, during which time social skills acquisition is facilitated by increased cognitive growth. The cognitive changes that occur during this period enable children to engage

in moral reasoning and to better understand the self, and others (Collins, Madsen, & Susman-Stillman, 2002). According to Erikson, this is the stage of “industry vs inferiority”, where a child’s self-esteem is mostly determined by their view of their own ability (or lack thereof) to work productively and effectively (Papalia, Olds, & Feldman, 2007). Successful resolution of this stage results in “competence” – the child views himself or herself as an individual capable of mastering skills (Papalia et al., 2007). They evaluate themselves as competent, or incompetent, by comparing their abilities to those of their peers. The peer group hence becomes of central importance in middle childhood, as children begin to move away from the egocentrism and strong family focus that characterises early childhood psychosocial development (Ballard, 2005). Children in middle childhood compare their talents, aptitudes, and appearance to those of their peers, and it becomes important for them to express their emotions appropriately (Greenspan, 1993). Du Toit and Kruger (1991) stated that a child in middle childhood is in the process of moving towards autonomy and independence, but that they still need adult assistance. The influence of parents, teachers, and other significant adults is therefore critical during this stage.

1.7 POTENTIAL CONTRIBUTION OF THE STUDY

Upon conducting a literature review into the topic of the effects of classroom climate on learners’ EI levels, it was discovered that while much research has been conducted into EI, little such research has been conducted in a South African context. That which has been conducted mainly focuses on the theories of EI or the importance of cultivating EI in educators.

This study explored not only the importance of EI, but also the various factors within the classroom that actively inhibit or promote the development of EI in children. It compared levels of EI among South African primary school learners attending different government

schools in Durban, KwaZulu-Natal, and assessed these scores against their perceptions of their classroom climate. It also assessed the EI of the learners against their teachers' perceptions of the school climate in an effort to determine whether classroom climate can have a greater effect on learners' EI levels than school climate. Classroom and school climate factors were also individually compared to the learners' EI levels in order to determine which factors, if any, promote or inhibit the development of EI in children.

This study attempted to contribute to the current knowledge base regarding the importance of EI and the factors that contribute to the cultivation of EI in children in the primary school context, in the hope that the information obtained may lead to further attention being given to the importance of EI development within schools.

1.8 RESEARCH DESIGN AND METHOD

A quantitative research approach was used to explore the influence of school and classroom climate on EI, and to identify which classroom climate factors, if any, promote or inhibit the development of EI in children. The EI of 119 primary school children was assessed using the Trait Emotional Intelligence Questionnaire – Child Short Form (TEIQue-CSF). These same learners evaluated their classroom environment with the My Class Inventory Short Form (MCI-SF), and their teachers completed the School Level Environment Questionnaire (SLEQ). The results were analysed to determine if any correlation existed between the five factors of classroom climate and EI, and/or if any correlation existed between the eight factors of school climate and EI.

This study focused on learners' and teachers' perceptions of their school and classroom climate, and investigated if either correlated with learners' EI. Measures that focus on perceptions were hence used:

- The MCI-SF, which measures a learner's perceptions of his or her classroom climate in terms of five domains, namely Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness.
- The SLEQ, which assesses school climate from the teacher's perspective in terms of eight domains, namely Student Support, Affiliation, Professional Interest, Staff Freedom, Participatory Decision Making, Innovation, Resource Adequacy, and Work Pressure; and
- The TEIQue-CSF, which assesses a learner's EI subjectively.

The sample of participants was from six different classes, from two different government schools in Durban. The participants were all between the ages of 9 and 11, could read and write in English, had permission from their parents/guardian to participate in the study, and had given informed consent to participate in the study. Purposive sampling was used. The learners completed the MCI-SF and TEIQue-CSF during school hours, while the teachers completed the SLEQ in another room. All three questionnaires are paper-and-pencil, multiple-choice questionnaires, and the researcher was present during the entire process in order to offer clarification on questions when needed.

The data were processed using the SPSS computer program. Descriptive statistics were determined for each of the three questionnaires. Pearson's product-moment correlation coefficients (r) were calculated between the total EI score on the TEIQue-CSF, the five scales of the MCI-SF, and the eight scales of the SLEQ. Regression analysis was used to assess the relative impact of classroom climate and school climate on the EI of the learners. For further exploration, ANOVA was run to explore differences between the mean scores on the TEIQue-CSF for the six different classes as well as the two schools. The data for the MCI-SF violated normality assumptions, so a Kruskal-Wallis test was run to explore differences between the

mean scores on the five classroom climate scales for the six different classes as well as the two schools.

1.8.1 Ethical considerations

The researcher was granted ethical clearance to conduct the study from the University of South Africa (Appendix A) and obtained permission from the Department of Education in KwaZulu-Natal (Appendix B). Further permission to conduct the study was obtained from two different schools in Durban.

Particular attention was given to the ethical considerations of informed consent and anonymity/confidentiality (see Appendix C for consent form). Learners who were interested in volunteering for the study were given consent forms to take home to their parents, outlining the purpose of the study. Learners who volunteered, and whose parents gave consent, could then participate in the study. It was explained to both learners and parents that a report of the results of the study would be made available to them upon request. The identities of the schools, the teachers and the learners were kept completely confidential.

1.9 CHAPTER OVERVIEW

This research report is divided into the following chapters:

In Chapter 1 an introduction and general orientation to the research report is provided with a specific focus on the following: introduction, motivation for conducting the study, problem formulation, and general and specific aims of the project. Furthermore, the application of the quantitative research process is briefly discussed with reference to the instruments to be used, the method of data analysis, the availability of the data, data collection procedures, and ethical considerations for the study.

In Chapter 2 a thorough literature review is presented to explore theories on EI. The most popular theories of EI are described, and their assessment methods are discussed. Research related to differences in race and gender scores is briefly mentioned.

In Chapter 3 the focus is on EI in primary school learners. Literature on theories of human development is briefly mentioned, with a focus on Erikson's stages of psychosocial development. The stage of middle childhood is then further discussed. School and classroom climates and their impact on learners' development are explored, and the South African school context is described.

In Chapter 4 the methodology of the study is presented, beginning with the research paradigm and the research design. The choice of research methods is justified, and the sampling procedures described. Details of the research instruments used in the study are given, and the data collection and analysis methods are explained. Finally, the ethical considerations of the study are outlined.

In Chapter 5 the results of the empirical investigation are presented.

In Chapter 6 the findings of the study are summarised and discussed. The limitations of the study are also reviewed and recommendations are provided.

1.10 CHAPTER SUMMARY

In this chapter, the importance of developing EI in children from as young an age as possible was discussed. EI was defined within the broader theoretical framework, and the motivation for studying EI in primary school children was justified. The research methodology was briefly set out, including sampling, data collection and analysis procedures, and the ethical considerations for the study. In the following chapter, relevant, existing literature on the topic of EI will be discussed.

CHAPTER 2:

EMOTIONAL INTELLIGENCE

In this chapter, EI is defined and its relation to emotions and intelligence explored. The history of the concept of EI and the controversy surrounding it are briefly reviewed, and the current major models of EI and their methods of measurement are described.

2.1 DEFINING EMOTIONAL INTELLIGENCE

EI connects emotions with intelligence (Mayer, Caruso, & Salovey, 1999). It refers to an individual's ability to cognitively regulate their emotional life (Stuart & Pauquet, 2001), and to draw upon their emotions as an energy source for guiding their thoughts and actions (Salovey & Mayer, 1990). EI can be viewed as a set of processes that support adaptation to emotive situations, with emotional skills continually being refined through experiential learning (Zeidner et al., 2002). Emotions are considered to be motivating forces that arouse, direct, and sustain activity (Stuart & Pauquet, 2001) and intelligent, strategic behaviour a result of emotional and cognitive neural systems working together (Lane & Pollermann, 2002). According to Mayer, Roberts, and Barsade (2008), decades of EI research reveals that EI is related to emotion and intelligence, yet also distinct from both.

2.1.1 Emotions

Emotions are central to human life (Oatley, 2008) and integral to social interactions and relationships (Barrett & Salovey, 2002). They enable people to interpret social cues and to regulate their interactions in social situations (Lopes, Salovey, Coté, & Beers, 2005). Damasio (2004) defined emotions as bioregulatory reactions which serve the function of maintaining our survival and well-being by either directly or indirectly promoting the necessary

physiological states. Emotions can be more broadly defined to include processes that vary in duration from brief feelings experienced in response to a situation, to more enduring emotional styles (Oatley & Jenkins, 1996).

According to Smirnov (1994), emotions both influence and direct thinking activity. The knowledge required to generate, select, and then enact a response is provided by cognition, but the energy and motivation to act are provided by emotions (Goodman & Southam-Gerow, 2010). The root of “emotion” is etymologically related, through French, to Latin *motere* “to move”, and Goleman (1995) explained that emotions, therefore, create a compulsive need to act. When an individual has incomplete knowledge of a situation and is uncertain how to proceed, emotions can play an adaptive role by motivating the individual to make a decision, and to then act upon it (Cole, Martin, & Dennis, 2004; Damasio, 1994; Oatley & Jenkins, 1996). In the majority of situations that adapting organisms encounter, it is impossible to rigorously make logical decisions, and Pugh (1977) concluded that human intelligence, therefore, cannot be based on logical rationality alone. According to Pugh (1977), emotions provide a mechanism whereby provisional, “good enough” knowledge structures can be created so that a course of action can be decided upon. In most situations, the emotional centre of our brains (the amygdala) responds before the cognitive centre (the neocortex) does (Pessoa, 2013).

Cognition and emotion are both types of information processing, but they serve different functions (Lemerise & Arsenio, 2000). Cognition involves knowledge, whereas emotions are needed for motivation (Izard, 1993). They influence one another (LeDoux, 1995). Cognition is required for the facilitation and adaptation of goal-directed behaviour, whereas emotions are needed to organise and motivate the behaviour (Campos, Campos, & Barrett, 1989). Damasio (1994) believed that emotions are integral to the making of rational decisions, and Oatley and Johnson-Laird (2011) indicated that emotions are communicative: signals

within the brain allow goals to be prioritised so that appropriate action can be taken. The ability to recognise emotions is therefore necessary for an individual's well-being (Mayer & Geher, 1996).

Emotional responses are subjective and depend on the meaning that the individual attributes to the situation (Frijda, 1988). They arise in response to an event that has significance to the individual and, therefore, serve as a feedback system between the individual's self and the environment (Salovey & Mayer, 1990). While visual and auditory stimuli send messages to the brain from the external environment, emotions send messages from the internal, body environment (Dunn, Dalgleish, & Lawrence, 2006). Emotions are the result of a combination of physiological and cognitive processes. The physiological refers to distinct physical responses to emotions, while the cognitive involves the interpretation of emotions (Damasio, 1994; Gratch & Marsella, 2004).

2.1.2 Intelligence

Sternberg said that: "Viewed narrowly, there seem to be almost as many definitions of intelligence as there were experts asked to define it" (Legg & Hutter, 2007, p. 10). Neisser et al. (1996) indicated that debates have existed since the beginning regarding the nature of intelligence, and how many intelligences actually exist. According to Legg and Hutter (2007), the various definitions of intelligence seem to agree that intelligence:

- is an ability that an individual utilises to engage with its environment.
- is related to an individual's ability to achieve its goals.
- relates to an individual's ability to adapt to different environments and objectives.

They used these commonalities to create their own definition of intelligence:

“Intelligence measures an agent’s ability to achieve goals in a wide range of environments.” (Legg & Hutter, 2007, p. 9). This definition is in line with Sternberg and Kaufman’s (1998) observation that all definitions of intelligence seem to have two themes in common: the ability to learn from experience, and the ability to adapt to the environment. Brody (2004) indicated that there is a general consensus among theorists that intelligence is made up of a hierarchy of abilities that are necessary for the solving of abstract reasoning problems.

To this day, there is still no standard definition of intelligence. Charles Spearman believed in a general, all-encompassing intelligence which is referred to as “g”: general intelligence (Spearman, 1904). He argued that research findings show that there is a positive correlation between performance on any one test of cognitive ability, and any other test of cognitive ability, which proves the existence of a general intelligence (Brody, 2004). Spearman developed factor analysis in 1904 and used this statistical procedure to establish his two-factor theory of intelligence, which proposed that all cognitive abilities are influenced by a person’s “g”, but that specific tasks are also influenced by “s”: specific abilities. Cattell (1971), a famous student of Spearman’s, later split general intelligence into fluid (process-dependent) and crystallised (memory-dependent) intelligence, which differ in their rate of developmental decay. Cunningham, Clayton, and Overton (1975) explained that both fluid and crystallised abilities develop rapidly during childhood, but that fluid intelligence increases until a person has reached neural maturation (generally in adolescence) and then declines, whereas crystallised intelligence increases steadily across the lifespan of a healthy individual. Crystallised intelligence reflects the experiential part of intelligence and refers to what a person learns from their life experiences (Cattell, 1971).

Many contemporary researchers do not believe that the relationships between different abilities can be adequately explained by a general intelligence (Brody, 2004), and indicate that tests of general intelligence do not consider situational factors such as culture or environment

(Van Rooy, Dilchert, Viswesvaran, & Ones, 2006). Sternberg agreed with the importance of a general intelligence, but indicated that standard IQ tests do not adequately and entirely assess the large range of abilities that humans possess (Brody, 2004). Sternberg (1985) offered a triarchic theory of intelligence, which consists of analytical intelligence (which is what standard IQ tests measure), practical intelligence, and creative intelligence. Sternberg and Kaufman (1998) suggested that the multiple abilities that children possess are underused in educational institutions where the focus is mainly on analytical intelligence, at the expense of practical and creative intelligence. According to Sternberg (1997), conventional intelligence may be less important than what he terms successful intelligence, which refers to the ability to achieve personal, cultural, and societal goals by adapting to, shaping, and selecting environments. Modern society requires people to possess skills for handling change and complexity, for adapting to situations they have no experience in and have not yet practiced (Lubinski, 2004). Tasks at school, in work, and in life are no longer concrete and well-defined; they have become more fluid and abstract (Lubinski, 2004).

A number of theorists support a multifactor theory and believe that a person can possess many different intelligences (Stys & Brown, 2004). Thurstone (1924) suggested that intelligence consists of different mental faculties that are relatively independent of one another, namely verbal comprehension, word fluency, spatial visualisation, numerical fluency, associative memory, perceptual speed, and reasoning. Gardner (1983) believed that we all have at least eight intelligences (talents), some of which are more developed than others. These intelligences are linguistic, logical-mathematical, spatial, body kinesthetic, interpersonal, intrapersonal, musical, and naturalistic intelligence. Gardner (1983) did not view intelligence as a single construct, but rather as a set of abilities which enable an individual to adapt to the environment. Many now agree with Gardner that the traditional view of and assessment for IQ

focused narrowly on linguistic and maths skills (Antonakis, Ashkanasy, & Dasborough, 2009; Weiten, 2001).

In Gardner's (1983) theory of multiple intelligences, personal intelligence is divided into intrapersonal intelligence (being able to assess one's own feelings and represent them symbolically) and interpersonal intelligence (being able to identify the moods, intentions, and desires of others). Gardner (1983) stated that neither intelligence can develop without the other and that it is crucial for individuals to both know themselves and to know others in order to succeed in life. Mayer and Salovey (1993) indicated that their concept of EI is related to Gardner's intrapersonal intelligence, and De Klerk and Le Roux (2003) believed that Gardner's theory brought the importance of EI to light.

Kaufman, Kaufman, and Plucker (2013) divided the theories of intelligence into three broad categories. The first are the theories that are closely associated with the measurement of intelligence, such as Spearman's "g" and Cattell's fluid and crystallised intelligence. These theories form the basis of almost all commercial intelligence tests. The second category contains theories that were created to address the gaps in traditional intelligence theories. This category includes Gardner's theory of multiple intelligences, as well theories of EI. The third category involves theories that are based on the latest cognitive and neuroscience research, such as the theory of Parietofrontal Integration and the Dual-Process theory. According to Kaufman et al. (2013), these theories focus on differences in human intellect, but do not yet have much practical applicability with regard to intelligence testing.

2.1.3 Emotional Intelligence (EI)

EI involves the recognition of one's own, and others', emotional states, and the ability to use this knowledge both for problem-solving and for the effective regulation of behaviour (Mayer & Salovey, 1993). Petrides and Furnham (2003) explained that the construct of EI is

based on the premise that individuals differ with regards to their ability to recognise, process, and use information related to their own emotions (intrapersonal) and the emotions of others (interpersonal). According to Mayer, Salovey, and Caruso (2008), some individuals are better able to process information regarding emotions and to use this information to guide their thinking and behaviour. This ability has been termed EI (Mayer, Salovey, & Caruso, 2008). A person with a high EI can avoid counter-productive results by adapting his or her own emotions to more effectively suit a given situation (Caruso, Mayer, & Salovey, 2002). The role of emotions has often been overshadowed by that of intellect, but more than intellectual ability is required for success in life (Zeidner et al., 2002). According to Davis (2005), IQ provides the floor for an individual's accomplishments, while EQ (EI) determines the ceiling, meaning how high the individual can rise in comparison to others with the same cognitive ability.

While there are a multitude of definitions for EI, these typically indicate that EI includes the ability to understand and control one's own emotions, as well as the ability to understand and manage the emotions of others in social interactions (Badenhorst & Smith, 2007; Ciarrochie, Chan, & Bajgar, 2001). An enhanced understanding and awareness of emotions and the reasons behind emotional reactions in oneself and others could result in more effective problem solving and enable a person to function more optimally in demanding environments (Austin, Saklofske, & Egan, 2005). A person who is emotionally competent will have higher EI and possess certain abilities and competencies that a person who has low emotional competence might not (Dulewicz & Higgs, 2000). EI develops over the course of a person's life, and the ability to demonstrate emotional competence can be enhanced through training (Ashkanasy & Daus, 2005; Hunt & Evans, 2004).

Rafaila (2015) indicated that EI is coordinated by neural centres in the limbic system and is supported and supplemented by intellectual intelligence. Krueger et al. (2009) explained that the prefrontal cortex plays a large role in the social-emotional behaviour of humans, and

their research findings suggested that specific neural prefrontal cortex substrates mediate key competencies involved in EI. These authors concluded that there are definite neural foundations underlying EI and that these can be impaired by damage even when other intellectual functioning remains normal. This supports Matthews, Zeidner, and Roberts (2004) view that at the neurophysiological level, EI is possibly influenced by the amygdala and other subcortical emotion centres, as well as the prefrontal cortex and other cortical systems.

2.2 MODELS OF EMOTIONAL INTELLIGENCE

Salovey and Mayer (1990) indicated that EI theories were originally developed in an attempt to fill the gaps in understanding of human intelligence by identifying its non-cognitive contributions. According to Eysenck (1994), many theorists agree that intelligence has three meanings:

- Biological intelligence – refers to the brain’s physiological processes and neural networks;
- Psychometric intelligence – refers to cognitive ability, measured by IQ tests; and
- Social intelligence – or practical intelligence, entails applying one’s cognitive ability to adaptation in life by using emotions and one’s personality to facilitate success.

According to Joseph and Newman (2010), the first mention of the term “social intelligence” was made by Dewey in 1909. Thorndike (1920) is, however, often credited with devising the term “social intelligence”, which refers to a person’s ability to understand and manage others, as well as to appropriately engage in social interactions. According to Roberts, Zeidner, and Matthews (2001), EI may have come from the construct of social intelligence, which has its roots in Thorndike’s (1920) three-part division of intelligence into:

- Abstract-scholastic intelligence – the ability to understand and manage ideas;

- Mechanical-visuospatial intelligence – the ability to understand and manipulate objects; and
- Social (practical) intelligence – the ability to understand and manage people, and act appropriately in social contexts (Roberts et al., 2001).

Of the three, social intelligence has been researched the least, due in part to the difficulty in distinguishing between social intelligence and general intelligence (Roberts et al., 2001). Joseph and Newman (2010) indicated that empirical evidence for the construct still seems weak 100 years after it was first mentioned. Sale (2014) explained that some theorists consider EI to exist within the construct of social intelligence. Salovey and Mayer (1990) originally viewed EI as part of the personal intelligences, a subset of social intelligence, but revised this theory in 1997. The revised theory places more emphasis on cognition, with EI being seen as a group of intelligence factors which enable a person to understand and use emotional information and to effectively combine emotions and thought for problem-solving (Wakeman, 2006).

Although Salovey and Mayer were the first to publish works referring to EI (McCleskey, 2014), the public was exposed to EI through a series of newspaper and magazine articles that followed on from Daniel Goleman's book *Emotional intelligence: Why it can matter more than IQ* (Mayer, Salovey, & Caruso, 2004). Goleman had been exposed to the concept of EI through Salovey and Mayer's work. His "mixed model" of EI was, however, criticised for integrating elements of personality in its description of EI, since this went against purist traditional definitions of intelligence (MacCann, Matthews, Zeidner, & Roberts, 2003). As Mayer et al. (2004) put it, these models and the measures associated with them often have very little, if anything, to do with either emotion or intelligence, and therefore cannot be termed "emotional intelligence".

The Salovey and Mayer model of EI generated great interest in the concept of EI and resulted in the development of a multitude of EI tools and theories, many of which were neither reliable nor valid (Davies, Stankov, & Roberts, 1998). It also sparked endless debates and disagreements regarding the nature of EI and how best to measure it (Roberts et al., 2001), and whether EI is even a scientifically viable concept (Mayer et al., 2004).

Ballard (2005) explained that the ability model put forward by Salovey and Mayer sees EI as a range of abilities and competencies that aid reasoning by providing relevant information, whereas the mixed model of EI that was popularised by Goleman groups EI together with social competencies, traits, and behaviours. Mixed models essentially “mix” many personality variables together with cognitive abilities (Mayer et al., 1999), whereas the ability models are based on a purely cognitive definition of EI. Mixed models of EI resulted in much criticism of the construct since these models appear to define EI as any desirable characteristic that cannot be attributed to cognition, and these characteristics are too similar to personality traits to be justifiably considered distinct constructs (Joseph & Newman, 2010). Roberts et al. (2001) indicated that problems around conceptualising EI have resulted in difficulty in distinguishing between EI and other personality, ability, and motivation constructs that exist within psychology.

Petrides and Furnham (2001) further distinguished between trait EI and information-processing EI. Trait EI theorists see EI as a type of trait rather than as an ability or a set of skills (Petrides, Pita, & Kokkinaki, 2007), whereas information-processing EI models such as the Mayer-Salovey model view EI as an actual ability which is expected to correlate highly with other measures of intelligence (Mavroveli & Sanchez-Ruiz, 2011). Trait EI is assessed through self-report instruments that measure typical behaviour, whereas information-processing EI is assessed with objective assessment measures (Petrides, 2011). Non-significant correlations have been found between measures of trait and ability EI, illustrating the large difference

between these two constructs (Joseph & Newman, 2010; O'Conner & Little, 2003). Despite this, Cherniss, Extein, Goleman, and Weissberg (2006) indicated that all EI models recognise that EI consists of two domains: awareness and management of emotions in oneself, and awareness and management of the emotions of others.

According to Petrides, Furnham, and Mavroveli (2007), progress in the field of EI research will only be possible if it is accepted that trait EI and ability EI are conceptually distinct from one another. They emphasised that the crucial distinction between typical and maximum-performance tests indicates that two different EI constructs are being measured, namely ability and trait EI (Mavroveli & Sanchez-Ruiz, 2011). In response to Waterhouse's (2006) criticism regarding the existence of too many conflicting constructs of EI, Cherniss et al. (2006) indicated that IQ theory has also had multiple versions, and that there is still no consensus on what it is or how best to measure it after over a 100 years of research. According to these authors, it seems that EI is being held to a different standard by expecting a consensus to have already been reached on a definition for the construct.

2.2.1 Ability models

In the Salovey-Mayer ability model of EI, the construct is described as the ability to reason about and utilise emotions to assist thought (Mayer et al., 2004). Four branches of EI were identified by Mayer and Salovey (1997), with the first requiring the most basic and the fourth the most complex reasoning (Herrera, Buitrago, Lorenzo, & Badea, 2015; Matthews et al., 2004; Mayer et al., 1999):

- Emotional perception: perceiving, assessing and expressing emotions;
- Emotional facilitation of thought: using emotions to facilitate cognitive processes and complex problem solving;

- Emotional understanding: concerns understanding, interpreting, and utilising emotional knowledge; and
- Emotional management: reflectively regulating emotions in order to grow, both emotionally and intellectually.

According to the ability model, EI refers to the ability to perceive and reason abstractly using information generated by feelings (Mandell & Pherwani, 2003). Matthews et al. (2004) indicated that EI, according to the Mayer-Salovey-Caruso model, involves the processing of emotional information in an intelligent way, and should therefore resemble traditional, established intelligence systems. Mayer (2009) referred to EI as a personal intelligence which involves the ability to reason about personal information from oneself and from others, and to use this information to enhance thinking. Mayer et al. (1999) insisted that the construct of EI meets the stringent criteria set to be called a true intelligence. They divided these criteria into three groups:

- Conceptual: intelligence must reflect an actual ability, a mental performance. It cannot reflect preferred behaviour patterns, self-esteem, or any attainment that is non-intellectual;
- Correlational: intelligence should refer to a set of related abilities that are distinct from, but similar to, already-established intelligences. Mayer and Salovey (1997) explained that a low to moderate correlation between two different intelligences is ideal; and
- Developmental: intelligence should develop with experience, and with age.

Mayer et al. (1999) maintained that Salovey and Mayer's ability model of EI meets all of the above criteria and behaves psychometrically just as an intelligence should. According to these authors, general intelligence is made up of related groups of mental abilities, with spatial

and logical information processing as sub-skills. They concluded that EI is an intelligence that is related to information processing since it involves the ability to process emotional information (Mayer et al., 1999). It is seen as being similar to spatial or verbal intelligence, except that it acts on information from emotions (Caruso et al., 2002).

According to Mayer et al. (1999), the mixed models of EI (such as the Goleman and Bar-On models) include various personality traits in their definitions of EI, which strays from the traditional view of intelligence. Mayer and Salovey (1993) explained that a trait is not an ability, it is a behavioural preference, whereas understanding emotions in the self and in others is a mental ability. Meta-analysis of trait and ability models shows a weak positive relationship between ability EI and measures of verbal IQ and crystallised intelligence, and between trait EI and facets of personality (Van Rooy, Viswesvaran, & Pluta, 2005).

Mayer et al. (1999) developed the Multifactor Emotional Intelligence Scale (MEIS), an ability-based measure of EI in which respondents are asked to solve different emotion-related problems. They explained that such ability-based measures are more objective than self-report assessments (Mayer et al., 1999). They later developed the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which consists of eight tasks that measure the four branches of the Mayer-Salovey ability model of EI, namely perception of emotions, integration and assimilation of emotions, knowledge about emotions, and management of emotions. The result of the completed measure is an overall EI score, and scores for each of the four branches of the measure (Conte, 2005).

2.2.2 Mixed models

EI, according to mixed model theorists, is a combination of skills, abilities, motivations, and personality-like traits, and is distinct from both cognitive ability and personality (Byrne, Dominick, Smither, & Reilly, 2007). Research has shown that mixed models generally show

no significant correlation to cognitive ability (Van Rooy & Viswesvaran, 2004), but overlap with already-established measures of personality (MacCann et al., 2003).

2.2.2.1 *The Bar-On model*

Bar-On (2006, p. 14) defined EI as “a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands”. Bar-on (2006) preferred to refer to EI as “emotional-social intelligence” since he believed that it consists of a combination of intrapersonal and interpersonal skills and competencies that dictate effective human behaviour. The Bar-On model was influenced by the early work of Darwin which emphasises the adaptive, survival dimension of emotional expression. According to Darwin (cited in Bar-On, 2006), emotions developed because they are adaptively valuable.

The Bar-On model consists of four factors, namely:

- Intrapersonal, which consists of abilities such as recognising and labelling feelings;
- Interpersonal, which consists of abilities such as empathy and identifying emotions in others;
- Stress management, which includes various affect-regulating abilities; and
- Adaptability, which refers to adjusting behaviours and emotions to suit changing situations.

Bar-On (2006) used this four-factor model as a guide when developing the Bar-On Emotional Quotient Inventory (Bar-On EQ-i). He believed that the personal, emotional, social, and survival dimensions of intelligence (non-cognitive intelligence) are more important for an individual’s daily functioning than purely cognitive intelligence (Smith, 2002). Bar-On insisted that in order to successfully deal with the demands of the modern environment, a person needs to be able to solve problems, tolerate stress, and control their impulses (Bar-On, 2006). Bar-

On views cognitive intelligence as being strategic (an individual's capacity to function) and non-cognitive intelligence as being more functional (an individual's capacity for immediate functioning) (Smith, 2002). Conte (2005) indicated that academic success, commonly assessed by the grade point average (GPA) of students, might be influenced by EI. Although the results of cognitive, non-emotional tasks make up students' GPA, Bar-On (2006) believed that academic success is also based on non-cognitive aspects, such as whether or not students can cope with environmental stresses and demands. These non-cognitive aspects are measured by the Bar-On EQ-i. Bar-On (2006) later stated that by implementing relevant programmes at schools, EI skills can be enhanced.

Bar-On (2006) viewed EI as a dispositional construct that can be assessed through self-report measures. The Bar-On EQ-i operationalises the Bar-On model and contains 133 short questions that are answered on a 5-point response scale (Bar-On, 2006). The result of the completed test is an overall EQ score, and scores for the five different scales: intrapersonal, interpersonal, adaptability, general mood and stress management (Conte, 2005).

2.2.2.2 *The Goleman model*

According to Goleman (2001), Mayer and Salovey's theory of EI could be regarded as a model of intelligence, while Bar-On's theory of EI could be defined as a personality theory. Goleman defined his own model of EI as a theory of performance. Goleman (1998) regarded EI as the capacity for recognising one's own feelings and the feelings of others (self-awareness), for motivating oneself, and for managing one's own emotions and emotions within relationships. Petrides (2010) indicated that it is difficult to validate the Goleman model scientifically due to its use of unsubstantiated claims and imprecise terminology, but explained that the Goleman model was not originally intended as a scientific publication so perhaps should not be evaluated as such.

While social and emotional skills were historically believed to be innate qualities that a person either does or does not possess, Goleman (1998) insisted that emotional skills can be learnt through training and support. According to Goleman (2001), the rate of formation of new neurons and hence new neural pathways in the brain is increased by repetitive learning, and social behaviour can therefore be modified through the learning of emotional skills. Goleman (2006) often focused on the evolutionary, neurophysiological aspect of EI, indicating that the amygdala in the midbrain scans all information received for potential threats, and triggers a response to any potential threat across the hypothalamic-pituitary-adrenal axis. Stress hormones that are subsequently released affect the brain's prioritisation of information in order to focus on the stressor/source of the fear, and results in the fight or flight response. According to Goleman (2006), complex and symbolic stressors have replaced threats to survival in the modern world, yet the amygdala still functions in its survival role and has the same response to modern stressors as to survival threats. According to Goleman (1995, p. 34), EI includes "abilities such as being able to motivate oneself and persist in the face of frustrations, to control impulse and delay gratification, to regulate one's moods and keep distress from swamping the ability to think, to empathise and to hope".

Goleman (1995) identified 25 competencies within five domains of EI, which he believed to be integral to overall success: self-awareness, awareness of others, managing one's emotions, motivating oneself, and negotiation/conflict resolution skills. Goleman (2001) later refined his model of EI using statistical analyses from Boyatzis, and reduced the 25 competencies to 20, and the five domains into four: self-awareness, self-management, social awareness, and relationship management. According to Goleman (2001), each domain is distinct from the next and originates from specific neurological mechanisms that are distinct from purely cognitive abilities. Goleman (2001) explained that cognitive intelligence is mainly neocortical, whereas EI integrates neocortical and limbic circuitry. Goleman (2006) explained

that children do not have a high EI since the circuitry of the prefrontal cortex/amygdala is the last part of the brain to fully develop, and it does not fully mature until a person's mid-20s. He believed that EI can be fostered in children from early childhood, but that the opportunity to promote the development of their EI continues throughout the school years (Goleman, 1995). Goleman (1995) insisted that the foundation for a child's emotional skills development begins in the earliest years, and that skills acquired later in life build on these.

Boyatzis and Goleman built onto Boyatzis's self-assessment questionnaire, which he developed in 1991, to create the Emotional Competence Inventory (ECI) (Boyatzis, Goleman, & Rhee, 2000). The Hay/McBer's Generic Competency Dictionary also influenced the development of the ECI (Byrne et al., 2007)

2.2.3 Trait models

Trait EI theorists, such as Petrides and Furnham (2003), view trait EI as "a distinct, compound trait located at the lower levels of personality hierarchies" (Petrides, Pita, & Kokkinaki, 2007, p. 287). It refers to people's perceptions of their own emotional world (Petrides et al., 2016), and includes dispositions such as empathy, impulsiveness, and sensitivity, which belong to the domain of personality (Petrides, Pita, & Kokkinaki, 2007). Petrides (2010) indicated that one of the advantages of trait EI theory is that it integrates EI into already-established theories of differential, personality psychology, instead of viewing it as a new entity that is separate from scientific knowledge that has already accumulated.

According to trait EI theory, individuals are born with an innate ability to perceive, control, and use their emotions, as well as to adapt to the demands of the environment. Hein (2007) indicated that a person's environment often determines whether their innate EI is developed or inhibited. An environment that is positive and conducive to the development of EI will result in higher EI levels among individuals, whereas environments that are negative

will often result in lower EI (Hein, 2007; Petrides & Furnham, 2003). The fit between personality and environment is also relevant here since certain emotion profiles will be more advantageous in some contexts than in others (Petrides, 2010). The current study is concerned with whether children's school and classroom climates (environments) can promote or inhibit the development of their EI, and trait EI theory was therefore used for the study.

According to Petrides et al. (2016), findings from behavioural-genetic, neuroendocrinological, and neuroscientific research indicate that trait EI has a biological foundation. Vernon, Petrides, Bratko, and Schermer (2008) conducted twin studies to investigate the significance of the effect of genetic and/or environmental factors on the relationship between trait EI and the Big Five personality factors. The results of the research demonstrated that genetic factors are primarily responsible for the phenotypic associations between trait EI and the Big Five, and these associations are secondarily attributable to non-shared environmental factors. Vernon et al. (2008) found that approximately 40% of a person's trait EI is due to genetic factors and 60% due to non-shared environmental factors, which is consistent with the estimate for other personality traits.

Carroll (1993) indicated that emotions are subjective and that EI should therefore be conceptualised as a personality trait, and as a construct that is wholly distinct from cognitive ability. It is problematic to attempt to operationalise ability EI since emotional experiences are subjective and cannot be measured with maximum-performance measures (Matthews et al., 2004). Emotional experiences would need to be incorrectly and artificially objectified in order to be able to assess them using IQ-style testing, as is the case with ability EI measures (Petrides, 2010). According to Petrides, Pita, and Kokkinaki (2007), operationalising trait EI is straightforward since self-perceptions and dispositions are part of the construct. These authors explained that the TEIQue is based on trait EI theory and that its sampling domain was derived

through the analysis of early EI models and similar constructs, such as alexithymia, empathy, emotional expression, and affective communication.

Petrides, Pita, and Kokkinaki (2007) indicated that trait EI correlates with emotional variables, less so with cognitive ability. Despite this, trait EI research indicates that there is a significant correlation between trait EI and scholastic achievement in low IQ pupils (Frederickson & Furnham, 2004). Agnoli et al. (2012) explained that although trait EI theorists do not consider EI to be a cognitive ability, and therefore would not expect it to be directly linked with scholastic achievement, it could possibly interact with cognitive abilities that are. Studies conducted by Mavroveli, Petrides, Sangareau, and Furnham (2009) showed that high trait EI resulted in better high-school English performance in students with low IQ, but not in students with high IQ. High trait EI had a positive effect on maths performance in all students, regardless of whether they had high or low IQ. Petrides et al. (2004) concluded that trait EI has a greater effect on academic performance when the students' intellectual resources are outweighed by the demands of the subject. Individuals with high trait EI are more likely to use adaptive coping styles, whereas low trait EI individuals are more likely to use maladaptive coping styles to deal with stress (Fabes & Eisenberg, 1997; Petrides, Pita, & Kokkinaki, 2007).

According to Petrides (2010), unlike other operational definitions of EI, trait EI recognises that emotional experiences are subjective. Trait EI is not tied to a single trait EI test, but is rather a platform that can be used to interpret data from any self-report measure of EI (Petrides, 2010).

2.3 ASSESSING EMOTIONAL INTELLIGENCE

Part of the confusion around EI stems from the fact that EI models are often confused with their specific measurement approaches since the major models of EI tend to be associated

with their specific EI measures (Cherniss, 2010). Some theorists have characterised EI as a cognitive ability which should hence be assessed through problem-solving exercises, while others see EI as a trait or collection of skills that can be assessed through self-report questionnaires. Correlations between ability measures and self-report measures are generally low (Brackett & Mayer, 2003).

Emotional experiences are subjective, which makes it difficult (if not impossible) to develop and administer objective, maximum-performance tests to measure EI, such as is proposed by ability EI theorists (Brody, 2004; Føllesdal & Hagtvet, 2009; Petrides, 2011). Petrides, Pita, and Kokkinaki (2007) explained that self-report measures used by trait EI theorists are more logical since they focus on self-perceptions and are hence in line with the subjectivity of emotions. However, Petrides (2010) insisted that using self-report questionnaires to assess EI, but then interpreting the findings as evidence of abilities or skills as is often done in the mixed models of EI, is “absurd”. Petrides and Furnham (2001) explained that self-report questionnaires can only assess self-perceptions, not abilities or skills. Self-report measures that have satisfactory reliabilities, such as the Bar-On EQ-i and the ECI, tend to relate to already well-established dimensions of personality (Daus & Ashkanasy, 2003), such as the Big Five: neuroticism, extroversion, openness, agreeableness, and conscientiousness.

Ability EI proponents argue that self-report data can only be accurate if a person’s self-concept is accurate (Brackett & Mayer, 2003; Mayer et al., 1999), and insist that self-report measures result in inaccurate data due to response bias. Response bias refers to a person consciously or unconsciously distorting their responses in order to appear different to how they actually are (Matthews et al., 2004) Trait EI theorists explain that this is a general problem in any research relying on self-reports and is not unique to trait EI research (Mavroveli & Sanchez-Ruiz, 2011). They maintain that the accuracy of the answers is inconsequential since self-reports are used under the assumption that a person’s answers regarding their inter-and

intrapersonal qualities matter because they influence how the person behaves and thinks. Effective functioning and behaviour are determined by a person's self-beliefs (Caprara, Regalia & Bandura, 2002; Qualter, Gardner, Pope, Hutchinson, & Whiteley, 2012), and trait EI is concerned with how people perceive their own emotional abilities (Petrides, 2011).

Some psychologists believe that EI cannot be measured at all (Davis, 2005). Matthews et al. (2004) indicated that in order for EI to be a scientifically viable concept, the construct needs to have a reliable and valid method of measurement, have a process based on theory, and have practical application. They went on to say that there is no existing model of EI that is entirely satisfactory, although they believe that promising progress has been made. Higgs and Aitken (2003) indicated that more and more research is providing support for the validity of EI and that despite various theories on the construct, there appears to be consensus that it includes self-awareness and emotional management.

Matthews et al. (2004) explored the five main differences between performance and self-report measures:

- Maximal vs typical performance: perceived EI is assessed when using self-report measures, whereas "actual" EI is assessed when using maximum-performance tests;
- Internal vs external appraisal: a person needs to have a certain level of personal insight into their level of EI in order to complete self-report measures;
- Response bias: Self-report measures are prone to response bias, whereas performance-based measures are not;
- Practical considerations: It is generally more time-consuming both to administer and to score maximum-performance tests, and it also requires more experience on the part of the test giver; and

- EI as an intelligence, or a personality? Maximum-performance EI tests tend to overlap with traditional intelligence measures, whereas self-report measures are more connected to personality traits such as the Big Five.

Although the different conceptualisations of EI often overlap, the crucial difference between the various models of EI is their method of measurement (Petrides & Furnham, 2003). According to Furnham (2006), the construct of EI is operationalised as a personality trait when a self-report measurement is used and is operationalised as a cognitive ability when a maximum-performance measurement is used. In the Encyclopaedia of Applied Psychology, Spielberger (2004) highlighted three major models of EI: the Salovey-Mayer model; the Bar-On model; and the Goleman model. Cherniss (2010) included the Trait Emotional Intelligence model as one of the four major models of EI.

2.3.1 The Multifactor Emotional Intelligence Scale (MEIS), and The Mayer-Salovey-Caruso Emotional Intelligence test (MSCEIT)

The Mayer-Salovey model of EI developed in 1997 guided the construction of the Multifactor Emotional Intelligence Scale (MEIS) (Maul, 2012). The MEIS contains 12 subscales assessed on a five-point scale, which yield four branch scores (identifying emotions, emotional facilitation of thought, understanding emotions, and managing emotions), as well as an overall EI score. Mayer et al. (1999) explained that findings from the MEIS are in line with the four-branch model of intelligence and that a person possesses an overall EI that can be further broken down into different groups of skills. Mayer et al. (1999) explained that the stimuli in each subtest yield objective indices of performance. Among the stimuli are pictures of faces, musical passages, abstract designs, and short stories (Matthews et al., 2004). The test results in three different scores: a consensus score (based on the number of individuals that

answered in the same way), an expert score (from a panel of experts), and a target score (depending on the intention of the person who created the item) (Matthews et al., 2004).

Mayer, Salovey, and Caruso later developed the Mayer-Salovey-Caruso Emotional Intelligence test (MSCEIT). The 141 questions on the measure result in a general EI score (EIg), and four branch scores representing the abilities to perceive, use, understand, and manage emotions (Maul, 2012). The responses to the test items are scored for correctness via general consensus scoring and expert consensus scoring, which correlate highly with one another according to Mayer, Salovey, Caruso, and Sitarenios (2003). Mayer, Salovey, and Caruso (2008) explained that intelligences are mental abilities, which should be assessed by evaluating test-takers' answers to relevant questions against specific criteria of correctness. These authors went on to say that the MSCEIT is assessed in such a way, using responses collected from 21 experts in the field of emotions research.

2.3.2 The Bar-On Emotional Quotient Inventory (BarOn EQ-i)

The Bar-On model of EI has been frequently cited and referenced and is considered to be one of the four major EI models (Cherniss, 2010). According to Bar-On (2006), the Emotional Quotient Inventory (EQ-i) has played a significant role in the development of the Bar-On model of emotional and social intelligence (ESI). The EQ-i takes approximately 40 minutes to complete and can be completed by individuals 17 years of age and older. The measure consists of 133 short-sentences that are answered on a five-point scale. The test yields 15 subscale scores contained in 5 composite scales, namely intrapersonal (comprising self-regard, emotional self-awareness, assertiveness, independence, and self-actualization); interpersonal (comprising empathy, social responsibility, and interpersonal relationship); stress management (comprising stress tolerance and impulse control); adaptability (comprising

reality-testing, flexibility, and problem solving); and general mood (comprising optimism and happiness) (Bar-On, 2006).

Bar-On constructed the Bar-On EQ-i to measure emotional and social functioning and developed it over the course of 17 years (Bar-On, 2006). To prove the construct validity of the EQ-i, Bar-On (2006) demonstrated that it correlates highly with other measures of ESI. He explained that it correlates less with other personality measures and the least with measures of cognitive intelligence.

2.3.3 Goleman's Emotional Competence Inventory (ECI)

In their manual for the ECI, titled “Emotional Competence Inventory (ECI): A Multi-rater tool that assesses emotional intelligence”, Goleman, Boyatzis, and the Hay Group explain that the ECI gives detailed feedback both on the strengths of an individual, and on areas that they need to improve on (Wolff, 2005). It can also provide such information for an entire work unit, showing overall strengths and areas for improvement. Goleman's theory is mostly concerned with how EI affects work performance, and he explained that his theory of performance shows how mastering skills of self-management, self-awareness, social awareness, and relationship management will result in on-the-job success (Goleman, 2001).

Goleman (1998, p. 5) defined an emotional competence as “an ability to recognize, understand and use emotional information about oneself or others that leads to or causes effective or superior performance”. Zeidner, Matthews, and Roberts (2004) questioned why the ECI measures emotional competence and not EI. The ECI is a self-report or observer report measure that was designed to assess 18 emotional competencies identified by Goleman (1998). These competencies are divided into four clusters:

- Self-Awareness: understanding feelings and accurate self-assessment;
- Self-Management: managing internal states, impulses, and resources;

- Social Awareness: reading people and groups accurately; and
- Relationship Management: inducing desirable responses in others.

Goleman, Boyatzis, and the Hay Group explained that each competency consists of four numbered levels, or behaviours, which increase in their degree of complexity (Wolff, 2005). These authors indicated that this information enables individuals, or workgroups, to see what the various degrees of complexity look like, and how an outstanding performer would behave in each competency. Research into the behaviour of outstanding performers was used to identify the “target levels”.

2.3.4 The Trait Emotional Intelligence Questionnaire (TEIQue)

The Trait Emotional Intelligence Questionnaire (TEIQue) is a self-report measure that contains 153 questions (30 in the short form version) rated on a seven-point Likert scale. It measures 15 facets, 13 of which are organised under four factors:

- Well-being: self-esteem, trait optimism, trait happiness;
- Self-control: emotion regulation, impulsiveness, stress management;
- Emotionality: trait empathy, emotion perception, emotion expression, relationships;
and
- Sociability: emotion management, assertiveness, social awareness.

Two additional facets, adaptability and self-motivation, contribute directly to the global trait EI score but are not tied to any factor (Freudenthaler, Neubauer, Gabler, Scherl, & Rindermann, 2008; Petrides, 2009). Petrides (2009) explained that each item was only assigned to a single facet and that the TEIQue yields scores on 20 variables: 15 facets, four factors, and a global trait EI. The TEIQue has been translated into over 15 languages and was designed to be factor analysed at the facet level so as to prevent problems often associated with item-level factor analysis. The TEIQue was designed to include core elements that were common to a

number of existing models and exclude elements that only appeared in a single model. Petrides (2009) indicated that this is in line with classical psychometric scale development.

Most of the research into trait EI has focused on adults, with only a few studies that included child samples. Mavroveli, Petrides, Shove, and Whitehead (2008) explained that the TEIQue Child Form (TEIQue-CF) was developed in order to address this imbalance. This questionnaire is based on analysis of the content of the socioemotional development literature, and on a sampling domain that was developed specifically for children aged between eight and 12 years (Petrides, 2009). It comprises 75 items that are responded to on a 5-point scale and measure nine distinct facets (Mavroveli et al., 2008). The short form (TEIQue-CSF) consists of 36 items, which yield a global trait EI score for ages eight to 12.

2.4 GENDER AND RACE DIFFERENCES IN EI SCORES

Van Rooy et al. (2006) explained that researchers tend to conclude that females score higher on measures of EI than men do. Goldenberg, Matheson, and Mantler (2006) indicated that girls tend to score higher on EI tests than boys do, and Sánchez-Queija, Oliva, and Parra (2006) found that females score higher on measures of empathy. Garaigordobil (2009) explained that some researchers indicate that this gender difference decreases with age (e.g. Tobari, 2003) and mentioned that the same effect has been found with prosocial behaviour, with females demonstrating significantly higher scores during childhood, but not during adolescence. Conversely, Eschenbeck, Kohlmann, and Lohaus (2007) indicated that gender differences in coping strategies and development are more evident in adolescents than in childhood.

Joseph and Newman (2010) assumed that individuals with greater awareness of their own emotional states, and of verbal and non-verbal cues in their environment, will have more

emotional information available to them. They referred to research that shows that women have greater emotional knowledge, and are more skilled at perceiving non-verbal cues, which they concluded could explain the tendency for women to score higher on EI measures than men do. Many researchers have concluded that gender plays a role in EI levels, but these differences vary depending on the EI theory and measure used. Mayer et al. (1999) indicated that women tend to have higher EI scores than men do. Trait model theorists, however, have shown that women tend to score higher in the dimension of social abilities, but that men have higher self-estimated EI scores (Petrides & Furnham, 2000). Bar-On (2006), on the other hand, demonstrated that women have better interpersonal skills, but that men are better able to cope with stress. Joseph and Newman (2010) found that women perform better on ability-based EI tests than men do, but that there is little difference between the genders on self-report ability tests.

Very little research has been conducted on race differences in EI scores (Joseph & Newman, 2010). Joseph and Newman (2010) indicated that results of this research showed a large difference in favour of whites. Findings by Roberts et al. (2001), however, were conflicting and inconclusive, and a study conducted by Van Rooy, Alonso, and Viswesvaran (2005), indicated that the differences between whites' and blacks' EI results are marginal, with blacks scoring slightly higher than whites. Joseph and Newman (2010), and Roberts et al. (2001) recommended that further studies be conducted to investigate racial differences in performance on various EI measures. Joseph and Newman (2010) concluded that self-report and mixed EI measures tend to show smaller race and gender-based differences in EI scores than ability measures. For the present study, it was anticipated that trait EI scores would not differ significantly between genders and races, given the relatively homogenous socioeconomic environment of participants and that self-report measures are used in the study.

2.5 CHAPTER SUMMARY

Since its inception, the concept of EI has been surrounded by much debate. There are disagreements around how to define it, how to measure it, and the magnitude of the impact that it has on a person's life. Despite this, most theorists agree that it plays a role in life success and in relationships. Trait EI theory is concerned with self-perceptions, and with the role that the environment plays in promoting or inhibiting the development of a person's EI. Since this study focused on the role that the school and classroom environments play in the development of learners' EI, and on the learners' own perceptions of these environments, trait EI theory has been used. The following chapter will focus on emotional development in primary school learners, and on the school and classroom context as environments for EI development. It will also give a brief overview of the South African school context and the challenges that many learners and teachers in South Africa face.

CHAPTER 3:

EMOTIONAL INTELLIGENCE IN PRIMARY SCHOOL LEARNERS

In this chapter, emotional intelligence in primary school learners is discussed. The different factors that affect emotional intelligence are explored, followed by stage theories of human development. The focus is on Erikson's psychosocial theory of development, particularly on the stage of middle childhood. Next, the effects of school climate and classroom climate on emotional intelligence development are considered, and an overview of the South African school context is given.

3.1 EMOTIONAL INTELLIGENCE DEVELOPMENT

It is widely agreed that genetics, parenting, and life experiences all strongly influence the development of EI, but disagreements exist around the magnitude of the impact of each domain. Such disagreements are not unique to the construct of EI but are rather an issue relating to intelligences in general. There have been debates and disagreements regarding human intelligence for thousands of years (Kaufman et al., 2013), and on the proportion of influence of nature and nurture since the 17th century (Fancher, 1996). According to Zeidner et al. (2002), EI might be partly determined by genes, but this does not mean that a person's EI level is unchangeable. The interaction between genes and environment also influences EI levels, and genes may determine which environment is best suited for the development of a particular individual's EI (Keogh, 1986; Zeidner et al., 2002).

Shepherd and Zubrick (2012) explained that the skills acquired in childhood are of critical importance throughout a human's life, and that there is much evidence that human capabilities are optimised when they are able to regulate emotions, participate in exploratory

behaviour, communicate effectively, self-direct, be intellectually flexible, be introspective, and meet life's challenges with self-efficacy. According to Denham (2007), preschool and school-aged children are learning:

- To be aware of emotional experiences;
- To be discerning of their own, and others, emotions;
- To use emotional language;
- To empathically attend to the emotions of others;
- To regulate negative emotions;
- That inner emotional states may differ from outer expression; and
- That communication of emotions is necessary in social relationships.

Emotional transactions define social interactions and relationships (Lemerise & Arsenio, 2000; Saarni, 1999), and social success therefore depends greatly on the understanding of emotions. According to Denham and Burton (1996), children who understand emotions are more adept at social interactions and are rated more socially competent by both teachers and peers. Understanding emotions in others facilitates the development of quality social relationships since perspective taking is important in the development of such relationships (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). Children's attentional and academic abilities are also partly predicted by their knowledge and understanding of emotions (Izard et al., 2001).

Every person that a child interacts with displays a variety of emotions, which are observed by the child. The child's own emotional expression also often receives a reaction from people they are interacting with. The emotional behaviour of others is hence constantly being viewed and processed by the child, who in turn incorporates this information into their own behavioural expression (Denham, Basset, & Wyatt, 2007). A child's experiences within

the family, the peer group, and the classroom, therefore all contribute to the development of the child's emotional competence (Denham et al., 2007). Emotional competence is important for social and academic success (Denham, Bassett, & Zinsser, 2012).

The family plays a crucial role in the socialisation of children (Kerns, Aspelmeier, Gentzler, & Grabill, 2001), but teachers are also considered to be important models of emotional behaviour for children, providing them with experiences that can either inhibit or promote emotional competence development. Children can be assisted in expressing and regulating emotions if those around them tend to discuss emotions, and if these discussions take place within a warm, supportive environment (Denham et al., 2012). Such "emotion coaching" enables children to develop comprehensive knowledge about emotions (Denham, Renwick-DeBardi, & Hewes, 1994), and develop effortful control, which facilitates engagement and motivation (Rothbart & Jones, 1998). Children with low effortful control often run into trouble later in life due to behavioural problems, whereas children with high effortful control are generally better adjusted. Research has shown that authoritarian parenting and responding to children's feelings with disapproval or punishment, often result in a child developing low effortful control. In contrast, children seem to develop greater empathy, prosocial development, and social skills when their parents tend to acknowledge their feelings and encourage them to use problem-solving to overcome them (Papalia et al., 2007).

Experience of emotions, according to Halberstadt, Denham, and Dunsmore (2001), involves not only the recognition and awareness of one's own emotions, but also the regulating of emotional expression within social contexts. The intensity with which children experience and express emotions vary, as does their skill for managing and regulating these emotions. Children are biologically predisposed to a certain emotional style, or emotionality (Eisenberg & Fabes, 1992). According to Eisenberg and Fabes (1992), individual differences in emotionality are relatively stable from preschool to primary school, but emotion self-regulation

tends to increase with age. Emotion regulation refers to a person's ability to control and adapt the way they react to and express their emotions. A child's emotion regulation skills will determine the effect that their emotionality has on their social functioning. When emotions are negatively or positively overwhelming, or when they are absent and need to be amplified, emotional regulation is required. Emotion regulation involves intrinsic and extrinsic processes that are utilized to monitor, assess, and adjust emotional reactions in order to achieve one's goals (Thompson, 1994). The task of emotion regulation differs for each child, depending on their emotionality, meaning their temperament (Thompson, 1994). According to Blair et al. (2004), prosocial behaviour is more influenced by the ability to cope with emotions than by temperament alone. Poor emotion regulation has been linked to behaviour problems and maladjustments in children (Eisenberg, Fabes, & Shepard et al., 1997), and emotion regulation is viewed as an integral component of EI (Saklofske, Austin, Mastoras, Beaton, & Osborne, 2012). Emotion regulation accounts for emotional organisation such as focus, problem solving, and relationship support (Cole et al, 2004). Austin, Saklofske, and Mastoras (2010) also found a strong negative relationship between stress and emotion regulation.

Individual differences are not due to temperament alone, nor are they only a reflection of the individuals' environmental stressors and opportunities. Emotions play a key role in adaptation to life's circumstances, and a child's caregivers play an important role in helping them to handle life's stressors and demands (Sroufe, 1979).

3.2 STAGES OF DEVELOPMENT

Lerner (2018) explained that stage theories of development are based on an organismic philosophy, with an idealised view of development and a conceptual metric which behavioural changes can be measured against to determine whether they can be considered to be

developmental changes. Classical developmental theories all indicate that people pass through universal stages of development in a set order. Mastery of these tasks leads to rewards, whereas failure results in disapproval (Rossouw, 2008). Children who do not navigate developmental tasks successfully are at risk for current and later psychopathology (Denham, Zahn-Waxler, Cummings, & Iannotti, 1991).

According to Lerner (2018), all stage theorists consider there to be an interaction between nature and nurture in a person's development, but different theorists put a greater or lesser degree of emphasis on these factors. Freud and Erikson put a greater degree of emphasis on nurture than did Piaget, for example. Theorists also tended to narrow their focus to a specific aspect of the developing individual. Piaget's focus was on cognitive development, Freud's on psychosexual development, Kohlberg's on moral reasoning, and Erikson's on psychosocial development. Although Erikson was greatly influenced by Freud, and he built on Freud's belief about the structure of a person's personality, the two theorists had different focuses. Erikson was an ego psychologist who was concerned with the role of society and culture and the conflicts that take place within a person's ego, whereas Freud focused on conflicts between the id and the superego (McLeod, 2008). Psychosocial development refers to a person's psychological needs (psychological) being balanced against the needs of society (social). Since the aim of this research was to explore the emotional development of children (psychological) within the context of school (social), it falls into the category of psychosocial development. Erikson's theory was therefore used. Erikson put a greater deal of emphasis on nurture than on nature, as well as on how a child's sense of self is affected by their socialisation. This research is concerned with the effect of the learner's nurture (the school and classroom environment) on the development of their EI, which further justifies the use of Erikson's theory.

3.2.1 Stages of psychosocial development

“Human development” refers to changes that humans experience over their lifespan, and can be broadly divided into childhood, adolescence, and adulthood. According to Erikson (1968), new societal demands are placed on a person’s ego as it develops. In order for the ego to develop optimally, it must adapt to these new demands by gaining new capabilities (Lerner, 2018). Erikson proposed eight stages of psychosocial development (Sacco, 2013). He believed in the epigenetic principle, which maintains that human development occurs in a predetermined order and that each stage builds on the previous. Dawson and Gabrielian (2003) indicated that each stage is more complex than the last and that the crisis of a stage needs to be resolved before the next can be successfully conquered. Despite this, Erikson suggested that a person can continue to grow and develop throughout their life and that the unresolved stage can be successfully resolved at a later time (McLeod, 2008).

Erikson believed that an individual’s personality is determined by how they handle each crisis (Weiten, 2001). Erikson’s stages progress from initially being narcissistically involved with oneself, to stages of socialisation and identification, to becoming individualised and establishing one’s own identity (Franz & White, 1985). The first five of Erikson’s stages refer to childhood and adolescence, and are:

- Stage 1: Trust vs mistrust (first year of life): Resolution of this stage results in trust in oneself and others, and the development of hope, whereas failure results in seeing the world as a threatening, stressful, and unpredictable place (Jenkins, Buboltz, Schwartz, & Johnson, 2005).
- Stage 2: Autonomy vs shame and doubt (second and third year): Resolution results in belief in one’s own will power, whereas failure leads to viewing oneself as lacking control, determination, and worth.

- Stage 3: Initiative vs guilt (fourth to sixth year): Resolution results in a sense of purpose and an understanding of the world, whereas failure results in guilt over the actions required to achieve outcomes in life.
- Stage 4: Industry versus inferiority (sixth to 12th year): Resolution results in active engagement in learning and productivity, whereas failure results in feelings of incompetence regarding one's own abilities and skills.
- Stage 5: Identity vs role-confusion (adolescence): Resolution results in an individual being able to successfully examine various roles and integrate these into a consistent identity, whereas failure leads to difficulty in establishing a central identity.

Stage theorists believe that development follows a sequential pattern, but Berk (2007) argued that people can follow very different paths towards maturity as a result of the unique environmental and personal contexts that they live in. Many individuals face negative environmental circumstances such as poverty, abuse, and emotional hardships, all of which have a significant effect on their self-esteem and self-respect, and consequently on their psychosocial health and development (Saarni, 1999).

3.2.2 Middle childhood

The majority of learners in primary school are in the stage of middle childhood, and the focus of this study was therefore on this developmental stage. According to Slee (2002), all psychosocial crises before middle childhood are aimed at the development of a sense of self. From middle childhood onward, the developmental tasks become more about feeling competent and fulfilled due to being a contributing individual. A child's self-concept during this stage is affected by peer comparisons and by the opinions of significant others (Slee, 2002). According to Erikson's stages of psychosocial development, a child's task in middle childhood is, on the one hand, to find a sense of achievement by mastering age-relevant activities of

industry, and on the other hand to manage feelings of inadequacy in these areas. Weiten (2001) explained that children in middle childhood are usually in primary school, where emphasis is placed on academic performance and hence on industry. He warned that the emotional aspect of this stage (i.e. dealing with the feelings of inferiority that arise when industry is not mastered) need also be accommodated.

Children in middle childhood have generally entered formal schooling, where they learn new social roles and their self-esteem becomes partly dependent on their competence and performance in this new setting. According to Covington (1992, p. 79), for learners “to be able is to be worthy, but to do poorly is evidence of inability and is reason to despair”. Erikson (1968) explained that middle childhood is a time where children develop a feeling of industry and learn to cooperate with both adults and peers. Erikson (1968) believed that children who fail to master these skills could develop feelings of inferiority, which can have a detrimental impact on their emotional, interpersonal, and intellectual well-being. The question that a child in the stage of industry versus inferiority (middle childhood) asks themselves is: “Am I competent, or am I worthless?” (Weiten, 2001). Children in this stage comparatively evaluate their own performance against those of their peers and develop feelings of relative superiority or inferiority as a result. They also begin to appreciate collective versus individualistic achievement and the benefits of peer cooperation (Peterson, 2013).

Eccles (1999) indicated that the main drive in a child’s life during this time is a need to demonstrate and achieve competence, to form social relationships with peers, and to become more independent. In other words, self-esteem, self-awareness, and social comparison are the main psychological goals in middle childhood. This is the beginning of a quest to meet three basic human needs, which Deci and Ryan (2004) believed are the need to feel competent, autonomous, and socially attached. According to Deci and Ryan, classrooms that provide

opportunities for these three needs to be met will have the highest levels of engagement, motivation, and learning.

As well as being a time of great emotional and social development, middle childhood is also a stage during which significant cognitive changes occur (Votruba-Drzal, 2006). In Piaget's four stages of cognitive development, children in middle childhood are in the concrete operational stage (Huitt & Hummel, 2003). In this cognitive stage, children's egocentric thinking diminishes and they develop the ability to think more operationally. Huston and Ripke (2006) indicated that children in middle childhood develop cognitive skills that enable them to think more intentionally, to self-reflect, to grasp logical concepts, and to analyse thoughts and memories in order to plan. Children in middle childhood begin to demonstrate competence in learning systematically, and their self-concept becomes tied to their development of such abilities (Eccles, 1999). According to Collins et al. (2002), the cognitive changes that occur during this stage facilitate greater social understanding.

Children in early childhood have few academic and social interactions outside of the home and are still very dependent on their primary caregivers (Votruba-Drzal, 2006). As children progress into middle childhood, they begin to have more opportunities outside of the home, such as in school and within peer groups (Votruba-Drzal, 2006). The social and cognitive skills that children learn during this stage lay the foundation for their development in adolescence and adulthood (Eccles, 1999). For many children, middle childhood is a positive and exciting time of growth and development. For some, however, it is a stressful time during which their motivation, mental health, and school involvement decline. The family and the school both contribute significantly to how well children cope with this developmental stage (Eccles, 1999). In this study, the focus was on the EI development of primary school learners within the school and classroom context.

3.2.3 Emotional development in middle childhood

According to Masten and Reed (2002), developmental tasks refer to the criteria for judging the development of an individual using the expectations that a society or culture has regarding age and situation appropriate behaviour. Emotional development refers to a child's ability to display, regulate and control emotions (Landy, 2002), and Robinson (2007) indicated that emotional development is central to every other part of a child's development. Rafaila (2015) explained that children are capable of talking about their emotions and listening to/perceiving emotional expressions in others from approximately six years of age (from middle childhood). During this developmental stage, children begin to understand that their emotions originate from certain causes and lead to behaviours that have consequences for both themselves and others. The present study required that learners be able to self-report on their perceptions of their classrooms and on aspects of EI, and Riley (2004) suggested that children in grade 4 have generally reached an age where they can reliably report on their own feelings and experiences.

In middle childhood, children's awareness and understanding of emotional expressions become much more sophisticated than before (Harris & Butterworth, 2002). Emotional sophistication refers to the child's ability to distinguish between internal and external emotional experiences. Two important emotional developments occur in middle childhood: the understanding that a person can experience more than one ambivalent emotion in response to a situation, and the ability to manage emotions according to the rules of one's culture (LaFreniere, 2000; Mayer & Salovey, 1997). Children in middle childhood are better able to regulate their emotions than children in preschool, which has led to the misconception that they are less emotional (Mayer & Salovey, 1997).

The health, well-being, and success of children are partly influenced by their social connections in developmental contexts such as the family, school, peer group, and community (Thomson et al., 2018). Bowlby (1988) explained that children form attachments to their primary caregivers in infancy and that although the intensity of these attachments declines from early to middle childhood, children in middle childhood and adolescence continue to need their attachment figures. Middle childhood is a time when children's social focus widens out from the family to include other ecological contexts (Votruba-Drzal, 2006; Wigfield, Byrnes, & Eccles, 2006), one of the most important of which is the school context (Eccles & Roeser, 2009). The well-being, self-concept, and academic achievement of a child in middle childhood are also partly influenced by friendship and peer status (Vandell & Hembree, 1994). According to Du Toit and Kruger (1991), children in middle childhood are gradually moving towards independence, but still require assistance from adults. During this stage of development, children need to learn to respect teachers and other adults outside of the family, and to form relationships with peers (Eccles, 1999). Teachers play a significant role in the emotional development of children by providing specific instruction to students as well as by modelling emotional behaviour (Zeidner et al., 2002). This role becomes even more important when the learner's family and neighbourhood do not provide adequate socioemotional guidance and support (Roeser & Peck, 2003).

The emotional tasks and social processes that a child has to navigate in elementary school are drastically different from those in preschool (Parker & Gottman, 1989). In preschool, a child's emotional task is to learn to control their emotions. In primary school, their main goal becomes to avoid embarrassment and logic takes a more dominant role than emotions. Social acceptance and avoiding rejection become paramount (Parker & Gottman, 1989). Emotional competence becomes crucial to social success, as children learn how and when to express their emotions, and with whom. Children in primary school often do not

express their emotions as directly as before, as they learn that expressing intense feelings, such as anger, can result in negative consequences and prevent them from attaining their goals (Zeman & Shipman, 1996). Middle childhood is a period within which children's understanding of emotions and appropriate emotional expression improves greatly (Harris, 1989).

3.3 SCHOOL AND CLASSROOM CLIMATE

Social connectedness within major developmental contexts such as the family, school, community, and peer group all play a significant role in the health, well-being, and life success of children (Gadernann, Schonert-Reichl, & Zumbo, 2010). According to Sylva (1994), a large portion of a child's life is spent at school, and schools therefore play a significant role in children's development in many areas. Pekrun and Schutz (2007) explained that all school activity and play include an emotional component, both in relation to learning and to achievement over time. Educational settings are steeped in emotional experiences due to their subjective importance, and these emotional experiences affect learning and performance as well as the interactions and personal growth of both learners and teachers (Pekrun, Goetz, Titz, & Perry, 2002). Schools are complex systems, made up of macro-regulatory systems such as educational policies and laws, as well as micro-regulatory systems such as the daily interactions between learners and teachers (Eccles & Roeser, 2009). The classroom is a micro-context in which children interact with both teachers and other learners (Reyes, Brackett, Rivers, White, & Salovey, 2012). The greatest influences on a child's development are their everyday interactions within their proximal environments (Bronfenbrenner & Morris, 1998; Votruba-Drzal, 2006). For students, the classroom is the most immediate educational environment (Eccles & Roeser, 2009).

Aptly expressing emotions, regulating them in socially and age-appropriate ways, and identifying these processes both in self and in others, can be referred to as “emotional competence” (Halberstadt et al., 2001). Emotional competence enables children to make and sustain friendships and to be well-liked by their peers and teachers. This, in turn, contributes to children feeling more positive about school, and to participate and achieve more than children who have low emotional competence and who are hence often either victimised by peers or are angry and aggressive. Such children tend to have adjustment problems at school and are at risk of behavioural problems as well as academic difficulties (Kochenderefer & Ladd, 1996; Raver & Knitzer, 2002). According to Raver (2004), there are several ways in which children with emotional difficulties might suffer academically:

- It is difficult to teach children who are disruptive;
- They spend less time on tasks, and get less feedback; and
- They are less likely to benefit from group learning experiences with classmates.

Since these children do not have many rewarding experiences with teachers or peers, they are often less interested in school and show little motivation (Montague & Rinaldi, 2001). EI development can help children that are at risk of behavioural problems (Goleman, 1995). Social and emotional skills are essential for children to be successful in school and in life (Willis & Schiller, 2011).

Emotion regulation is crucial for appropriate self-management in social interactions (Parker & Gottman, 1989), as well as for the ability to focus and to solve problems (Denham, 2003). Emotion regulation is especially necessary for students in learning environments since being able to regulate one’s emotions helps with the management of stress (Fariselli, Freedman, Ghini, & Valentini, 2008; Saklofske et al., 2012). Children also need to learn how to cope with stressful interactions by dealing with their own negative feelings, such as anger or distress, as well as the negative emotions of others (Eisenberg & Fabes, 1992). It is beneficial for children

to have a safe environment in which to have such experiences and to learn how to cope with them (Vermeulen, 1999). Gottman and DeClaire (1998) suggested that children will develop positive self-confidence if they can learn to deal with their frustrations within a supportive environment in which they feel validated.

According to Mayer and Salovey (1997), the school setting is one of the most significant contexts for the learning of emotional skills. Classroom instruction, a supportive school climate, and extracurricular activities all provide opportunities for emotional education (Zeidner et al., 2002). Goleman (1995) insisted that EI needs to be developed from an early age and that it should be included in the school curriculum (Mayer & Cobb, 2000). These EI skills could help children to deal with the stressors of modern life (Goleman, 1995). Many educators and psychologists agree that the competencies addressed in schools need to be broadened to include EI skills in order to prepare children for the challenges of living in a fast-changing society (Elias, Bruene-Butler, Blum, & Schuyler, 1997; Lopes & Salovey, 2004). Lopes and Salovey (2004) went on to say that children are exposed to many more stressors today than they were in the past and that emotional resources are essential to help children cope with these risks. Extensive research has been conducted into the effects of social and emotional learning interventions, which have been found to significantly decrease aggression and emotional distress among students, and increase student's academic performance, helping behaviours in school, and positive attitudes towards self and others (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). While stable individual differences such as one's personality, attachment style, and mindfulness have all been found to influence one's ability to perceive and manage emotions (Perreault, Mask, Morgan, & Blanchard, 2014), studies of EI development programs have shown that a person's level of EI can be increased through intervention methods.

Better adaptation and social and psychological adjustment at school have been linked to the self-perceived EI of students (Balluerka, Aritzeta, Gorostiaga, Gartzia, & Soroa, 2013). Compared to low trait EI children, those with high trait EI tend to be rated as more prosocial by their peers (Mavroveli et al., 2009; Mavroveli & Sanchez-Ruiz, 2011), more well-adjusted by their teachers (Mavroveli et al., 2008), and tend to have more positive peer relations (Ciarrochi et al., 2001). This view is supported by the findings of a study done by Mavroveli et al. (2009), which showed that children with high trait EI received higher ratings for kindness, leadership, and social competence by peers. According to these authors, this proves that self-perceptions of emotional abilities positively correlate with others' perceptions of the individual's emotional abilities. Overall, high trait EI scores tend to correlate with adaptive behaviours (Frederickson, Petrides, & Simmonds, 2012), whereas low trait EI scores correlate with maladaptive behaviours (Kokkinos & Kipritsi, 2012).

There is also an association between positive emotional experiences in the classroom and greater cognitive activity and achievement in class (Aritzeta et al., 2016). A child's academic and social development is strongly influenced by the quality and stability of their personal-social relationships and interactions (Sink & Spencer, 2007), and these interactions are often measured using school and classroom climate measures. The personal and social skills development of students is integral to the health of both the school and the classroom environments (Brigman & Campbell, 2003).

3.3.1 School climate

It is widely acknowledged that climate (also known as "environment") is an integral aspect of a school (Fraser, 1998). Gonder and Hymes (1994) defined school climate as the school's atmosphere, which reflects attitudes such as trust and cohesiveness that are shared by learners and school staff. These attitudes, or shared meanings, influence the way people who

hold them behave (Sweeney, 1992). Each school climate is distinct since it is created by relationships, experiences and interactions, values and beliefs (Hoy & Miskel, 2013). The climate is also influenced by the environment of the school district and surrounding community (Lunenburg, 2011)

A school's climate is created by its academic, social, and emotional environment (National School Climate Council, 2007). Cohen (2006) explained that a school's social and emotional ethos is created by a number of factors, including the way the school is run, interactions between people within the school, the way that decisions are made and communicated, and the method of school and classroom management. The school climate can help shape and influence the way children view themselves and the world around them (Cortina et al., 2016; Samdal, Nutbeam, Wold, & Kannas, 1998). A positive school environment can be extremely beneficial for children who lack other positive experiences outside of school (Luthar, Cicchetti, & Becker, 2000), and creates the optimal context for both teaching and learning (Lunenburg, 2011). A healthy school is one that aspires to achieve a number of affective and cognitive outcomes and provides a positive and pleasant atmosphere in the school buildings and in the classrooms (Creemers & Reezigt, 1999). Educational literature indicates that school climate is vital and that measures of school climate can be used to predict the effectiveness of a school (Witcher, 1993).

Low-performing schools often exist within impoverished communities, where many learners are not prepared to learn when they come to school (Corallo & McDonald, 2001). These challenges are often too great for the school's resources to overcome. Despite this, many schools in such conditions still succeed. A common characteristic shared by such schools is a culture of collaboration and cohesiveness (Corallo & McDonald, 2001). Cohesiveness refers to positive unity being formed between the groups within a school and has been found to be integral for good communication (Anderson, 1982; Gonder & Hymes, 1994). Shapiro (1993)

indicated that the learners and staff within cohesive classrooms and schools are proud to belong to the group, and value and respect one another. Furthermore, high-performing schools often provide professional development programmes to the teachers that are in line with the needs of the students (Corallo & McDonald, 2001). A large study of 3100 school culture assessments conducted by Phillips from 1985 to 2006 (in Wagner, 2006) showed that everything that happens in a school, including staff members' satisfaction, is influenced by the school's culture.

School climate, support, connectedness, and the sharing of teaching strategies, are important in today's schools and can determine whether learners and teachers have a positive or negative experience within the school (Wagner, 2006). Mental health and behaviour problems tend to increase in stressful and unsupportive school climates (Hamre & Pianta, 2001). According to Jennings and Greenberg (2009), contextual factors such as support from colleagues, principal leadership, school climate, in-service opportunities, and school district values and policies all affect teacher's socioemotional competence. The SLEQ used in this study assesses teachers' perceptions of student support, affiliation, professional interest, staff freedom, participatory decision making, innovation, resource adequacy and work pressure within their school.

3.3.2 Classroom climate

According to Frenzel, Pekrun, and Goetz (2007), learner's perceptions of their classroom environment directly affect their emotional experiences within that classroom. The classroom environment can positively or negatively influence a child's self-perception (Juvonen, Le, Kaganoff, Augustine, & Constant, 2004; Kokkinos & Hatzinikolaou, 2011; Maticka-Tyndale, 2010), and is vital to learners' motivation, commitment, and overall achievement at school (Patrick et al., 2011). Battistich, Solomon, Watson, and Schaps (1997) found this to be especially true for children from disadvantaged backgrounds. Weeks (2000)

believed that behavioural problems are a result of a child's emotional needs not being met and that children can be considered to be emotionally neglected if they are not provided with protection, nurturance, encouragement, and stimulation appropriate to their developmental stage. He went on to say that it is crucial for both parents and teachers to positively enhance a child's self-concept. The results of a study conducted by Brackett, Reyes, Rivers, Elbertson, and Salovey (2011) indicated that student conduct is positively affected by emotionally supportive classroom climates. Sriklauba, Wongwanich, and Wiratchai (2015) explained that it is the combination of the teacher's behaviour (for example method of teaching, way of communicating), the learner's behaviour (for example motivation, cooperation, involvement), and the feelings that result from these behaviours, that create the classroom climate. The classroom climate is continuously being created, it is an ongoing process (Sriklauba et al., 2015) that involves relationships within the classroom (Eccles & Roeser, 2009). It consists of the learning setting as a whole, including the process of instruction, relationships between learners and teachers, relationships between learners and learners, and the attitudes of the learners (Brophy, 1999a). If students feel that they are a part of a supportive, cohesive group, they will feel more emotionally connected to it and be motivated to adhere to the group's values and norms (Solomon, Battistich, Watson, Schaps, & Lewis, 2000)

Research findings suggest that both the individual emotional experiences of a student as well as the experiences of their classmates have an impact on the student's development (Boekaerts, 2001). Since students usually do not learn in isolation, but rather with and amongst their peers, classrooms are naturally social places (Ryan & Patrick, 2001). According to Aritzeta et al. (2016), classes can be considered to be groups with group emotions, and different classes will, therefore, have different levels of EI. They theorised that classes inadvertently develop a set of norms and expectations which guide emotional experience, and also develop a group EI as a result of the group's shared, subjective emotional experiences within the

classroom. Emotions in classrooms therefore need to be studied if we wish to understand students' motivations and learning styles (Beilock & Ramírez, 2011). According to Landau and Meirovich (2011), very few studies have been conducted to determine how EI can be increased, and even fewer have investigated whether the classroom environment can impact emotional intelligence. These authors conducted a study to determine if emotional intelligence is improved by participative college class environments, and their results indicated that emotional intelligence is positively affected by supportive climates.

It is important to understand the classroom factors that promote or inhibit the development of EI in children. The ideal classroom would provide challenging content within a supportive social context where learning, rather than achievement, is promoted (Brophy, 1999b). Learners' engagement and motivation in the classroom are heavily affected by emotional reactions to experiences that occur within the class, and these reactions can be divided into individual emotional reactions and shared emotional reactions (Frenzel et al., 2007). Shared emotions among learners have been linked to overall achievement in the classroom, with learners in high-achieving classrooms reporting more positive emotions, such as enjoyment and pride, than those in low-achieving classrooms where more negative emotions such as anxiety and shame are often reported. For this study, the learners' levels of satisfaction in the class were assessed with the MCI-SF. Pleasant emotions within a classroom should be investigated since they facilitate problem-solving, promote resilience, enhance relationships, and guide group behaviour (Meyer & Turner, 2006; Pekrun et al., 2002). Findings show that the shared emotional reactions of learners within a classroom are influenced by their shared perceptions of the enthusiasm and enjoyment of the teacher (Brophy & Good, 1986; Frenzel, Goetz, Ludtke, Pekrun, & Sutton, 2009; Frenzel et al., 2007). According to Hein (in De Klerk & Le Roux 2003), the single most important factor in the creation of an emotionally intelligent classroom is the level of the teacher's EI. Marzano, Marzano, and Pickering (2003) concurred,

indicating that the actions of the teacher within the classroom has been found to be the most important factor in determining the climate of the classroom. Investigating these assertions was not an aim of this study since there are a multitude of research studies that already corroborate this. The aim of this study was rather to explore the practical school and classroom factors that could produce a classroom climate that is conducive to the development of EI. As Wagner (2006) explained, even the best teachers are often overwhelmed by negative colleagues, environments, and cultures.

Schutz, Hong, Cross, and Osbon (2006) are among some of the researchers who have begun investigating the link between emotion and cognition in classrooms. According to Rowe (2004), research indicates that achievement variation between schools is mainly due to variations between classes. The success of a school is affected by classroom climates, the emotions of teachers and their methods for attending to the emotions of their students (Sutton & Wheatley, 2003). Issues such as job stress, education, and staff/child ratio could all have an impact on teachers' socialisation capabilities (Denham et al., 2012). Denham et al. suggested that positive expressiveness of teachers would positively correlate with children's emotional competence, whereas extremely negative teachers would create an atmosphere within which children would struggle to regulate emotions.

Nakamura and Csikszentmihalyi (2014) explained that an optimal zone that he calls "flow" can be created when people engage in activities that challenge their skills, yet still fall within their range of capabilities. A person enters a state of both concentration and enjoyment during such challenging tasks. Results of a study conducted by Prawat and Solomon (1981) indicated that learner satisfaction correlates with the assigning of work of an appropriate level of difficulty. Different teaching styles also influence how students react to competition and to difficult course materials (Pressley et al., 2003). Midgley (in Eccles & Roeser, 2009) explored two major achievement goal systems, namely mastery-oriented goals and performance-

oriented goals. Learners with mastery-oriented goals concentrate on learning the material and on how much they personally improve over time, whereas learners with performance-oriented goals care more about doing better than other learners in their class. According to Midgley (in Eccles & Roeser, 2009), engagement and achievement at school are better sustained by mastery orientation, which is undermined if there is a strong competitive focus in the classroom. Eccles and Roeser (2009) explained that classroom-level studies suggest that the development of learners is enhanced when they are given challenging tasks within a mastery-oriented environment where they also receive emotional and cognitive support. Roseth, Johnson, and Johnson (2008) and Meece, Anderman, and Anderman (2006) concurred, stating that more positive peer relationships, as well as higher achievement, were associated with cooperative goal structures, rather than competitive goal structures. Classrooms characterised by less conflict and greater cohesion are more conducive to learning and result in greater achievements by students (Adelman & Taylor, 2005). Owens and Barnes (1982) found that preferences regarding goal structures in the classroom depend partly on gender, with girls showing preferences for cooperative and boys for competitive goal structures. According to Samdal et al. (1998) girls also tend to indicate greater feelings of satisfaction with school than boys do. Learners' perceptions of the level of content difficulty, competitiveness, cohesion, and friction in the classroom are assessed on the MCI-SF.

Sociocultural and ethnic differences of students should also be considered within the learning environment (Learning First Alliance, 2001; Roux, 2006; Sink & Spencer, 2007). The traditional African philosophy of Ubuntu views humans as social beings and emphasises community over individuality (Nafukho, 2006). Watkins, McInerney, Akande, and Lee (2003) asked whether a difference in motivation and beneficial goal structure systems between white and black South African children exists, since the stereotypical view of non-Western, indigenous societies is that they are collectivist, and of Western societies is that they are

competitive and task-oriented. Their research did not support this stereotypical view of motivation and learning, but they explained that the sample of their study could not be presumed to be representative of the whole population of black South African children and that further investigation into this subject should be undertaken.

Eccles and Roeser (2011) referred to a number of studies that show that both the relationships between the learners and teachers and the learners' feelings of belonging within the classroom predict social-emotional well-being in school as well as academic engagement and motivation. Jennings and Greenberg (2009) agreed, indicating that learners' academic, social, and motivational outcomes are facilitated by a healthy classroom climate. The purpose of this research was to explore the effects of learners' perceptions of classroom satisfaction, cohesiveness, friction, competitiveness, and content difficulty on the learners' EI.

3.4 SOUTH AFRICAN SCHOOL CONTEXT

The system of education in South Africa is often plagued by poor quality education and few resources to assist children with academic, behavioural, and/or emotional difficulties (Cortina et al., 2016). As well as having suffered from decades of racial oppression, South Africa also endures serious problems with social relations, which has resulted in much disrespect for authority in many schools and a lack of enthusiasm from both teachers and learners (Monyooe, 1999). Van Heerden (1999) found that learners' behaviours are influenced by their perceptions of the school, and Perold (2001) believed that the perceptions of both teachers and learners need to be considered if we wish to understand the difficult situation that many South African schools face.

3.4.1 Educational achievements

Spaull (2013) indicated that of all middle-income countries that participate in cross-national assessments of educational achievement, South Africa has the worst performance. In addition to this, many schools in low-income African countries also perform better than South African schools.

Spaull (2013) explained that the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) assesses grade 6 literacy and numeracy, and in the most recent assessments in 2007, learners from South Africa ranked 10th out of 14, behind poorer countries like Tanzania, Swaziland, and Kenya. “Trends in International Mathematics and Science Study” (TIMSS) has tested fourth and eighth grade science and maths levels of 38 to 52 countries every four years since 1995, and “Progress in International Reading Literacy Study” (PIRLS) has tested the reading levels of fourth-grade learners from around 48 countries every five years since 2001 (Mlachila & Moeletsi, 2019). Since its initial participation in both assessments, South Africa has ranked in the bottom positions each time. A 2015 ranking by the International Association for Evaluation of Educational Achievement puts South African 9th-grade learners 38th out of 39 countries for 8th grade Mathematics (Mlachila & Moeletsi, 2019).

3.4.2 Inequalities in education

The South African school system is considered by many to actually consist of two sub-systems that function very differently from one another (Fleisch, 2008; Spaull, 2013). The first system serves 75%–80% of South African children, the majority of whom are black and coloured¹, whereas the second system consists of schools that historically served white children and still serve the wealthiest 20%–25% of South African learners (Spaull, 2013; Van der Berg,

¹ this was an apartheid-era catchall term for people otherwise unclassifiable, including (but not limited to) descendants of slaves from Indonesia, people of Khoisan ancestry, and people of mixed race

2011). The second system consists of mainly white and Indian children, although middle-class black and coloured children have been migrating to these schools at an increasing rate (Van der Berg et al., 2011).

Most children in South Africa are still in the historically disadvantaged system, where the learners' proficiency in reading, writing, and numeracy are typically much lower than those of learners in the second system (Van der Berg et al., 2011). The standard of education and the educational achievements produced in the second system are almost similar to those of other developed countries (Van der Berg et al., 2011), whereas the vast majority of learners within the first system fall significantly below curriculum standards and have not reached basic literacy and numeracy milestones (Spaull, 2013). To put this in perspective, Spaull explained that the difference in learner achievement in Science between quintile one and quintile five schools in South Africa is equal to the difference between the top-scoring country (Singapore) and the 33rd performing country (Palestine) in the TIMSS 2011. Independent schools in South Africa achieved even greater results than quintile five schools, creating an extremely large gap between their results and the results of quintile one schools.

Spaull (2013) explained that the two education systems are split by the wealth of the learners, socioeconomic status, geographic location, and language. Most South African learners attend schools that are located within their immediate communities (Branson & Liebbrandt, 2013), and educational inequality among black learners is largely a result of income and the ability of more affluent families to better support their children through their schooling. The vast majority of dysfunctional schools in South Africa are situated in rural areas and in black townships (Letseka, Bantwini, & King-McKenzie, 2012). Income and geographic channels hence play a major role in the quality and level of education that South African learners receive (Branson & Liebbrandt, 2013).

Despite the fact that English is the primary language of instruction at most South African schools, the majority of South African learners do not have a good grasp of the language. The results of PIRLS (2011) demonstrated that learners tend to score much lower in reading if they rarely speak the language of the test at home (Mlachila & Moeletsi, 2019). Van der Berg et al. (2011) explained that although it is clear that learners whose first language is not English perform worse at school than English as a first language learners, it is unclear whether this is due to the linguistic disadvantage, the schools they attend, their socioeconomic background, or a combination of these factors. The South African constitution and the South African Schools Act (1996) protect the child's right to learn in their choice of language, chosen from any of the 11 official languages of the country (Van der Berg et al., 2011). Most South African children, however, only learn in their mother tongue during the foundation phase of education, and then have to switch to English in grade 4.

According to Fleisch (2008), 70%–80% of South African primary school children cannot read fluently in the instructional language of their school, which is usually English. Despite English only being the first language of a minority of South Africa's teachers and learners, most classrooms and schools in the country have adopted English as the official learning language (Setati, Adler, Reed, & Bapoo, 2002). The majority of parents also prefer their children to study in English, since many associate African language schools with inferior education. According to Setati et al. (2002), many rural schools in South Africa could more accurately be referred to as foreign language schools, since the learners' exposure to the language of instruction (English) is almost completely limited to the school environment. These authors insisted that one of the biggest contextual differences between rural and urban schools in South Africa is that urban school learners tend to engage in second language learning at school since the learners have opportunities to practice the language of school instruction outside of the school context. Rural school learners, on the other hand, usually do not have

opportunities to practice English in natural situations outside of the school and hence engage in foreign language learning at school. Setati et al. (2002) went on to say that rural school learners typically only read, speak, and write in English within the school context, and Mlachila and Moeletsi (2019) explained that the majority of South African learners are learning in a language that they almost never speak at home. To complicate the matter further, many of their teachers are not fluent in English either (Chisholm, 2011).

Since the participants of this research needed to possess at least a 4th grade English reading and comprehension level to be able to answer the questionnaires, the researcher chose to conduct the study at public urban schools that served learners from economically disadvantaged areas.

Votruba-Drzal (2006) indicated that the effect on academic performance of living in low-income households during early childhood seems to increase in middle childhood. She explained that the academic skills required of a child in middle childhood (in primary school) are much greater than in early childhood, and the overall distribution of skills at this stage is therefore much larger and more varied. Academic skills tend to be greatly affected by early inputs such as parenting practices and cognitive and non-cognitive stimulation in the early family environments (Heckman, 2011). Economically disadvantaged children often fall behind and struggle to catch up and master basic academic skills. Van der Berg (2008) agreed with this, indicating that academic success was found to be partly determined by parents' level of education and household resources. Learners' whose parents have more education tend to obtain higher and better levels of education (McKeever, 2017). According to the National School Effectiveness Study (NSES) in South Africa, grade 5 learners in historically disadvantaged schools perform worse on average than grade 3 learners in historically white schools (Taylor, 2011). The gap between academic skills of low-income household children and those that are more advantaged grows larger and larger in middle childhood and

adolescence. Mlachila and Moeletsi (2019, p. 5) believed that “the battle is usually won or lost at primary school.” Learning deficits acquired during this stage are very difficult to remedy later.

By international standards, South African teachers are well-compensated, yet many have very limited knowledge of the subjects they teach and sometimes the learners that they teach can outperform them. (Mlachila & Moeletsi, 2019). Taylor (2011) insisted that short training courses are insufficient to equip teachers with the skills and knowledge that they need to be able to teach effectively, and that long, intensive in-service training is required. Card and Krueger (1992) also found a significantly large, negative effect of the ratio of pupil/teachers on the rate of return to education. Motshekga (2012) explained that the Education Labour Relations Council (ELRC) resolution 4 of 1995 suggested that the learner-educator ratio not exceed 40:1 in ordinary primary schools, but indicated that a campaign had been undertaken to reduce this ratio to 30:1 for primary schools, yet many schools in South Africa have a far larger number of students per class. Marais (2016) stated that overcrowded classrooms are a prevalent situation in many South African schools and will probably continue to be for a long time to come. Jones (2007) insisted that the strengths and weaknesses of each learner within a classroom must be identified in order for the teacher to offer them adequate support. With classes of 40 or more students, this is virtually impossible. Within that type of environment, not only are disruptions commonplace, but teachers are unable to pay attention to all of the students or to motivate them. The schools that participated in this study all had 40 learners per class.

3.4.3 Emotional intelligence and resilience

Agnoli et al. (2012) conducted a study to determine if there is a correlation between EI and scholastic achievement. They found that although there did not seem to be any correlation

between EI and scholastic performance for learners with high levels of cognitive ability, a positive correlation was found between academic achievement and EI in learners with lower cognitive levels. They theorised that when the demands of the subject were too great for children's cognitive ability level, those with higher EI could draw on other resources to cope with the heavy demands of the subject. Their higher EI could keep them from feeling overwhelmed and help them to cope with stress and anxiety, for example. Petrides et al. (2004) concurred, stating that due to feelings of peer-related support and higher tolerance to stress, students with low IQ but high trait EI may achieve better academic results than students with low trait EI. Given that many learners from low-income households fall further and further behind in their academic development as their schooling progresses, having higher trait EI levels could assist such learners to better cope with the increasing demands of schooling.

Dubois, Holloway, Valentine, and Cooper (2002) indicated that supportive relationships with school staff can play an important role in the lives of children, and Rutter (2012) suggested that having warm relationships with adults and peers may also foster the development of resilience in children. Theron and Theron (2014) concluded that the development of resilience can be facilitated by educational services. Resilience is facilitated by EI since the effects of aversive events can be buffered by emotional self-awareness, management, and expression (Armstrong, Galligan, & Critchley, 2011). There are a number of ways in which resilience develops, including developing coping skills through successfully handling brief, negative experiences in an environment in which the individual feels supported (Rutter, 2012). Cortina et al. (2016) explained that a child's cognitive style (the way in which they interpret events) also plays a role in the development of resilience. Interventions can alter the way in which children interpret adverse events that they have been exposed to, and hence modify their behaviour (Maticka-Tyndale, 2010). Having the skills to effectively manage one's own emotions facilitates emotional resilience (Eisenberg, Fabes, & Guthrie, 1997). According

to Bandura (1986), in an educational setting, a person's emotional self-efficacy will influence their ability to regulate emotions and hence their resilience in the face of both academic and non-academic stressors. Seedat, Nyamai, Njenga, Vythilingum, and Stein (2004) referred to previous research documenting high rates of trauma exposure among South African youths, ranging from 67% to 95%. Seedat et al. (2004) conducted their own study to determine the rates of traumatic incidence as well as of posttraumatic stress disorder (PTSD) in South African adolescents. The American Psychiatric Association (2013, p. 2) defined a traumatic trigger to PTSD as "exposure to actual or threatened death, serious injury or sexual violation". Seedat et al. (2004) reported that 83% of the participants in their sample indicated exposure to at least one Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) trauma in their lives, and found that 14.5% of those exposed to trauma fulfilled criteria to be diagnosed as having full PTSD. A number of authors indicated that exposure to violence and trauma is linked to mental health and behavioural issues (Seedat et al., 2004). Given such high incidence of trauma exposure and PTSD among South African youths, it would be beneficial for learners to have high levels of emotional resilience in order to better cope with the adverse effects typically resulting from such negative experiences.

It is anticipated that the effect of all of these factors (background, home environment, academic and non-academic stressors) can to some extent be countered by a classroom climate that enhances the development of EI and thus resilience of learners.

3.5 CHAPTER SUMMARY

There is a general consensus that the school setting is an important context for the development of emotional skills in children, and many believe that emotional learning should be part of a school's curriculum. School climate and classroom climate both play a role in the

development of EI in children, but the classroom seems to be somewhat insulated from the circumstances of the school as a whole and possibly has a greater effect on learners' emotional development. However, teachers' motivation and performance in the classroom are at least partly determined by the school climate, and by their perceptions regarding the resources and support that they receive from the school and from their colleagues. These factors could play a role in the classroom climates that the teachers help to create. Classrooms characterised by low friction and competition, and high levels of cohesion and learner satisfaction, seem to promote social, emotional, and cognitive development in learners. On the other hand, classrooms characterised by high levels of friction and competition have negative consequences for the learners and the teacher. The supportiveness of the classroom climate also seems to determine how well students handle difficult content. These factors and their relation to the EI levels of learners will be further explored in the results and discussion chapters to follow.

CHAPTER 4:

METHODOLOGY

In the first three chapters, a background to the empirical study was presented. This chapter focuses on the methodology of the research, including information on and justifications for the research paradigm and research design. It provides information on the population and the sample of the study, including the criteria of inclusion. The research instruments are described, and data collection and analysis procedures are explained. Lastly, the ethical considerations for the study are discussed.

4.1 INTRODUCTION

Methodology refers to the process of the research. It begins with a choice of which research paradigm will inform the study since this will guide the entire methodological process (Chilisa & Kawulich, 2012). Decisions need to be made regarding what the purpose of the study is, what theories will inform the study, what is being asked by the research question, which methods will be the most applicable for answering the research question, what sample will participate in the study, and how the data will be collected and analysed (Robson, 2002). Careful consideration also needs to be given to the ethics and validity of the study (Chilisa & Kawulich, 2012)

4.2 AIMS OF THE RESEARCH

The general aim of the research was to explore the relationship between school climate, classroom climate, and EI in primary school learners. The three specific aims of the research were to:

- Determine the EI of learners from six different classes from two public primary schools in Durban, KwaZulu-Natal, and relate these scores to their perceptions of the classroom climate and their teachers' perceptions of the school climate, in order to determine whether classroom climate or school climate is a greater predictor of EI.
- Determine the learners' perceptions of their classroom climate in five domains (Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness) and the teachers' perceptions of school climate in eight domains (Student Support, Affiliation, Professional Interest, Innovation, Resource Adequacy, Staff Freedom, Participatory Decision Making, and Work Pressure). Analyse the scores against the learners' EI scores in order to determine if there is a correlation between any of the classroom and school climate scales and EI, and which is the greatest predictor of EI.
- Compare the EI levels of learners from six different classrooms in two different schools, as well as their perceptions of the classroom climate on the five scales, to see if there are differences between the classes and the schools and where these differences lie.

4.3 HYPOTHESES

According to Johnson and Christensen (2010), once the research problem has been identified and the research question has been stated, the research hypotheses can be formulated. The research hypotheses state the researcher's predictions regarding the relationship between the variables that are to be investigated.

The null hypotheses and their alternative hypotheses for this study were:

1. Ho: Classroom climate is not a significant predictor of EI in primary school learners

H1: Classroom climate is a significant predictor of EI in primary school learners

2. Ho: School climate is a significant predictor of EI in primary school learners

H2: School climate is not a significant predictor of EI in primary school learners

3. Ho: There is no correlation between EI and satisfaction in the classroom

H3: There is a positive correlation between EI and satisfaction in the classroom

4. Ho: There is no correlation between EI and cohesiveness in the classroom

H4: There is a positive correlation between EI and cohesiveness in the classroom

5. Ho: There is no correlation between EI and friction in the classroom

H5: There is a negative correlation between EI and friction in the classroom

6. Ho: There is no correlation between EI and difficulty in the classroom

H6: There is a negative correlation between EI and difficulty in the classroom

7. Ho: There is no correlation between EI and competitiveness in the classroom

H7: There is a negative correlation between EI and competitiveness in the classroom.

4.4 RESEARCH PARADIGM

A paradigm is a shared view of the world which includes the values and beliefs that guide problem-solving in a discipline (Schwandt, 2014). The paradigm of a research study will inform the questions asked, and the approaches to inquiry used (Chilisa & Kawulich, 2012). The theoretical framework of this study involves trait emotional intelligence (refer to Chapter 2 and 3), while the methodological framework involves a quantitative post-positivist paradigm, using numerical data.

4.4.1 Post-positivism

Post-positivism evolved from positivism. While positivism is a purely objective view of reality, post-positivism moves away from this towards a more subjective view (Ryan, 2006). Ontology refers to the philosophy of reality, and methodology refers to the practices that we use to attain knowledge of the reality (Krauss, 2005). The ontology of post-positivism is that reality does exist, but that a researcher cannot know it perfectly since the researcher has human limitations, and hence can only uncover probabilities of a reality (Mertens, 2014). Post-positivists believe that even if the researcher adheres strictly to the methods for scientific research, the outcomes can never be completely objective or unquestionably certain (Crotty, 1998). A degree of subjectivity is implied, among others, by the theoretical framework chosen by the researcher, the hypotheses stated, and the research sample, instruments, and procedures. The methodology associated with a post-positivist paradigm involves predicting results, testing theories, and finding relationships between variables (Chilisa & Kawulich, 2012). Since a post-positivist paradigm suggests that the purpose of research is to determine whether a claim about a phenomenon is true or false by objectively collecting evidence of the phenomena, it typically

(but not exclusively) results in quantitative methodology (Gall, Gall, & Borg, 2007). The purpose of this study was to determine whether the emotional intelligence of primary school learners is affected by school and/or classroom climate, and a quantitative study was hence designed to determine this.

4.4.2 Quantitative studies

The aim of quantitative research is to determine the relationship between a dependent variable, and one or more independent variables (Hopkins, 2000). A dependent variable (also known as an outcome variable) is dependent on other factors and is considered to be the effect, whereas an independent variable (also known as a predictor variable) is considered to be the cause (De Vaus, 2001). The quantitative research question is a question that is asked about the relationship between the variables in order to explain or predict an outcome as it relates to the research problem.

In this study, the aim was to determine if there is a relationship between trait emotional intelligence (dependent variable), classroom climate (independent variable), and school climate (independent variable). The research question that was asked was whether classroom climate and/or school climate influence trait emotional intelligence in primary school learners, and if so, which factors inhibit, and which promote the development of emotional intelligence in primary school learners. A quantitative research design was hence the most appropriate for the study.

In quantitative research, what is going to be done and how it is going to be done needs to be pre-specified (Robson, 2002). Meadows (2003) explained that quantitative research needs to be driven by theory, and that data collection and analysis procedures, as well as the variables to be measured, should be specified before the study begins.

4.5 THE RESEARCH DESIGN

Research design specifies how an enquiry will be structured (De Vaus, 2001). The most important part of a study is selecting a research design that is appropriate for answering the research question (Meadows, 2003) A research design needs to address the following question: what type of evidence is needed to answer the research questions convincingly? (De Vaus, 2001). The type of evidence needs to be specified. In this study, the evidence required was the degree and nature of the relationship of emotional intelligence levels with classroom and school climate.

In cross-sectional studies, data are collected only once, and the data are directly applicable to each case within that single, brief period of time. Relationships between the variables of interest are then explored (Hopkins, 2000; Johnson & Christensen, 2010). In this study, the trait emotional intelligence of primary school learners was assessed only once, at the same time as their perceptions of their classroom climate were assessed, and the teachers' perceptions of the school climate were assessed.

4.5.1 Non-experimental research

Broadly speaking, quantitative research can be split into experimental research and non-experimental research. In experimental research, the independent variable/s are manipulated in one or more groups, and the outcome of this manipulation is compared to that of a control group/s where the independent variable was not manipulated (Meadows, 2003). In non-experimental research, no manipulation of variables occurs. Experimental research can provide much stronger evidence of causality than non-experimental research can, and the evidence in non-experimental research is less conclusive and more exploratory. Due to practical and/or ethical constraints however, experimental research is not always possible, and non-

experimental research is therefore often necessary in educational research (Johnson, 2001; Johnson & Christensen, 2010). Even if experimental research is possible, it is sometimes advisable to conduct non-experimental research first in order to determine if a causal relationship between the variables possibly exists and if further research is necessary (Johnson, 2001; Cook & Cook, 2008). Non-experimental research was conducted in this study, to first determine whether a relationship between EI and classroom and/or school climate exists and if further research is warranted.

In quantitative, non-experimental research, the variables can be quantitative and/or categorical. Quantitative variables are variables that differ in degree or amount, and categorical variables are variables that differ in kind or type (Johnson & Christensen, 2010). Causal-comparative research involves a comparison between groups, and hence includes a categorical dependent and/or independent variable (Gay, Mills, & Airasian, 2012). Correlational research includes quantitative variables only (Gay et al., 2012). Both causal-comparative and correlational research were undertaken in this study. Unlike in experimental research where participants are randomly assigned to groups, non-experimental research that investigates group differences work with groups that are already intact, such as classes or schools as in the case of this study.

4.5.2 Correlational research

Correlational research is non-experimental research that looks at the degree of the relationship between quantitative variables, in terms of both direction and strength (Cook, Cook, Landrum, & Tankersley, 2008; Johnson & Christensen, 2010). The direction of the relationship can be positive (if one variable increases, so does the other), or negative (one variable decreases when the other increases), and strength refers to how consistently the variables correspond to one another (Cook & Cook, 2008).

While correlational research cannot establish proof of causality, since a relationship between variables doesn't necessarily mean that one causes the other, it tries to find whether relationships between variables exist. (Cook & Cook, 2008). It is possible to observe a correlation between variables, but it is not possible to observe cause. We can only infer cause (De Vaus, 2001). Causal thinking is often probabilistic instead of deterministic, which means that the assumption is that a certain factor can increase or decrease the probability that a specific outcome will occur (De Vaus, 2001). Regression analysis is one of the analysis methods that is commonly used in correlational studies (Fraenkel, Wallen, & Hyun, 2012; Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005). In regression analysis, the values of a single quantitative dependent variable are explained or predicted from one independent variable in the case of simple regression, or two or more independent variables in the case of multiple regression (Johnson & Christensen, 2010). In this study, stepwise multiple regression analysis was run with school climate and classroom climate as independent variables and EI as the dependent variable.

4.5.3 Causal-comparative research

The purpose of this study was to determine if the EI of primary school learners is affected by classroom climate and/or school climate. Causal-comparative analysis was done in addition to the correlational analysis, in order to determine if the classes and the schools differed significantly from one another in terms of EI and the classroom climate scales. In most causal-comparative studies, an attribute variable is used as the independent variable. These variables represent the 'attributes' of different people or groups (e.g. schools) and are rarely amenable to manipulation (Johnson, 2001). The attribute variables in this study were school and class.

Causal-comparative research is non-experimental research based on categorical variables (Johnson & Christensen, 2010), and requires statistical analysis models such as analysis of variance (ANOVA) (Fraenkel et al., 2012). ANOVA compares the means of different groups to determine if there is a statistically significant difference between them. In this study, ANOVA was run between the mean trait emotional intelligence (TEI) scores of each of the six classes, and of both schools. Non-parametric techniques were used to compare the mean scores of each of the classes, and each school, for the five classroom climate scales.

4.5.4 Strengths and weaknesses of the design

Evidence gathered in non-experimental research is weaker than in experimental research, since there has been no random assignment of subjects and no manipulation, therefore cause and effect cannot be established (Johnson & Christensen, 2010). A causal relationship between variables means that variable Y is affected by variable X. If one event is preceded by another, or they co-vary, this does not mean that one causes the other. Correlation and causation are often confused (De Vaus, 2001). Neither causal-comparative nor correlational studies involve the experimental manipulation of variables, so while they do explore cause-and-effect relationships, the results cannot be considered to be proof of cause and effect (Johnson, 2001; Mertens, 2014)

While a cross-sectional study that is well-designed can indicate whether a relationship between variables is absent, it can only represent suggestive evidence that a causal connection between the variables exists. According to Hopkins (2000) however, it is a good starting point and can indicate whether or not it is worth continuing with the research.

In developing research designs, careful consideration must be given to internal and external validity. Internal validity refers to how well and how unambiguously the research design allows us to draw conclusions from our results. For internal validity to be strong, the

structure of the research design should attempt to eliminate all other alternative explanations for the results (De Vaus, 2001).

Johnson and Christensen (2010) outlined the three necessary conditions that need to be met in order to establish a cause and effect relationship:

- 1) The relationship condition: the variables in the study must be related to one another
- 2) The temporal antecedent condition: the correct time order needs to be established, that is, if variable A supposedly causes changes in variable B, then it must be established that variable A occurs before variable B.
- 3) The nonspurious condition: if a relationship is observed, it must not be a result of an extraneous variable. There should be no alternative explanation for the results.

While non-experimental research can often show a relationship between variables and hence sufficiently satisfy condition 1, it is weak at satisfying condition 2, and especially weak on condition 3. Possible alternative explanations for the results are almost always present in non-experimental research (Johnson & Christensen, 2010).

In this study, regression analysis and ANOVA were used to determine whether a relationship between EI, classroom climate and/or school climate exists. The design sufficiently satisfied condition 1. However, since a cross-sectional study was conducted, and the participants were assessed only once, condition 2 was not adequately satisfied. It could not be proven that classroom and/or school climate affected the EI of the learners, their EI levels may have remained unchanged. The learners with higher EI who rated their classroom climates more positively may have a more positive outlook on life, and be more adaptable, and hence naturally rate their environment more positively. According to Johnson (2001), a single non-experimental research study tells us little, but Thompson et al. (2005) insisted that a study does not need to be perfect in order to provide useful information. If a relationship between EI and

classroom climate and/or school climate is suggested by the results of the study, this would warrant future studies on the topic. A longitudinal research design would be better suited to satisfying the temporal antecedent condition.

To limit the effects of any extraneous variables, classes from two similar schools in the same area of Durban were part of the study. The schools are both adequately resourced and have similar yearly fees. The learners come from the same, or similar, low-income neighbourhoods and townships. All of the learners were enrolled in grade 4 or grade 5. Despite these efforts to control for extraneous variables, it is possible that there were variables that the researcher was unaware of that affected the study. This is always a risk in non-experimental research. Any relationship observed between the dependent and independent variable may be the result of one or more other variables, and may hence be spurious (Johnson, 2001). It cannot be proven that this study satisfied the non-spurious condition.

The external validity of a study refers to the generalisability of the results of the study, and whether the results can be generalised from the sample to the population. In inferential statistics, the law of probability is used to infer population characteristics from data collected from a sample (Johnson & Christensen, 2010). An unrepresentative sample is the biggest threat to external validity (De Vaus, 2001). The representativeness of the sample in this study was restricted by the language barrier since the participants needed to be able to read in English to be able to partake. The sample, therefore, did not accurately represent the South African population of primary school learners, since 70 – 80% of South African primary school children cannot read fluently in the instructional language of their school, which is usually English (Fleisch, 2008).

4.6 POPULATION AND SAMPLE SELECTION

4.6.1 The population

The TEIQue-CSF can only be administered to children 8 to 12 years of age, and Fraser, Anderson, and Walberg (1982) indicated that the MCI-SF is suitable for children 8 to 12 years of age. In order to keep the sample within the developmental stage of middle childhood, which includes children between 6 and 11 years old, the population of the study was South African primary school learners between 8 and 11 years of age.

According to a 2011 Census, 79.2% of South Africans are Black Africans, 8.9% are ‘Coloured’, 8.9% are white, 2.5% are Indian or Asian, and only 0.5% are of another race (World Elections, 2014).

Table 4.1

South African population demographics as per census 2011

Population group	Number	% of total
African	41 000 938	79.2%
White	4 586 838	8.9%
Coloured	4 615 401	8.9%
Indian/Asian	1 286 930	2.5%
Other	280 454	0.5%
TOTAL	51 770 560	100%

(Brand South Africa, 2017)

In KwaZulu-Natal, 86.8% of the population are black, 7.4% are Indian, 4.2 % are white, 1.4% are coloured, and 0.3% are of another race. In relation to the statistics of the country as a whole, KwaZulu-Natal has a much larger Indian population and a much smaller coloured population. In Durban, the ethnic distribution varies considerably from that of the district, with

a black population of 51.12%, Indian or Asian of 24.03%, a white population of 15.33%, a coloured population of 8.59%, and other races of 0.93%

Table 4.2.

Durban city population demographics

Population group	People	Percentage
Black African	304 188	51.12%
Indian or Asian	143 000	24.03%
White	91 212	15.33%
Coloured	51 130	8.59%
Other	5 531	0.93%

("Durban", 2011)

4.6.2 The sample

Since it is often impossible to study an entire population, a portion of the population is usually studied. This is the sample of the study. Ideally, a sample should be representative of the population it came from on all characteristics other than size (Johnson & Christensen, 2010). Sampling error and variability decrease as the sample size increases, but larger samples involve more costly and time-consuming data collection and analysis (Meadows, 2003). Therefore, a sample should be selected that is as representative as possible of the population, is of sufficient size to indicate effects on the variable being studied, and contains as little sampling error as possible (Meadows, 2003).

From the population, a sample of 119 primary school learners from six classes in two different schools in Durban, KwaZulu-Natal, was drawn. A number of schools in Durban city with similar yearly fees were contacted regarding partaking in the study, and two agreed. The teachers from two 4th grade classes from the first school, and four 5th grade classes from the second school, agreed to participate. Parent/guardian consent forms were given to the learners

to take home to their parents. Since a quantitative research design was used for this study, probability sampling would have been the most effective sampling method as it allows generalisations to be made to the population from the sample and would hence increase the external validity of the study. Probability sampling means that every person in the population has an equal chance of being selected for the sample (Fink, 1995). However, in cases where the population is too large, or the researcher has limited time and resources, non-probability sampling is useful. Purposive sampling is a type of non-probability sampling, where the researcher selects a non-random sample that can be judged to be representative of the total due to the characteristics that it possesses (McBurney & White, 2010). Purposive sampling was used for this study, and the participants were selected according to the following criteria of inclusion:

Participants had to:

- be primary school children between 8 and 12 years of age;
- be willing to participate in the study;
- have informed consent from a parent or legal guardian to participate in the study;
- be able to read in English; and
- be enrolled at a school in Durban, KwaZulu-Natal, South Africa.

Participants in a research study need to be both able to, and willing to, participate (Vogt, Gardner, & Haefelle, 2012). Of the 240 grade 4 and 5 learners who were given consent forms to take home to their parents/guardians, only 119 both received informed consent from a parent/guardian and gave personal consent to participate in the study. The participants were all between the ages of 9 and 12 years old. Of the 119 participants, 80 were black (67.2%), 17 were coloured (14.3%), and 22 were Indian (18.5%). 59 of the participants were female

(49.6%), and 60 were male (50.4%). The following table shows cross-tabulation for race and gender of the sample.

Table 4.3.

Cross-tabulation of demographic distribution of the sample

Race	Race * gender	Female	Male	Total
Black	Count	39	41	80
	% of total	32.8%	34.5%	67.2%
Coloured	Count	11	6	17
	% of total	9.2%	5.1%	14.3%
Indian	Count	9	13	22
	% of total	7.6%	10.9%	18.5%
Total	Count	59	60	119
	% of total	49.6%	50.4%	100%

4.7 RESEARCH INSTRUMENTS

This study focused on learners' and teachers' perceptions of their classroom and school climate respectively and investigated the relationship between these variables and learners' emotional intelligence. Measures that focus on perceptions were hence used: the MCI-SF, which measures a learner's perceptions of his or her classroom climate; the TEIQue-CSF, which assesses a learner's EI subjectively; the SLEQ, which assesses school climate from the teacher's perspective. While the perceptions of learners are frequently used to measure classroom climate, they are not often used for measuring school climate since it is believed that many school climate factors would be unknown to learners (Fisher & Fraser, 1990).

The validity of a measure refers to the accuracy of a measure and how well it measures what it says it measures, and reliability refers to the consistency of a measure and whether the results of a measure are reproducible on a retest (Hopkins, 2000; Johnson & Christensen, 2010;

Meadows, 2003; De Vaus, 2001). The measures used in this study have adequate reliability and validity.

4.7.1 The Trait Emotional Intelligence Questionnaire Child Short Form (TEIQue-CSF)

The TEIQue is based on trait EI theory, which considers emotional intelligence to be a personality trait (Petrides, Pita, & Kokkinaki, 2007). Historically, adults have been the primary focus of trait EI research. The child form was developed to address this imbalance and to assess the emotion-related facets of child personality (Russo et al., 2012). It is not simply an adaptation of the adult form, but is rather based on a sampling domain that has been specifically developed for children aged between 8 and 12 years, derived from content analysis of socioemotional development literature for this age group (Mavroveli et al., 2008). It comprises 75 items that are responded to on a 5-point scale and measures nine distinct facets, namely: adaptability, affective disposition, emotion expression, emotion perception, emotion regulation, low impulsivity, peer relations, self-esteem, and self-motivation. (Mavroveli et al., 2008). The Child Short Form (TEIQue-CSF) is a shortened version with 36-items.

4.7.1.1 *Permission to use TEIQue-CSF for research purposes*

It is readily available online for use by educators and researchers.

4.7.1.2 *Reliability and validity of the TEIQue-CSF*

The Cronbach Alpha for the TEIQue has been reported as 0.76, and for the TEIQue-SF as 0.88 (Petrides et al., 2004). Hardy (2005) used the TEIQue-SF with success in South Africa and reported a Cronbach Alpha of 0.90.

The TEIQue-CSF has shown satisfactory reliability and validity in children between 8 and 12 years (Russo et al., 2012). The TEIQue-CSF displayed acceptable internal consistency

levels ($r = 0.76$ and r corrected = 0.73 , respectively), and temporal stability ($\alpha = 0.79$) in two separate samples (Mavroveli et al., 2008).

In the present study, the Cronbach Alpha coefficient for the total TEIQue-CSF score was 0.823.

4.7.1.3 Measurement scales of the TEIQue-CSF

The TEIQue-CSF assesses the global emotional intelligence score of learners aged 8 to 12 (Mavroveli et al., 2008) and higher scores reflect higher EI levels (Stassart, Etienne, Luminet, Kaïdi, & Lahaye, 2019). Items such as “I find it hard to get used to a school year” and “I am a very happy kid” are responded to on a 5-point Likert scale (1 = Disagree completely; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Agree completely) for a score of 1,2,3,4 or 5 respectively. 12 of the 36 items are reverse scored.

4.7.2 The My Class Inventory Short Form (MCI-SF)

According to Fraser and O’Brien (1985), the instrument used most often to determine learners’ perceptions of their classroom environment is the Learning Environment Inventory (LEI). This instrument is, however, not suitable for younger children, which is why Fraser and O’Brien (1985) recommended the MCI for elementary school learners. Fraser et al. (1982) explained that the MCI is a simplified form of the LEI that was developed for use with elementary school learners, aged 8 to 12. It differs from the LEI in four major ways:

- It contains only five of the original 15 scales (Satisfaction, Friction, Competitiveness, Difficulty, Cohesiveness) in order to prevent fatigue in younger children.
- Item wording is simplified.
- The format has been reduced from a 4-point to a 2-point answering system (Yes/No).
- For the sake of simplicity and ease, learners answer on the question sheet itself.

Many measures of classroom climate exist, but only the MCI is :

a) multidimensional in nature, b) designed especially for use in elementary classrooms and schools with less than proficient readers, c) well documented in the elementary school, psychological and educational literature, d) supported by at least some reliability and validity data, and e) readily available at a low cost (Sink & Spencer, 2005, p. 38)

A shorter, 25-item version called the MCI Short Form (MCI-SF) has since been made available to reduce the amount of class time that it takes to complete the questionnaire. It is also more suitable for younger learners, as young as 8 years old (Sink & Spencer, 2005). Since the learners were asked to complete the TEIQue-CSF as well, the researcher considered it to be advisable to utilize the MCI-SF to reduce fatigue amongst the learners.

4.7.2.1 *Permission to use the MCI-SF for research purposes*

The MCI-SF is readily available online for use by educators and researchers.

4.7.2.2 *Reliability and validity of the MCI-SF*

The revised version of the MCI-SF published in 1981 has good scale reliability (Fraser et al., 1982; Fraser & Fisher, 1983; Fraser & O'Brien, 1985). Fraser and Fisher (1983) conducted a study with a large sample of 2 305 Australian seventh-grade learners and reported internal consistency reliability coefficients (Cronbach's alphas) for the MCI-SF of Satisfaction 0.78; Friction 0.71; Competitiveness 0.71; Difficulty 0.65; and Cohesiveness 0.67. These authors also reported acceptable discriminant validity of the MCI-SF after correlating the scores of the subscales with subscales from other classroom climate measures (Sink & Spencer,

2005). Fraser and O'Brien (1985) and Byrne, Hattie, and Fraser (1986) furthermore reported adequate coefficient alphas from their investigations on large samples in Australia. With the exception of Difficulty, similar values were found for reliability in the present study (Satisfaction 0.69, Friction 0.76, Competitiveness 0.72 and Cohesiveness 0.72). The Cronbach Alpha coefficient for Difficulty was 0.36 and findings related to this scale need to be interpreted with care. Sink and Spencer (2005) advised caution when using the MCI-SF in its original form, indicating that the Difficulty scale produced low-reliability coefficients and loaded onto other components.

4.7.2.3 *Measurement scales of the MCI-SF*

Descriptions of the MCI-SF scales as explained by Sink and Spencer (2005) can be found in Table 4.4.

Table 4.4.

Descriptions and examples of MCI-SF scales

Scale name	Description of scales	Sample item
Satisfaction	Examines how much the learners like their class	"Students enjoy their schoolwork in my class" (+)
Friction	How much conflict and tension there is between learners	"Students are always fighting with each other." (+)
Competition	The degree to which learners compete	"Students often race to see who can finish first." (+)
Difficulty	Whether or not the learners find the coursework manageable and the information taught intelligible	"Most students can do their schoolwork without help." (-)
Cohesiveness	How friendly the learners are with one another and how well they collaborate	"Some people in my class are not my friends." (-)

Items designated (+) are scored by allocating 3 or 1 respectively, for the responses ‘Yes’ or ‘No’. Items designated (-) are scored in the reverse manner. A score of 2 is given to invalid or omitted answers.

The questions are ordered in blocks of five, with the first statement corresponding to Satisfaction, the second to Friction, the third to Competitiveness, the fourth to Difficulty, and the fifth to Cohesiveness. To determine the score for the first scale, Satisfaction, the result for the first statement in each block of five are added together (i.e. statements 1,6,11,16, and 21). The total for the second scale, Friction, is calculated by adding the results of the second statement in each block of five (i.e. statements 2, 7, 12, 17, and 22). This is repeated for the third, fourth, and fifth scales to provide a score for each of the five scales.

The MCI-SF was not designed to give an overall classroom climate score. For this study, the researcher decided that an overall classroom climate score would assist in the analysis of the data to determine if a relationship between classroom climate and EI exists, and calculated an overall classroom climate score from the data on logical grounds. Satisfaction and Cohesiveness were viewed as positive and were scored as such, whereas Friction, Competitiveness, and Difficulty were viewed as negative and reverse scored.

4.7.3 The School Level Environment Questionnaire (SLEQ)

The SLEQ measures the school environment from the perspective of the teachers (Fisher & Fraser, 1990). It has been utilised to measure school climate in several countries worldwide (Fisher & Fraser 1990; Johnson & Stevens, 2001; Rentoul & Fraser, 1983), including South Africa (Mailula, Laugksch, Aldridge, & Fraser, 2003). In order to construct the SLEQ, six criteria were followed. The SLEQ had to be consistent with the literature on school climate, cover Moos’s 1974 general categories of environments (relationships, personal development, system maintenance, and change), be relevant to practicing teachers, have

specific relevance to schools, have minimal overlap with classroom climate measures, and be economical to administer (Rentoul & Fraser, 1983).

The SLEQ consists of 56 items that are responded to on a five-point Likert scale (1 = strongly disagree, to 5 = strongly agree), with 7 items in each of the 8 scales: Student support; Affiliation; Professional Interest; Staff Freedom; Participatory Decision Making; Innovation; Resource Adequacy; and Work Pressure.

4.7.3.1 Permission to use the SLEQ for research purposes

The SLEQ is readily available online for use by educators and researchers.

4.7.3.2 Reliability and validity of the SLEQ

Results of studies conducted on three different samples in Australia all showed satisfactory internal consistency and discriminant validity for each of the SLEQ scales (Fisher & Fraser, 1990). Alpha coefficients for each scale ranged from 0.64 to 0.91 across the three samples, demonstrating satisfactory internal consistency for scales that only consist of seven items each (Fisher & Fraser, 1990). The correlation of the mean scores of each scale to the others ranged from 0.05 to 0.42 across the three samples, demonstrating satisfactory discriminant validity.

Aldridge et al. (2006) modified the SLEQ for use in the South African context by adding two scales to the original eight scales, and reported that their modified version had an internal consistency (Cronbach's alpha) for each scale that ranged from 0.69 to 0.92. The sample of six teachers in the present study was too small to run reliability analysis for the SLEQ.

4.7.3.3 Measurement scales of the SLEQ

Fisher and Fraser (1990) explained that the SLEQ measures eight psychosocial dimensions of school climate (Table 4.5.)

Table 4.5.

Descriptions and examples of the SLEQ scales

Scale name	Description of scales	Sample item
Student Support	Students and teachers have a good rapport, and students are responsible and self-disciplined	“There are many disruptive, difficult students in this school” (-)
Affiliation	Teachers feel accepted and receive encouragement and assistance from their colleagues	“I feel that I could rely on my colleagues for assistance if I should need it.” (+)
Professional Interest	Teachers show interest in their work and in professional development, and discuss professional matters with one another	“Teachers frequently discuss teaching methods and strategies with each other.” (+)
Staff Freedom	Teachers are not required to follow set rules and procedures, and are not constantly supervised to ensure compliance to rules	“I am often supervised to ensure that I follow directions correctly.” (-)
Participatory Decision Making	Teachers can participate in the making of decisions about the school	“Decisions about the running of the school are usually made by the principal or a small group of teachers.” (-)
Innovation	Teachers are encouraged to suggest innovative ideas and experiments, and the school promotes openness and individualisation within classrooms	“Teachers are encouraged to be innovative in this school.” (+)
Resource Adequacy	There are adequate resources in the school, including facilities, equipment, finances, and support personnel	“The supply of equipment and resources is inadequate.” (-)

Work Pressure	How extensive the pressure to work is within the school	“Teachers have to work long hours to complete all their work.” (+)
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Items designated (+) are scored by allocating 5, 4, 3, 2, 1, respectively, for the responses agree completely, agree, neither agree nor disagree, disagree, disagree completely. Items designated (-) are scored in the reverse manner. A score of 3 is given to invalid or omitted answers.

The questions are ordered in blocks of eight: 1) Student Support; 2) Affiliation; 3) Professional Interest; 4) Staff Freedom; 5) Professional Development; 6) Innovation; 7) Resource Adequacy; 8) Work Pressure. To determine the score for the first scale, Student Support, the result of the first statement in each block of eight are added together (i.e. statements 1, 9, 17, 25, 33, 41, and 49). The total for the second scale, Affiliation, is calculated by adding the results of the second statement in each block of eight (i.e. statements 2, 10, 18, 26, 34, 42, and 50). This is repeated for all eight scales.

The SLEQ was not designed to give an overall school climate score. For this study, the researcher decided that an overall school climate score would assist in the analysis of the data to determine if a relationship between school climate and EI exists, and calculated an overall school climate score from the data on logical grounds. All of the school climate scales were taken to be positive, except for work pressure which was taken as a negative and reverse scored.

4.8 DATA COLLECTION PROCEDURES

The researcher was granted ethical clearance to conduct the study from the University of South Africa (Appendix A) and obtained permission from the Department of Education in KwaZulu-Natal (Appendix B). Further permission was obtained from two different schools in Durban, KwaZulu-Natal, to conduct the study. An email outlining the purpose of the research

and requesting their participation was sent to six different schools in Durban. Two schools expressed their interest in participating, and the details of the research were further clarified and dates and times scheduled with follow-up emails and phone calls. Grade 4 learners from school 1 and grade 5 learners from the school 2 were given consent forms to take home to their parents, outlining the purpose of the study. Learners whose parents gave consent, and who gave their own consent, could then participate in the study.

The learners who could participate were assembled in one location within their schools to complete the questionnaires. Classes from school 1 were assembled on one day, and classes from school 2 on another. The researcher explained both questionnaires to the learners, and learners could ask questions if they needed assistance or clarification. No more than 30 minutes were required by any of the learners to complete the questionnaires. Whilst the learners completed the two questionnaires, their teachers completed the SLEQ in another room. The researcher explained the questionnaire to the teachers, and the teachers could ask questions if they needed assistance or clarification.

4.9 DATA PROCESSING AND ANALYSIS PROCEDURES

An integral part of the research process is deciding on the method of data analysis that is the most appropriate for the study (Meadows, 2003) In quantitative analysis, significance testing is generally undertaken (Meadows, 2003). Significance testing refers to the significance of the results, and how likely or unlikely it is that the results occurred by chance (Johnson & Christensen, 2010).

The TEIQue-CSF and the MCI-SF, as well as a biographical questionnaire, were administered to the sample of learners. The SLEQ was completed by each class's teacher. The data were processed using the SPSS computer program. ANOVA tests were run to determine

if there were any gender or race differences in the scores on the TEIQue-CSF and the scales of the MCI-SF. To determine where the differences (if any) lie, t-tests were run on the gender scores and a Scheffe post-hoc test on the race scores. Stepwise multiple regression analysis was run between trait emotional intelligence, overall classroom climate, and overall school climate in order to determine if either school climate or classroom climate is a significant predictor of trait emotional intelligence. Multiple regression was used to calculate the Pearson's product-moment correlation coefficient (r) between the total TEI score from the TEIQue-CSF, the 5 scales of the MCI-SF (Satisfaction, Friction, Competitiveness, Difficulty, Cohesiveness), and the eight scales of the SLEQ (Student Support, Affiliation, Professional Interest, Innovation, Participatory Decision Making, Staff Freedom, Resource Adequacy, Work Pressure). The correlation coefficient (r) indicates the direction, strength, and significance of a relationship between variables. It ranges from -1 to +1, with 0 indicating no relationship at all, -1 indicating a perfect negative relationship, and +1 indicating a perfect positive relationship. A stepwise multiple regression analysis was consequently done to determine the predictive value of the various scales. The significance (2-tailed) indicates whether the relationship is significant, and correlations were evaluated at the 0.01 and the 0.05 level. These values represent the probability that the values would be observed by chance. Values that are significant at 0.01 level means there is a less than 0.01 chance that these values would occur by chance. Values slightly smaller than 0.01 or 0.05 (depending on the significance level) are weakly significant, and values closer to 0.00 have a strong significance.

The impact of classroom climate was further explored by analysing the data categorically comparing the mean scores of TEI, and the five scales of the MCI-SF, for each class and each school. In the case of TEI, ANOVA was run and Tukey multiple comparison of means post-hoc test was then used to see where the differences lie. For all statistical methods, certain assumptions need to be at least approximately met for the effect sizes and p-values to

be considered accurate (Thompson et al., 2005). In the case of ANOVA's, these assumptions are the homogeneity of variance. The MCI-SF data violated the assumptions, hence a Kruskal-Wallis rank sum test (the non-parametric version of ANOVA) was run between the means of the six classes and both schools for each of the five scales of the MCI-SF. A Dunn (1964) Kruskal-Wallis multiple comparison post-hoc test was used to see where the differences lie, with p-values adjusted with the Benjamini-Hochberg method (Dinno, 2015).

4.10 ETHICAL CONSIDERATIONS

Ethics define what is or is not legitimate to do, or what 'moral' procedure involves (Neuman, 2003). Any research that involves human participants needs to receive ethical approval before the study can commence. Meadows (2003) explained that this usually entails submitting the details of the research to an ethics committee, including details regarding the proposed sample of participants, research measures, method of data collection and analysis, data storage and ethical procedures to be adhered to. After the submission of a research proposal, clearance to conduct the study was received from the University of South Africa (Appendix A). Permission was then obtained from the Department of Education in KwaZulu-Natal (Appendix B), and then from two schools in Durban, KwaZulu-Natal.

McMillan and Schumacher (2001) propose ten ethical principles that should concern researchers. These are to:

- uphold the ethical standards of the study ;
- inform the participants of the details of the research ;
- be honest with the participants ;
- ensure that the participants are not physically or emotionally harmed or discomforted ;
- obtain informed consent ;

- safeguard the confidentiality of the participants ;
 - obtain approval from the relevant institutions ;
 - minimize misunderstandings ;
 - determine whether the research should be withheld due to potentially causing harm ;
- and
- provide the research participants with the opportunity to receive the research results.

Particular attention was given to the ethical considerations of informed consent and anonymity/confidentiality during the present study. Obtaining informed consent means ensuring that the participants in the research understand what the research involves, including procedures to be followed, any demands or risks, and the limits of confidentiality (Johnson & Christensen, 2010). Consideration needs to be given to the participants' ability to give consent, including age, mental ability, literacy levels, and language (Meadows, 2003). In the case of minors, consent must first be granted by a parent or guardian, and then by the minor.

In order to ensure that the research was done ethically, the researcher:

- gave the participants information about the research which was relevant to their decision about whether to participate in the study; and
- provided information (verbally and in writing) to the participants and ensured that they understood the information. A letter providing information about the research was read and explained to the potential participants. Participants were presented with an informed consent form to sign if they agreed to participate in the study. A parent/guardian informed consent letter was also signed by the parent/guardians of the potential participants as proof that he or she agreed to allow his/her child to participate in the research project.

Confidentiality means that no-one other than the researcher and his/her staff may know the identity of the participants (Johnson & Christensen, 2010). In order to protect participants by ensuring their anonymity and treating the information confidentiality, the researcher provided participants with code names. The schools were also provided with code names to protect their anonymity. Paper documents that had been filled out by the participants and contained identifying particulars were stored in a cabinet that only the researcher had access to, and electronic documents were stored on the researchers' personal, password-protected computer and only contained code names of participants and of the schools.

4.11 CHAPTER SUMMARY

This chapter described the research methodology of the study and substantiated the reasons for choosing a quantitative, post-positivist paradigm. It described the selection procedure of the sample of 119 primary school learners, which was drawn from the population of South African primary school learners using purposive sampling. The ethical procedures were also outlined, including the granting of permission from the KwaZulu-Natal department of basic education, as well as from two schools in Durban, to conduct the study. Special attention was given to the topics of informed consent and confidentiality. The data collection and analysis procedures were explained. Learners completed the TEIQue-CSF and the MCI-SF, and their teachers completed the SLEQ. These measures, and their validity and reliability, were described. Correlational analysis was undertaken using regression analysis, and causal-comparative analysis was conducted using ANOVA.

The results of this study are presented in the following chapter.

CHAPTER 5:

RESULTS OF THE EMPIRICAL INVESTIGATION

In the previous chapter, the methodology of the study was presented. In this chapter, the results of the empirical investigation are outlined and examined. Firstly, any race and gender differences in the learners' TEIQue-CSF and MCI-SF scores are explored. Then, multiple regression analyses results for the total school and classroom climate scores are presented, followed by analysis results for the climate subscales. Finally, the results for school and class comparisons are provided. All analyses are based on raw scores.

5.1 PURPOSE OF THE STUDY

The purpose of the study was to determine whether relationships exist between school climate, classroom climate, and emotional intelligence in primary school learners. Previous research has indicated that the classroom environment is somewhat insulated from the school environment, and this study investigated whether the classroom climate and/or the school climate can have a significant impact on learners' EI levels. An additional aim was to determine which factors promote, and which inhibit, the development of EI in primary school learners.

5.2 GENDER AND RACE DIFFERENCES

The first step in the data analyses was to investigate whether there were any gender or race differences in the scores for TEI and the five classroom climate scales. The comparisons were conducted using continuous variables. This analysis preceded the primary analyses and details are therefore presented in an appendix.

5.2.1 Gender differences

The means of TEI and the five classroom climate scales for the different genders were compared using ANOVA (see Appendix D for the results). The descriptive statistics are presented in Table 5.1.

Table 5.1

Descriptive statistics for gender on TEI and the five classroom climate scales

Variable	Gender	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SEM</i>
TEI	Female	59	133.93	15.579	2.028
	Male	60	138.28	18.590	2.400
Satisfaction	Female	59	12.78	2.730	0.355
	Male	60	13.35	2.291	0.296
Friction	Female	59	8.76	3.202	0.417
	Male	60	8.70	3.421	0.442
Competitiveness	Female	59	12.03	2.716	0.354
	Male	60	11.18	3.624	0.468
Difficulty	Female	59	7.14	2.209	0.288
	Male	60	7.25	2.176	0.281
Cohesiveness	Female	59	10.61	3.222	0.419
	Male	60	11.75	3.018	0.390

There were an almost equal number of female and male participants, 59 and 60 respectively. The males had numerically higher TEI, Satisfaction, Difficulty and Cohesiveness scores, and the females had numerically higher Friction and Competitiveness scores. None of the differences in means were, however, significant.

5.2.2 Race differences

The means of TEI and the five classroom climate scales for the different races were compared using ANOVA (see Appendix D for the results). The descriptive statistics are presented in Table 5.2.

Table 5.2

Descriptive statistics for race on TEI and the five classroom climate scales

Variable	Race	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SEM</i>
TEI	Black	80	134.43	16.947	1.895
	Coloured	17	136.47	17.861	4.332
	Indian	22	142.05	17.231	3.674
Satisfaction	Black	80	12.95	2.470	0.276
	Coloured	17	13.06	2.839	0.689
	Indian	22	13.50	2.540	0.542
Friction	Black	80	9.00	3.081	0.344
	Coloured	17	8.29	3.996	0.969
	Indian	22	8.09	3.531	0.753
Competitiveness	Black	80	12.21	2.840	0.318
	Coloured	17	11.00	3.808	0.924
	Indian	22	9.86	3.468	0.739
Difficulty	Black	80	7.38	2.269	0.254
	Coloured	17	6.76	2.107	0.511
	Indian	22	6.86	1.910	0.407
Cohesiveness	Black	80	10.85	3.053	0.341
	Coloured	17	11.47	3.907	0.948
	Indian	22	12.18	2.805	0.598

ANOVA results showed that the only significant difference was in perceptions of Competitiveness, and a Sheffe post hoc test showed that the difference lies between black and Indian learners, $p = .009$ (Appendix D). The mean score for perceptions of Competitiveness for black learners was 12.21, whereas the mean for Indian learners was 9.86. Based on the

results for the gender and age comparisons, it was decided to conduct all further analyses with the total sample of children.

5.3 TOTAL SCORES

The next step in the data analysis was to explore the relationship of classroom climate and school climate with emotional intelligence. The total scores on the relevant questionnaires were used. That is, the facets in each questionnaire were combined

5.3.1 Descriptive statistics

In Table 5.3., the descriptive statistics (minimum, maximum, means and standard deviation) of the total classroom climate scores obtained on the MCI-SF are given for each of the six classes, for both schools, and for the total sample of learners. The descriptive statistics for the total school climate scores obtained on the SLEQ are provided for all six teachers in Table 5.4., and for both schools in Table 5.5.

Table 5.3

Descriptive statistics for overall classroom climate scores by class and by school

Class	<i>N</i>	Min	Max	<i>M</i>	<i>SD</i>
A	38	36	60	51.92	6.339
B	39	22	52	37.13	8.597
C	5	22	45	35.00	9.055
D	14	16	52	37.71	9.611
E	17	22	52	37.94	8.764
F	6	24	44	32.67	7.005
School					
S1	77	22	60	44.43	10.580
S2	42	16	520	36.76	8.773
TOTAL	119	16	60	41.72	10.601

The total classroom climate scores have a possible range of 10 to 75. The scores for the six classes ranged from a minimum of 16 (class D) to a maximum of 60 (class A). Class A also obtained a numerically higher mean score compared to the other classes. The highest classroom climate score was given by a learner in school 1, and the lowest by a learner in school 2. There is a similar range between the scores in both schools, with a 38-point difference between the minimum and maximum scores in school 1, and a 36-point difference in the minimum and maximum scores in school 2.

Table 5.4

Descriptive statistics for overall school climate scores by teacher

School	Teachers	Score
S1	Ta	208
	Tb	184
S2	Tc	170
	Td	182
	Te	205
	Tf	203

The school climate scores have a possible range of 49 to 280. Teacher A from school 1 had the highest school climate score at 208, and teacher C from school 2 had the lowest school climate score at 170.

Table 5.5

Descriptive statistics for overall school climate scores by school

Teachers	<i>N</i>	Min	Max	<i>M</i>	<i>SD</i>
S1	2	184	208	196	16.97
S2	4	170	205	190	16.91
TOTAL	6	170	208	192	15.45

School 2 had the lowest minimum score (min = 170) and school 1 had the highest maximum score (max = 208) with the latter also having a numerically higher mean score. There are 24 points between the minimum and maximum in school 1, and 35 points between the minimum and maximum in school 2.

5.3.2 Regression analysis on overall classroom climate and school climate scores

Hypotheses 1 and 2 were tested by means of a stepwise multiple regression analysis that used trait emotional intelligence as the dependent variable, and classroom climate and school climate as independent variables. The results are presented in Tables 5.6 and 5.7.

In order for the inferences drawn from the results of statistical tests to be valid, the data need to meet certain assumptions (Nimon, 2012). In the case of regressions, the residuals need to be normally distributed, and linearity and homoscedasticity need to be met. It is important that residuals be normally distributed since this indicates that the dataset is random. If this assumption is not met, the results might not be trustworthy. Normal probability plots are usually used to test this assumption. The relationship between variables furthermore needs to be a straight-line relationship, thus meeting the assumption of linearity. This is important since Pearson's r only captures the linear relationship among variables (Tabachnick & Fidell, 2013). The linearity should be validated graphically. The scores for one continuous variable should also be approximately equal at all values of another continuous variable, thus meeting the assumption of homoscedasticity (Tabachnick & Fidell, 2013). This is usually tested with scatterplots.

The residuals of the TEI data were normally distributed, while linearity and homoscedasticity could also be assumed, as portrayed in Figures 5.1 to 5.3 below.

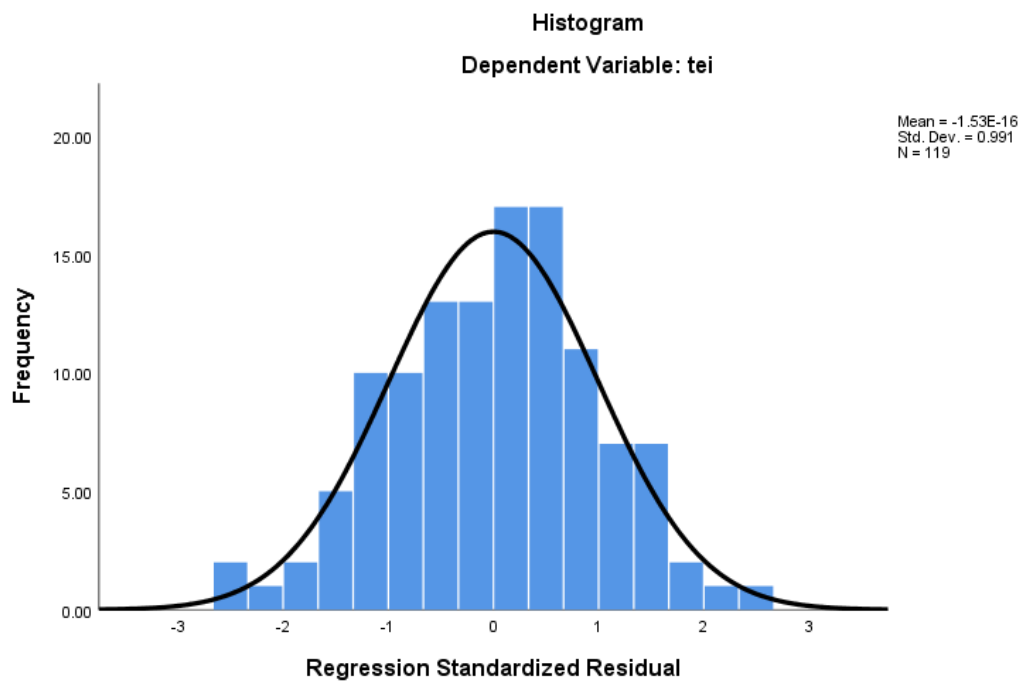


Figure 5.1: Histogram showing normality of TEI data

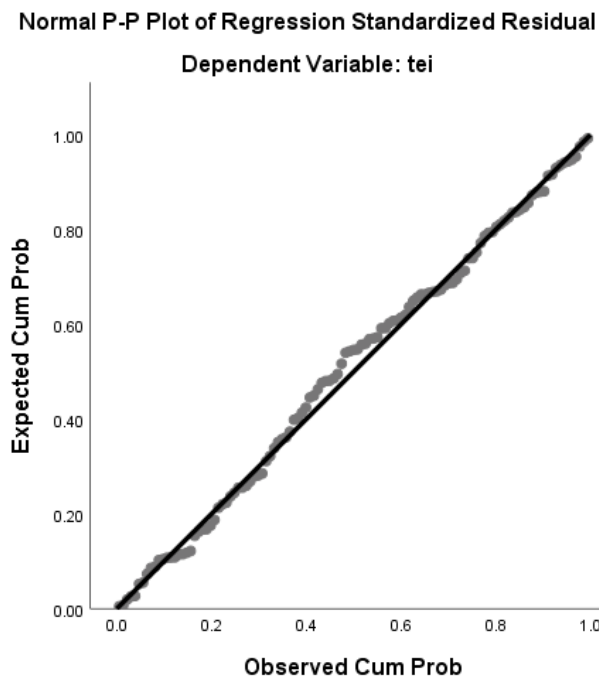


Figure 5.2: Normal P-P Plot of residuals showing linearity

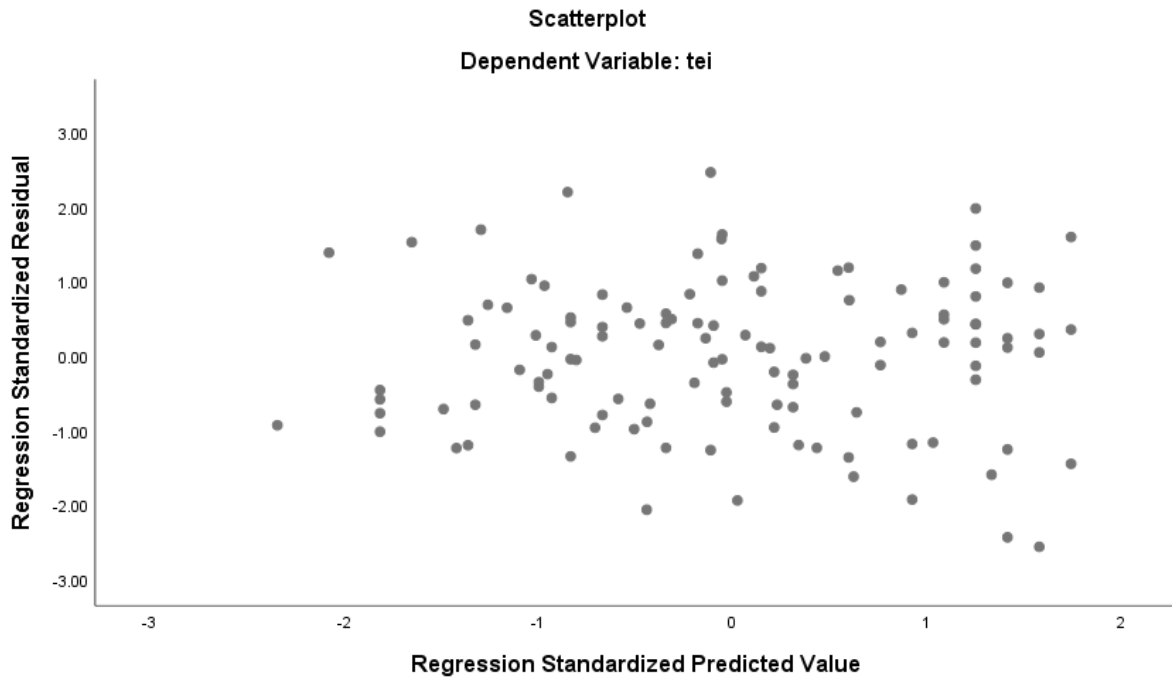


Figure 5.3: Scatterplot of TEI data showing homoscedasticity

Multicollinearity was also not a problem (Tolerance= 0.773, VIF = 1.293). An exact, or almost exact, linear relationship between the independent variables is referred to as multicollinearity (Gujarati, 2003). According to Myers (1990), a tolerance of less than 0.1 indicates a collinearity problem, whereas Menard (2002) suggests a cut-off point of 0.2. The variance inflation factor (VIF) reveals the extent to which multicollinearity has inflated the variance of the coefficient estimate (Midi, Sarkar, & Rana, 2010). According to Allison (2012), a VIF value greater than 10 is generally regarded as an indication of multicollinearity, but values greater than 2.5 may be concerning in weaker models.

Table 5.6

Model summary of regression analysis with TEI as dependent variable (N=119), classroom climate scores (N = 119) and school climate scores (N = 119) as independent variables*

Model	R	R ²	Adjusted R ²	SE of the Estimate	Change Statistics				Sig. Change
					R ² Change	F Change	df1	df2	
1	.366 ^a	0.134	0.127	16.101	0.134	18.134	1	117	0.000
2	.374 ^b	0.140	0.125	16.114	0.006	0.813	1	116	0.369

a. Predictors: (Constant). Classroom climate

b. Predictors: (Constant). Classroom climate. School climate

* Each teacher's score was allocated to all the children in the specific class to create a continuous variable.

Table 5.7

One-Way Analysis of Variance of Classroom climate and school climate with TEI as the dependent variable

Model		df	SS	MS	F	p
1	Regression	1	4700.924	4700.924	18.134	.000 ^b
	Residual	117	30330.185	259.232		
	Total	118	35031.109			
2	Regression	2	4912.022	2456.011	9.459	.000 ^c
	Residual	116	30119.087	259.647		
	Total	118	35031.109			

a. Dependent Variable: tei

b. Predictors: (Constant), Classroom climate

c. Predictors: (Constant), Classroom climate, School climate

Coefficients^a

Model		Unstandardized Coefficients		Standardised Coefficients	t	Sig.
		B	SE	Beta		
1	(Constant)	111.284	6.018		18.493	.000
	Classroom climate	0.595	0.140	0.366	4.258	.000
2	(Constant)	90.604	23.712		3.821	.000
	Classroom climate	0.527	0.159	0.324	3.312	.001
	School climate	0.121	0.134	0.088	0.902	.369

a. Dependent Variable: tei

Excluded Variables^a

Model	Beta In	<i>t</i>	Sig.	Partial Correlation	Collinearity	
					Statistics	
					Tolerance	
1	School climate	.088 ^b	0.902	.369	0.083	0.773

a. Dependent Variable: TEI

b. Predictors in the Model: (Constant). Classroom climate

Classroom climate and school climate combined explained 14% of the variance. According to Ellis and Steyn (2003), this is marginally but practically significant. It is safe to infer that the influence of classroom climate on TEI was practically fairly small. The overall model was significant ($F(2, 116) = 9.459, p < 0.01$). Classroom climate was the only significant predictor ($B = 0.527; p = .001$), whereas school climate was not ($B = 0.121; p = .369$).

5.4 SUBSCALES

In order to determine which classroom or school climate factors, if any, promote or inhibit the development of EI in primary school learners, regression analysis was run between the continuous scores of TEI and the five classroom climate scales, and the eight school climate scales.

5.4.1 Descriptive statistics

The sample of 119 learners rated their classroom climate with regard to Satisfaction, Friction, Competitiveness, Cohesiveness, and Difficulty. The teachers of each of the six classes rated the school climate with regard to Student Support, Affiliation, Professional Interest, Staff Freedom, Participatory Decision Making, Innovation, Resource Adequacy, and Work Pressure. The descriptive statistics for the classroom climate scales are provided in Table 5.8., and for the school climate scales in Table 5.9.

Table 5.8

Descriptive statistics for classroom climate scales

Variable	N	Mdn	M	SD	95% CI		Min	Max
					lower	upper		
Satisfaction	119	14	13.07	2.52	12.61	13.53	5	15
Cohesiveness	119	11	11.18	3.16	10.61	11.75	5	15
Friction	119	9	8.73	3.30	8.13	9.33	5	15
Difficulty	119	7	7.19	2.18	6.79	7.59	5	13
Competitiveness	119	13	11.61	3.22	11.03	12.19	5	15

The scale with the highest mean score was Satisfaction ($M = 13.07$), whereas the lowest mean score was for Difficulty ($M = 7.19$).

Table 5.9

Descriptive statistics for school climate scales

Variables	N	Mdn	M	SD	95% CI		Min	Max
					lower	upper		
Student Support	6	27.5	27.50	4.32	22.97	32.03	23	34
Affiliation	6	28.0	28.83	2.56	26.14	31.52	27	34
Professional								
Interest	6	29.5	30.17	1.60	28.49	31.85	29	33
Staff Freedom	6	17.0	16.83	0.75	16.04	17.62	16	18
Participatory								
Decision Making	6	20.5	21.17	4.75	16.19	26.15	15	29
Innovation	6	29.5	28.33	3.20	24.97	31.69	24	31
Resource								
Adequacy	6	30.0	29.83	3.87	25.77	33.89	23	34
Work Pressure	6	27.5	25.67	5.75	19.64	31.70	16	31

The scale scores ranged from a low of 15 (Participatory Decision Making) to a high of 34 (Student Support, Affiliation, and Resource Adequacy). The highest mean score was for Professional Interest ($M = 30.17$), whereas the lowest was for Staff Freedom ($M = 16.83$).

5.4.2 Correlation results

Pearson's correlations were calculated using a two-tailed test between TEI, the five classroom climate scales, and the eight school climate scales (Table 5.10).

Table 5.10

Pearson's correlation between classroom climate (N=119) and school climate (N=119) scales and TEI (N=119)*

TEI vs	Pearson's correlation	Significance (2-tailed)
Satisfaction	.397 ^a	.000
Friction	-.217 ^b	.018
Competitiveness	-.233 ^b	.011
Difficulty	-.248 ^a	.007
Cohesiveness	.277 ^a	.002
Student Support	.121	.190
Affiliation	.273 ^a	.003
Professional Interest	-.073	.430
Staff Freedom	.181 ^b	.049
Participatory Decision Making	.237 ^a	.009
Innovation	-.111	.229
Resource Adequacy	.184 ^b	.045
Work Pressure	-.072	.435

a. Correlation is significant at the .01 level (2-tailed).

b. Correlation is significant at the .05 level (2-tailed).

Note: Each teacher's score was allocated to all the children in the specific class to create a continuous variable.

Results of the Pearson's correlations for the classroom climate scales were in the expected direction, with positive correlations between TEI and Satisfaction and Cohesiveness, and negative correlations between TEI and Friction, Competitiveness and Difficulty. There was a highly significant correlation between Satisfaction and TEI ($r = .397, p = .000$), and significant correlations between TEI and the four other classroom climate scales. Correlations for Satisfaction, Difficulty, and Cohesiveness were significant at the .01 level, and for Friction and Competitiveness at the .05 level. Hypotheses 3 to 7 were thus supported. In the case of the school climate scales, significant correlations were noted for four of the scales (Affiliation, Staff Freedom, Participatory Decision Making, and Resource Adequacy). The highest correlation was for Affiliation ($r = .273, p = .003$).

5.4.3 Regression analysis

Stepwise multiple regression analysis was used to test if any of the five scales of classroom climate or the eight school climate scales predicted trait emotional intelligence. The results are presented in Tables 5.11 and 5.12

The residuals were normally distributed, while linearity and homoscedasticity could also be assumed, as portrayed in Figures 5.4 to 5.6.

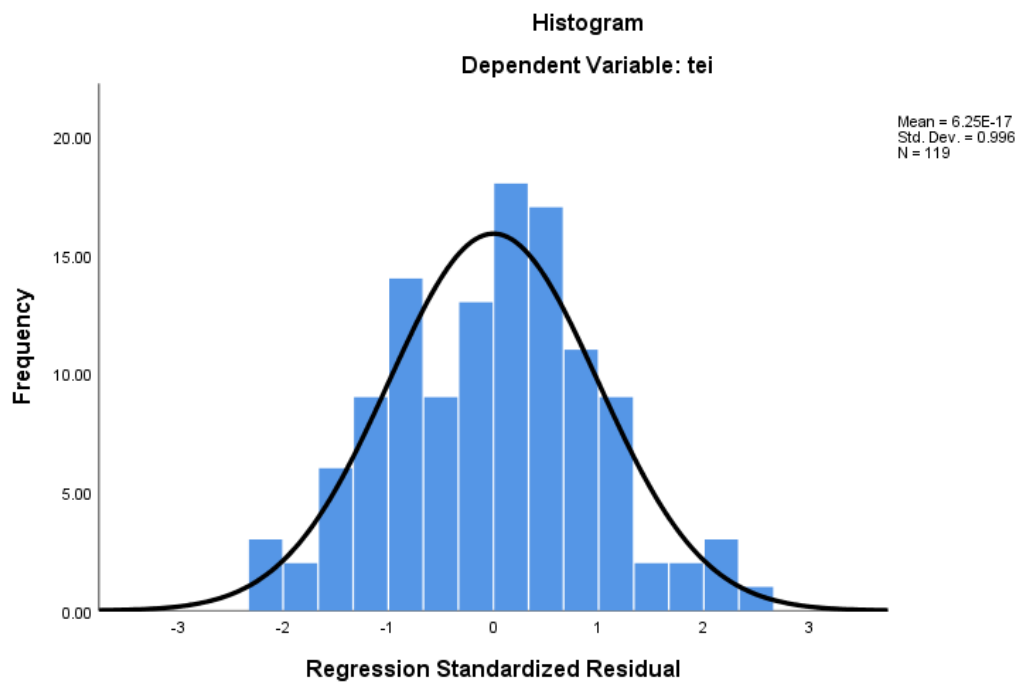


Figure 5.4: Histogram showing normality of TEI data

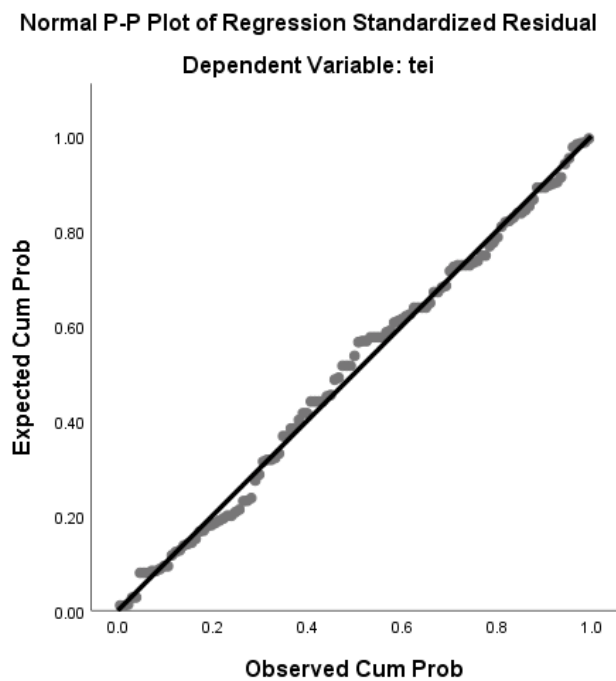


Figure 5.5: Normal P-P Plot of residuals showing linearity

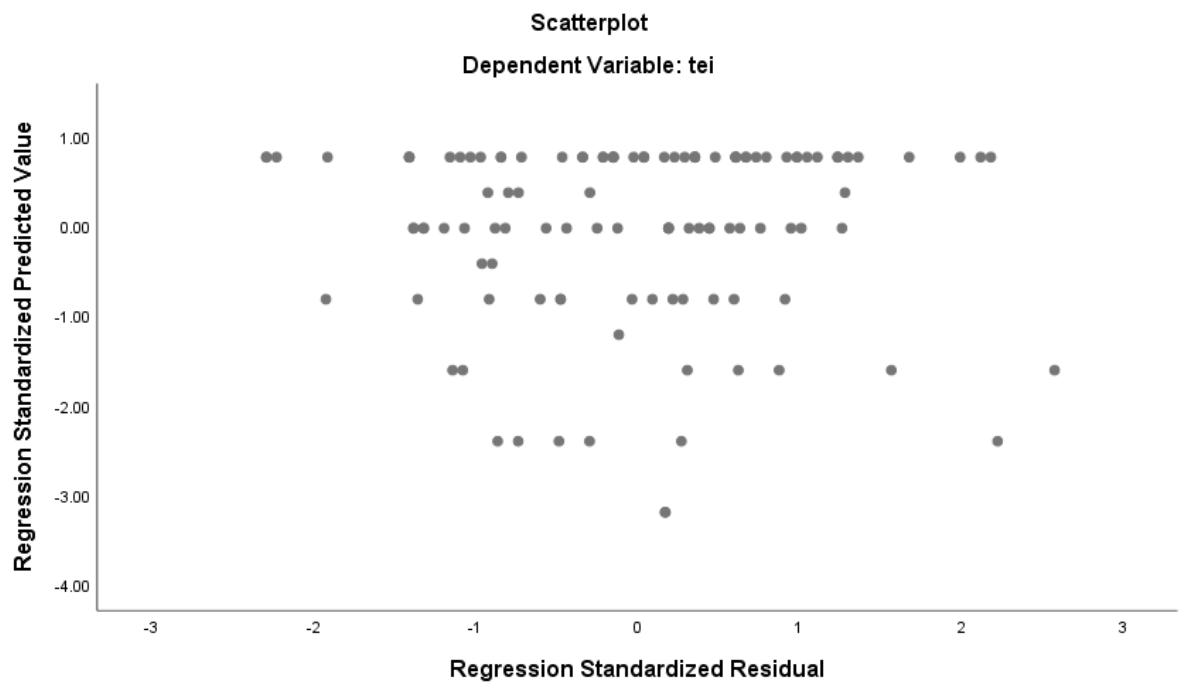


Figure 5.6: Scatterplot of TEI data showing homoscedasticity

Multicollinearity was also not a problem (Tolerance= 1.000 , VIF = 1.000)

Table 5.11

Model summary of regression analysis with TEI as dependent variable and Satisfaction as independent variable

Model	<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	<i>SE</i> of the Estimate	Change statistics				
					<i>R</i> ² Change	<i>F</i> Change	<i>df</i> 1	<i>df</i> 2	Sig. <i>F</i> Change
1	.397 ^a	0.157	0.150	15.883	0.157	21.867	1	117	0.000

a. Predictors: (Constant), Satisfaction

Table 5.12

One-Way Analysis of Variance of Satisfaction with TEI as dependent variable

Model		<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
1	Regression	1	5516.261	5516.261	21.867	.000 ^b
	Residual	117	29514.848	252.264		
	Total	118	35031.109			

b. Predictors: (Constant), satisfaction

Coefficients^a

Model		Unstandardized Coefficients		Standardized	<i>T</i>	Sig.	Collinearity	
		<i>B</i>	<i>SE</i>	Coefficients			Statistics	
				Beta			Tolerance	VIF
1	(Constant)	100.722	7.710		13.064	.000		
	Satisfaction	2.709	0.579	0.397	4.676	.000	1.000	1.000

a. Dependent Variable: tei

The results of the regression indicated that only Satisfaction significantly predicted trait emotional intelligence ($B = 2.709, p = .000$). This variable explained 15.7% of the variance in the dependent variable, and the overall model was significant ($F = (1, 117) 21.867, p < .01$). The Pearson's correlation matrix indicated that all five of the classroom climate scales, and

four of the school climate scales, correlated significantly with TEI. However, stepwise regression analysis only selects the most prominent predictor (Satisfaction in this case).

5.5 SCHOOL AND CLASS COMPARISONS

In order to determine if specific classes, or specific schools, differed in their levels of TEI and with regard to the classroom climate scales, ANOVA was run between the mean TEI scores, as well as the mean classroom climate scores, by class and by school. T-tests (between the schools) and post-hoc tests (between the classes) were used to see where the differences lie.

5.5.1 Trait emotional intelligence

The descriptive statistics for TEI by class and by school are provided in Table 5.13. Box plots showing the comparison of means between the classes, and between the two schools, are provided in Appendix E. ANOVA was run between the mean TEI scores of the classes to see if there were any significant differences (Table 5.14.).

The variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 5(113)$, $F\text{-value} = .6453$, $p\text{-value} = .6656$). There was no evidence to suggest that the variance across groups was significantly different. Therefore, the homogeneity of variances could be assumed in the different treatment groups (classes).

Table 5.13

Descriptive statistics for trait EI by class and by school

Class	N	Mdn	M	SD	95%CI	95%CI	Min	Max
					(Lower)	(Upper)		
A	38	147.0	143.05	19.07	136.78	149.32	105	176
B	39	132.0	131.13	13.01	126.91	135.35	108	157
C	5	129.0	127.80	17.31	106.31	149.29	100	145
D	14	137.5	136.43	17.22	126.49	146.37	106	162
E	17	128.0	133.47	19.38	123.51	143.43	107	175
F	6	141.0	138.50	12.50	125.38	151.62	119	155
School								
s1	77	139.0	137.01	17.25	133.09	140.93	105	176
s2	42	134.5	134.50	17.27	129.12	139.88	100	175
TOTAL	119	138.0	136.13	17.23	133.00	139.26	100	176

The possible range of total scores is from 36 to 180. The minimum TEI score (min = 100) was from class C in school 2, and the maximum TEI score (max = 176) was from class A in school 1. The highest mean score was for class A ($M = 143.05$), and the lowest mean score was for class C ($M = 127.80$). School 1 consisted of class A and class B and had a mean TEI score of 137.01. School 2 consisted of classes C, D, E, and F and had a mean TEI score of 134.05.

Table 5.14

ANOVA summary results for TEI by class

	Df	SS	MS	F value	p-value
Class	5	3299	659.8	2.35	.0453*
Residuals	113	31732	280.8		

*The p-value is < 0.05 , which shows there is a difference in the means across the classes.

In order to determine where the differences lie, a Tukey HSD post-test was run between the means (Table 5.15).

Table 5.15

Tukey multiple comparisons between TEI of classes

Class	M difference	p-value	95% CI	
			lower	upper
b-a	-11.924	.027*	-22.999	-0.850
c-a	-15.253	.400	-38.365	7.860
d-a	-6.624	.804	-21.813	8.565
e-a	-9.582	.372	-23.758	4.594
f-a	-4.553	.989	-25.895	16.790
c-b	-3.328	.998	-26.406	19.750
d-b	5.300	.912	-9.836	20.437
e-b	2.342	.997	-11.777	16.462
f-b	7.372	.916	-13.933	28.677
d-c	8.629	.921	-16.683	33.940
e-c	5.671	.985	-19.046	30.387
f-c	10.700	.898	-18.719	40.119
e-d	-2.958	.996	-20.492	14.576
f-d	2.071	.999	-21.635	25.778
f-e	5.029	.988	-18.041	28.100

* p-value<0.05 indicates a significant difference between the means

Tukey HSD post-hoc test shows that the only statistically significant difference in mean TEI scores is a negative difference between class A and class B, with class A having an 11.924 point greater mean than class B.

To determine whether there was a significant difference in TEI means between the two schools, a two-sample t-test was run. The homogeneity of variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 1(111)$, F-value = .0384, p-value = .8451 *) *p-value>.05, there was no evidence to suggest that the variance across groups was

significantly different. Therefore, the homogeneity of variances in the different treatment groups (schools) could be assumed.

There was no significant difference in the scores for school 1 ($M=137.013$) and school 2 ($M=134.500$), conditions; $t(117)=0.75896$, $p = .4494$.

5.5.2 Satisfaction

The descriptive statistics for Satisfaction by class and by school are provided in Table 5.16. Box plots showing the comparison of means between the classes, and between the schools, are given in Appendix E. The variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 5(113)$, $F\text{-value} = 6.817$, $p\text{-value} = 1.363e-05^*$). $*p\text{-value} < 0.05$, there is evidence to suggest that the variance across groups is significantly different – the data does not meet the assumption. The points also do not fall closely along the reference line, so normality cannot be assumed. A Kruskal-Wallis test (a non-parametric version of the ANOVA test) was hence used.

Table 5.16

Descriptive statistics for Satisfaction

Class	N	Mdn	M	SD	95% CI		Min	Max
					Lower	Upper		
A	38	15.00	14.79	0.66	14.57	15.01	12	15
B	39	13.00	12.18	3.03	11.20	13.16	5	15
C	5	13.00	12.60	1.67	10.53	14.67	11	15
D	14	13.00	12.07	2.62	10.56	13.58	7	15
E	17	13.00	12.82	2.04	11.77	13.87	9	15
F	6	12.00	11.33	2.94	8.24	14.42	7	15
School								
s1	77	15.00	13.47	2.55	12.89	14.05	5	15
s2	42	13.00	12.33	2.32	11.61	13.05	7	15
TOTAL	119	14.00	13.07	2.52	12.61	13.53	5	15

Class A from school 1 had the highest mean score for Satisfaction ($M = 14.79$), while class F from school 2 had the lowest ($M = 11.33$). School 1 had a numerically higher mean Satisfaction score ($M = 13.47$) than school 2 ($M = 12.33$)

The Kruskal-Wallis test showed that there was a statistically significant difference between the class means on Satisfaction ($H(5) = 37.625$, $p = 4.489e-07^*$). *p-value<0.05, which shows that there is a difference in the means across the classes.

Unequal variance was assumed so a Dunn's test of multiple comparisons was used to determine where the differences lie (Table 5.17). According to Dinno (2015), the Dunn test can be used for unequal sample sizes if the Kruskal-Wallis test has been rejected.

Table 5.17

Dunn (1964) Kruskal-Wallis multiple comparisons results for Satisfaction, p-values adjusted with the Benjamini-Hochberg method

Class	Z	P.unadj	P.adj
a – b	5.045	0.000	0.000*
a – c	2.663	0.008	0.023*
b – c	0.246	0.806	0.863
a – d	4.047	0.000	0.000*
b – d	0.370	0.712	0.889
c – d	-0.003	0.998	0.998
a – e	3.667	0.000	0.001*
b – e	-0.275	0.783	0.904
c – e	-0.387	0.699	0.953
d – e	-0.541	0.589	1.000
a – f	3.479	0.001	0.002*
b – f	0.862	0.389	0.832
c – f	0.432	0.666	0.999
d – f	0.539	0.590	0.999
e – f	0.965	0.335	0.837

* p-value<0.05 indicates a significant difference

The results showed that there was a statistically significant difference between class A and all five of the other classes (B, C, D, E, F). None of the other comparisons were significant.

5.5.3 Cohesiveness

The descriptive statistics for Cohesiveness by class and by school are provided in Table 5.18. Box plots showing the comparison of means between the classes, and between the two schools, are given in Appendix E. The variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 5(113)$, $F\text{-value} = 2.3513$, $p\text{-value} = .0452^*$). $*p\text{-value} < 0.05$, there is evidence to suggest that the variance across groups is significantly different. Therefore, the homogeneity of variances cannot be assumed in the different treatment groups (classes). The points also do not fall closely along the reference line, so normality cannot be assumed. Both the homogeneity of variance and normality assumption were not met so a Kruskal-Wallis test was used.

Table 5.18

Descriptive statistics for Cohesiveness

Class	N	Mdn	M	SD	95% CI		Min	Max
					Lower	Upper		
A	38	15	13.82	2.02	13.16	14.48	7	15
B	39	9	9.59	2.63	8.74	10.44	5	15
C	5	11	9.40	4.10	4.31	14.49	5	13
D	14	11	10.57	3.23	8.71	12.43	5	15
E	17	11	10.76	2.84	9.30	12.22	7	15
F	6	9	9.00	1.79	7.12	10.88	7	11
School								
s1	77	13	11.68	3.16	10.96	12.40	5	15
s2	42	11	10.29	2.99	9.36	11.22	5	15
TOTAL	119	11	11.18	3.16	10.61	11.75	5	15

Class A had the highest mean score for Cohesiveness ($M = 13.82$), and class F had the lowest mean score ($M = 9.00$). School 1 had a numerically higher mean score ($M = 11.68$) than school 2 ($M = 11.00$) for Cohesiveness.

The Kruskal-Wallis test showed that there was a statistically significant difference between the class means on Cohesiveness ($H(5) = 45.224, p = 1.306e-08^*$). * p -value <0.05 , so this shows there is a significant difference in the means across the classes.

A Dunn (1964) Kruskal-Wallis multiple comparisons test was used (Dinno, 2015), to see where the differences lie (Table 5.19).

Table 5.19

Dunn (1964) Kruskal-Wallis multiple comparison results for Cohesiveness
p-values adjusted with the Benjamini-Hochberg method.

Class	Z	<i>p</i> .unadj	<i>p</i> .adj
a – b	6.142	0.000	0.000*
a – c	2.852	0.004	0.013*
b – c	-0.092	0.927	0.993
a – d	3.389	0.001	0.003*
b – d	-1.093	0.274	0.457
c – d	-0.570	0.569	0.775
a – e	3.549	0.000	0.002*
b – e	-1.254	0.210	0.525
c – e	-0.631	0.528	0.792
d – e	-0.066	0.947	0.947
a – f	3.681	0.000	0.002*
b – f	0.495	0.621	0.776
c – f	0.430	0.667	0.770
d – f	1.143	0.253	0.475
e – f	1.224	0.221	0.473

* p -value <0.05 indicates a significant difference

The results show that there is a statistically significant difference between class A and all five of the other classes (B, C, D, E, F). None of the other comparisons were significant.

5.5.4 Friction

The descriptive statistics for Friction by class and by school are provided in Table 5.20. Box plots showing the comparison of means between the classes, and between the two schools, are in Appendix E. The variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 5(113)$, $F\text{-value} = 2.13$, $p\text{-value} = .06688$ *) * $p\text{-value} > 0.05$, there is no evidence to suggest that the variance across groups is significantly different. Therefore, we can assume the homogeneity of variances in the different treatment groups (classes). However, the points don't fall closely along the reference line, so we can't assume normality. The homogeneity of variance assumption was met, but the normality was not so a Kruskal-Wallis test was used.

Table 5.20

Descriptive statistics for Friction

Class	N	Mdn	M	SD	95% CI		Min	Max
					Lower	Upper		
A	38	5	6.03	2.05	5.36	6.70	5	15
B	39	9	9.95	2.96	8.99	10.91	5	15
C	5	13	11.80	3.63	7.29	16.31	7	15
D	14	9	9.07	2.67	7.53	10.61	5	15
E	17	9	9.88	3.00	8.34	11.42	6	15
F	6	12	11.33	3.44	7.72	14.94	5	15
School								
s1	77	7	8.01	3.21	7.28	8.74	5	15
s2	42	9	10.05	3.08	9.09	11.01	5	15
TOTAL	119	9	8.73	3.30	8.13	9.33	5	15

Class A had the lowest mean score ($M = 6.03$) and class C had the highest mean score ($M = 11.80$) for Friction. School 2 had a numerically higher mean Friction score ($M = 10.05$) than school 1 ($M = 8.01$)

The Kruskal-Wallis test showed that there was a statistically significant difference between the class means on Friction ($H(5) = 48.19, p = 3.249e-09^*$). * p -value <0.05 , which shows that there is a difference in the means across the classes. A Dunn (1964) multiple comparison test was used (Dinno, 2015), to see where the differences lie (Table 5.21).

Table 5.21

Dunn (1964) Kruskal-Wallis multiple comparison results for Friction
p-values adjusted with the Benjamini-Hochberg method

Class	Z	p.unadj	p.adj
a – b	-5.823	0.000	0.000*
a – c	-3.674	0.000	0.001*
b – c	-0.885	0.376	0.705
a – d	-3.483	0.001	0.002*
b – d	0.766	0.444	0.666
c – d	1.265	0.206	0.515
a – e	-4.472	0.000	0.000*
b – e	0.077	0.939	0.939
c – e	0.870	0.384	0.640
d – e	-0.599	0.549	0.634
a – f	-3.766	0.000	0.001*
b – f	-0.746	0.456	0.622
c – f	0.154	0.877	0.940
d – f	-1.159	0.246	0.528
e – f	-0.736	0.462	0.577

* p -value <0.05 indicates a significant difference

The results show that there is a statistically significant difference between class A and all five of the other classes (B, C, D, E, F). None of the other comparisons were significant.

5.5.5 Difficulty

The descriptive statistics for Difficulty by class and by school are provided in Table 5.22. Box plots showing the comparison of means between the classes, and between the two

schools, are in Appendix E. The variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 5(113)$, $F\text{-value} = 1.3852$, $p\text{-value} = .2351^*$)

* $p\text{-value} > 0.05$ there is no evidence to suggest that the variance across groups is significantly different. Therefore, we can assume the homogeneity of variances in the different treatment groups (classes). However, the points do not fall closely along the reference line, so we can't assume normality. The homogeneity of variance assumption was met, but the normality was not, so a Kruskal-Wallis test was used.

Table 5.22

Descriptive statistics for Difficulty

Class	N	Mdn	M	SD	95% CI		Min	Max
					Lower	Upper		
A	38	5.00	6.32	1.65	5.78	6.86	5	11
B	39	7.00	6.87	2.05	6.21	7.53	5	13
C	5	9.00	9.00	1.41	6.21	7.53	7	11
D	14	9.00	8.57	2.06	7.38	9.76	5	12
E	17	7.00	8.29	2.89	6.80	9.76	5	13
F	6	7.00	7.00	1.26	5.68	8.32	5	9
School								
s1	77	7.00	6.60	1.87	6.18	7.02	5	13
s2	42	8.50	8.29	2.31	7.57	9.01	5	13
TOTAL	119	7.00	7.19	2.18	6.79	7.59	5	13

Class A had the lowest mean score ($M = 6.32$) and class C had the highest mean score ($M = 9.00$) for Difficulty. School 1 had a numerically lower mean score ($M = 6.60$) than school 2 ($M = 8.29$).

The Kruskal-Wallis test showed that there was a statistically significant difference between the class means on Difficulty ($H(5) = 20.185$, $p = .001154^*$). * $p\text{-value} < 0.05$, which

shows that there is a difference in the means across the classes. A Dunn (1964) multiple comparison test was used (Dinno, 2015), to see where the differences lie (Table 5.23.)

Table 5.23

*Dunn Kruskal-wallis multiple comparison results for Difficulty
p-values adjusted with the Benjamini-Hochberg method*

Class	Z	p.unadj	p.adj
a – b	-1.111	0.266	0.400
a – c	-2.828	0.005	0.035*
b – c	-2.299	0.021	0.064
a – d	-3.442	0.001	0.009*
b – d	-2.641	0.008	0.031*
c – d	0.517	0.605	0.648
a – e	-2.654	0.008	0.040*
b – e	-1.793	0.073	0.182
c – e	1.123	0.262	0.436
d – e	0.836	0.403	0.504
a – f	-1.006	0.314	0.429
b – f	-0.430	0.667	0.667
c – f	1.492	0.136	0.291
d – f	1.300	0.194	0.363
e – f	0.700	0.484	0.558

* p-value<0.05 indicates a significant difference

The results show that that there is a statistically significant difference between class A and three of the other classes (C, D, and E), and class B and D. None of the other comparisons were significant.

5.5.6 Competitiveness

The descriptive statistics for Competitiveness by class and by school are provided in Table 5.24. Box plots showing the comparison of means between the classes, and between the

two schools, are in Appendix E. The variance was tested using Levene's Test for Homogeneity of Variance (centre = median) ($df = 5(113)$, $F\text{-value} = 1.2946$, $p\text{-value} = .2712^*$).

* $p\text{-value} > 0.05$, there is no evidence to suggest that the variance across groups is significantly different. Therefore, we can assume the homogeneity of variances in the different treatment groups (classes). However, the points don't fall closely along the reference line, so we can't assume normality. The homogeneity of variance assumption was met, but the normality was not so a Kruskal-Wallis test was used.

Table 5.24

Descriptive statistics for Competitiveness

Class	<i>N</i>	<i>Mdn</i>	<i>M</i>	<i>SD</i>	95% CI		Min	Max
					Lower	Upper		
A	38	9	9.34	3.00	8.53	10.33	5	15
B	39	13	12.82	2.75	11.93	13.71	5	15
C	5	9	11.20	3.49	6.87	15.53	8	15
D	14	13	12.29	2.89	10.62	13.96	5	15
E	17	13	12.47	2.79	11.04	13.90	7	15
F	6	15	14.33	1.03	13.25	15.41	13	15
School								
s1	77	11	11.10	3.35	10.34	11.86	5	15
s2	42	13	12.52	2.78	11.65	13.39	5	15
TOTAL	119	13	11.61	3.22	11.03	12.19	5	15

Class A from school 1 had the lowest mean score ($M = 9.34$) and class B from school 1 had the highest mean score ($M = 12.82$). School 1 had a numerically lower mean Competitiveness score ($M = 11.10$) than school 2 ($M = 12.52$)

The Kruskal-Wallis test showed that there was a statistically significant difference between the class means on Competitiveness ($H(5) = 30.938$, $p = 9.636e-06^*$). * $p\text{-value} < 0.05$,

which shows that there is a difference in the means across the classes. A Dunn (1964) multiple comparison test was used (Dinno, 2015), to see where the differences lie (Table 5.25).

Table 5.25

*Dunn Kruskal-Wallis multiple comparison results for Competitiveness
p-values adjusted with the Benjamini-Hochberg method*

Class	Z	p.unadj	p.adj
a - b	-4.783	0.000	0.000*
a - c	-1.256	0.209	0.392
b - c	1.038	0.299	0.449
a - d	-2.861	0.004	0.016*
b - d	0.629	0.529	0.662
c - d	-0.570	0.569	0.656
a - e	-3.286	0.001	0.005*
b - e	0.453	0.651	0.697
c - e	-0.710	0.478	0.651
d - e	-0.178	0.858	0.858
a - f	-3.599	0.000	0.002*
b - f	-1.119	0.263	0.438
c - f	-1.625	0.104	0.313
d - f	-1.408	0.159	0.398
e - f	-1.311	0.190	0.407

* p-value<0.05 indicates a significant difference

The results show that there is a statistically significant difference between class A and four of the other classes (B, D, E, F). None of the other comparisons were significant.

5.6 CHAPTER SUMMARY

In this chapter, the results of the empirical investigation were presented. Based on a comparison of results by gender and by race, it was decided to work with the total sample of children. Multiple regression analysis indicated that classroom climate is a significant predictor

of EI while school climate is not. Of the classroom climate scales, Satisfaction was found to be the greatest predictor of EI. The Pearson's' product-moment correlation coefficient indicated that the four other classroom climate scales had weak but significant relationships with EI. Class and school comparisons showed a significant difference in EI between classes, but not between schools, as well as significant differences between some of the classes on all five of the classroom climate scales. These results will be discussed in the following chapter.

CHAPTER 6:

FINDINGS AND DISCUSSION

6.1 INTRODUCTION

In this final chapter, an overview of the research process is provided and the main findings from the study are presented. The results are then discussed and compared to existing research in the field, and conclusions are drawn regarding the hypotheses made by the researcher. The limitations of the study are explored, including possible extraneous variables, sampling errors, and shortcomings in the measurement instruments used. Finally, recommendations for future research are made.

6.2 OVERVIEW OF THE RESEARCH PROCESS

Research has shown that the classroom is somewhat insulated from a school's circumstances (e.g. Aldridge et al., 2006; Creemers & Reezigt, 1999; Dorman et al., 1997; Laugksch et al., 2007; Koth et al., 2008). The research question for this study was hence "If classrooms can be viewed as being insulated from the circumstances of a school, could the classroom climate itself have a significant enough impact to affect a child's EI levels?" The relationship between EI, school climate, and classroom climate in the case of primary school learners was explored. Specific aims were to determine if classroom climate has a greater impact on learners' EI levels than school climate, as well as to determine which classroom climate factors promote and which inhibit the development of EI in learners. It was hypothesised that classroom climate would be a significant predictor of learners' EI levels while school climate would not; that satisfaction and cohesiveness would positively correlate with EI

levels; and that friction, competitiveness, and difficulty would negatively correlate with EI levels of the learners.

A thorough literature review was conducted to explore the history of emotional intelligence research and the various models and measurement instruments for the construct. Most primary school learners are in the developmental phase of middle childhood, so the cognitive, social and emotional aspects of this stage were explored. Existing research on the significance and effects of school and classroom climates were reviewed, and the South African school context was discussed.

Two public schools in Durban, KwaZulu-Natal, participated in the study. A sample of 119 learners from six different classes completed the TEIQue-CSF to provide a Trait Emotional Intelligence (TEI) score, and the MCI-SF to determine their perceptions of their classroom climate with regard to Satisfaction, Friction, Cohesiveness, Competitiveness, and Difficulty. The teachers of each of the classes completed the SLEQ, which assessed their perceptions of the school climate with regards to Student Support, Affiliation, Professional Interest, Participatory Decision Making, Innovation, Staff Freedom, Resource Adequacy, and Work Pressure. To analyse the data, ANOVA and post-hoc tests were firstly used to see if there were any significant differences in race and gender scores with regards to TEI and the classroom climate scales. Stepwise multiple regression analysis was subsequently run with TEI as the dependent variable, and classroom climate and school climate as independent variables. Stepwise multiple regression analysis was also run with the five classroom climate scales and the eight school climate scales as independent variables. For additional exploration and to see if there were significant differences between the classes and the schools, ANOVA and post-hoc tests were run between the classes and between the schools for TEI and non-parametric versions thereof for the five classroom climate scales. The findings from the empirical investigation are discussed and contextualised in section 6.3.

6.3 FINDINGS FROM THE EMPIRICAL STUDY

The results from the empirical investigation are discussed in the following section. Race and gender differences are explored, followed by an investigation into classroom and school climate as predictors of TEI. The classroom and school climate factors and their relationship to TEI are then reviewed and the results of the multiple regression analysis explained. Finally, differences between the classes and between the schools with regards to TEI and the classroom climate scales are discussed.

6.3.1 Race and gender differences

Differences in race and gender were explored using ANOVA in order to determine whether the sample should be worked with as a total group or split into race and gender groups. No significant differences were found between the genders for trait EI or on any of the classroom climate scales. Joseph and Newman (2010) explained that EI researchers tend to conclude that females score higher than males on EI measures, but findings from their own study indicated that females only score higher on ability EI measures and not on self-report measures. This is in line with the findings from this study, with no gender-based differences found on self-reported EI. Studies by Mavroveli et al. (2008), Mavroveli and Sanchez-Ruiz (2011) and Tobarí (2003) however suggested that trait EI in primary school learners is higher in girls than in boys. According to Van Rooy, Alonso, and Viswesvaran (2005), gender differences in EI scores may become more apparent at older ages, whereas Tobarí (2003) found that differences decrease in adolescence. Mavroveli and Sanchez-Ruiz (2011) concluded that the results in children samples are still inconclusive since many studies have been conducted and no consistent pattern has been found. A study by Samdal et al. (1998) indicated that girls

feel more satisfied at school than boys do, but this was not in line with the findings from the present study.

There were no significant differences in EI scores between the races, which corroborated findings from Van Rooy, Alonso, and Viswesvaran (2005) which suggested negligible differences in EI scores between racial groups on self-report measures. Joseph and Newman (2010) found that ability measures of EI showed the largest difference in scores among racial groups, with white participants scoring the highest. They concluded that both race and sex-based differences vary greatly according to the type of EI measure used and that self-report measures show smaller race and sex-based differences in EI scores.

Between the races, the only significant difference in classroom climate scores was between black and Indian learners with regards to their perception of competitiveness within the classroom. Black learners viewed their classrooms as being more competitive than the Indian learners did. Eccles and Roeser (2011) referred to the person-environment-fit theory, which suggests that people do best in environments in which they fit well. In South Africa, black people are often considered to be more community-oriented than focused on individualisation. The African philosophy of Ubuntu provides ethical social rules of conduct and recognises humans as social beings who should respect and rely on one another (Nafukho, 2006). This could possibly explain why the black learners perceived a greater degree of competitiveness within the classroom. However, Watkins et al. (2003) conducted a study to investigate whether the stereotypical view of black learners as more collectivist and white children as more competitive is supported, and found no significant differences with regards to learning strategies and motivation between black and white South African learners. They issued caution regarding generalising their findings to the South African population since the black learners that participated in their study grew up with more Western values and hence may not be representative of black learners from different backgrounds. These authors indicated that

similar results were found between non-western indigenous groups in other countries however. To the researcher's knowledge, no research has been conducted on differences in perceptions of the learning environment between black and Indian learners. Roux (2006) indicated that cultural diversity needs to be taken into consideration within the school community.

6.3.2 Classroom and school climate as predictors of trait emotional intelligence

The first aim of the empirical investigation was to determine whether school climate and/or classroom climate were significant predictors of TEI. Multiple regression analysis with TEI as the dependent variable, and school climate and classroom climate as independent variables, indicated that classroom climate is a significant predictor of TEI while school climate is not. Hypothesis H1 and H2 were thus supported. Koth et al. (2008) indicated that learners' perceptions of their school are influenced to a greater extent by factors at the classroom level than by school-level factors. This was supported by Aldridge et al. (2011). They investigated whether the perceptions that teachers have of the school climate influence the climate that they create within the classroom, using a version of the SLEQ modified for the South African context. Although tentative relationships were found between some of the school and classroom climate dimensions, they concluded that what happens in the classroom is not strongly influenced by the school environment. This is in line with the findings from the present study. Aldridge et al. (2011) indicated that their study was the first study in South Africa that investigated both the classroom and the school environment. No similar research was found during the literature review.

6.3.3 Classroom and school climate scales as predictors of trait emotional intelligence

The second aim was to determine which classroom or school climate scales specifically were predictors of TEI. Pearson's product-moment correlation coefficient indicated that in the

case of the classroom climate scales, a positive relationship was identified between TEI and both Satisfaction and Cohesiveness, and a negative relationship between TEI and Friction, Competitiveness, and Difficulty. Satisfaction was the most significant predictor of TEI. Hypotheses H3 through H7 are thus supported. Reyes et al. (2012) explained that positive classroom climates are characterised by feelings of connectedness (cohesiveness), enjoyment (satisfaction), and respect. Learners in such classrooms are more engaged than learners in negative classroom climates. Landau and Meirovich (2011) reported that supportive classroom climates positively influence emotional intelligence.

Roseth et al. (2008) indicated that cooperative goal structures in classrooms resulted in higher academic achievement and more positive relationships between learners than competitive goal structures did. According to Meece et al. (2006), the academic performance of some learners may increase in an environment where the focus is on achievement and on competing for the best grades, but research indicates that this type of environment can result in diminished motivation for many young people. Results from their study suggest that an overly competitive classroom climate has a negative effect on learners' EI development. Owens and Barnes (1982), however, believed that for some learners and in some subjects, competition can be positive and productive.

In the case of the school climate scales, Affiliation, Staff Freedom, Participatory Decision Making, and Resource Adequacy had weak yet significant, positive relationships with TEI. Affiliation was the strongest predictor of TEI of the school climate scales. Frenzel et al. (2009) suggested that a teacher's social and emotional abilities within the classroom may be affected by contextual factors such as the school climate, support from colleagues, and the school's leadership. Similarly, Samdal et al. (1998) identified school climate as integral to the performance of teachers. Hastings and Bham (2003) furthermore indicated that learners' conduct is linked to the well-being and stress of teachers. However, stepwise multiple

regression analysis run between TEI, the five classroom climate scales, and the eight school climate scales indicated that Satisfaction (a classroom climate scale) is the only significant predictor of TEI.

6.3.4 Between class and between school differences

The third aim of the empirical investigation was to determine the differences between the classes and schools with regards to TEI and the classroom climate scales. Firstly, the mean TEI scores for each class and each school were compared using ANOVA. The post-hoc test results indicated that the only statistically significant difference in mean TEI scores was between class A and class B (both from school 1). This further validates Aritzeta et al.'s (2016) theory that since classes can be considered to be groups with group emotions, different classes will have different EI levels. No significant difference was found between the mean TEI scores of the two schools.

The mean scores by class were then compared for the five classroom climate scales: Satisfaction, Friction, Competitiveness, Cohesiveness, and Difficulty. For three of the scales, (namely Satisfaction, Cohesiveness, and Friction) there were statistically significant differences between class A from school 1 and all five of the other classes. There were no statistically significant differences between the other classes for these scales. Class A had the highest mean scores for Satisfaction and Cohesiveness, both of which have positive relationships with TEI, and had the lowest mean scores for Friction, which negatively correlates with TEI.

Class A from school 1 also had the lowest mean score for Difficulty and Competitiveness, both of which negatively correlate with TEI. For Difficulty, there were statistically significant differences between class A and three classes from school 2 (C, D, and E), and between class B from school 1 and one class from school 2 (class D). For

Competitiveness, there were statistically significant differences between class A and all of the other classes except class C. Class B from school 1 had the highest mean score for Competitiveness

Results of this study indicated that class A and class B, both from school 1, differed significantly in all of the classroom climate scales except for Difficulty. They were also the only two classes that differed significantly with regard to TEI levels. Class A had the highest mean TEI, the highest mean scores for Satisfaction and Cohesiveness (both of which have a positive correlation with TEI), and the lowest mean scores for Friction, Competitiveness, and Difficulty (all three of which have a negative correlation with TEI). Class B had the highest mean score for Competitiveness. According to Koth et al. (2008), the climate of different classrooms within the same school will likely differ. The results from this study indicate that despite being part of the same school, classes A and B differed significantly in their TEI levels and perceptions of the classroom climate.

6.4 DISCUSSION

The results of this study suggest that classroom climate is a significant predictor of the emotional intelligence of primary school learners while school climate is not; that satisfaction and cohesiveness within the classroom positively correlates with learners' EI levels, and that friction, competitiveness, and difficulty negatively correlates with learners' EI levels. According to Petrides et al. (2016), trait EI seems to be amenable to change. The results of research using classroom climate measures consistently demonstrate a significant relationship between positive learner beliefs and behaviours, and their perceptions of the climate of the classroom (Aldridge et al, 2011; Fraser, 1998). The climate of the classroom is complex and involves relationships between, and perceptions and behaviours of, learners and the teacher

(Montague & Rinaldi, 2001). In order to improve the quality of education and interactions within the classroom, it is important to understand how a positive classroom climate develops (Meyer & Turner, 2006). The results of this study demonstrated a positive correlation between TEI and satisfaction and cohesiveness in the classroom, and a negative correlation between TEI and friction, competitiveness, and difficulty within the classroom. Satisfaction appears to be the most significant predictor of TEI in learners. If factors that promote the development of emotional intelligence are viewed as positive, and those that inhibit its development are viewed as negative, it can be concluded that a positive classroom climate is one in which learners have high levels of satisfaction and cohesiveness, and low levels of friction, competitiveness, and difficulty. Learners tend to do better with regards to academic, social and motivational aspects when they perceive their classrooms climate as being positive (Evans et al, 2009).

Both school and classroom climate can either promote the resiliency of learners or increase their vulnerabilities (Juvonen et al., 2004; Samdal et al., 1998; Theron & Theron, 2014). A classroom in which students care for one another and have positive relationships may enhance learners' feelings of safety within the school (Samdal et al., 1998). Covington (1992) believed that the highest priority of a human being is that of self-acceptance, and that within the school context this is dependent upon being able to achieve competitively. This study demonstrates that high levels of competitiveness within the classroom may inhibit the development of emotional intelligence in learners. However, comparisons between the races indicated that black and Indian learners view the level of competitiveness within the classroom differently, with black learners perceiving a greater degree of competitiveness. According to the Learning First Alliance (2001), one of the main challenges that schools in the 21st-century face is serving learners from diverse cultures and with different ability and motivational levels.

Rowe (2003, 2004) indicated that the classroom climate has more of an influence on learners' achievements than school climate, gender differences, school leadership, and the

socio-economic status and backgrounds of the learners. The data from the present study suggest that classroom climate is a significant predictor of TEI while school climate is not, and that there are also no race or gender differences in TEI scores. According to Noddings (in Heid & Kelehear, 2007), teachers need to create classroom environments that are emotionally and socially healthy in order for a school's academic objectives to be met. The classroom climate also influences the way that students behave (Brackett et al., 2011). Students are less disruptive and more engaged in classrooms where needs such as the need for belonging are met by the classroom's emotional climate (Ryan & Patrick, 2001). The implementation of school-wide programmes aimed at promoting a sense of community within classrooms can increase feelings of belongingness and reduce behaviours that are problematic (Solomon et al., 2000). According to Battistich et al. (1997), economically disadvantaged learners who lack adequate support in their homes may benefit greatly from feelings of connectedness and support at school. Cohesiveness within the classroom positively correlated with learners' TEI, and Prawat and Solomon (1981) found that cohesiveness correlated highly with satisfaction.

Difficulty was found to have a negative relationship with TEI. Research suggests that the ideal classroom would strike a balance between academic demands and a positive and supportive classroom climate (Juvonen et al., 2004). Assigning work that is at an appropriate difficulty level correlates with the satisfaction of learners (Prawat & Solomon, 1981).

Although it might be tempting to conclude that since class A had the highest mean TEI score, the highest mean scores for Satisfaction and Cohesiveness, and the lowest mean scores for Friction, Competitiveness, and Difficulty, that these factors must cause the increased TEI, conclusions must be tempered. The sample size is not large enough to draw such conclusions, and the cross-sectional, non-experimental research design means that no cause and effect relationship can be established. This study indicates a relationship between these classroom climate factors and TEI, and suggests that further research into the topic is warranted.

6.5 LIMITATIONS OF THE STUDY

6.5.1 Sampling

One of the biggest threats to external validity is an unrepresentative sample (De Vaus, 2001). The sample of this study cannot be considered to be truly representative of the population of primary school learners in South Africa since the majority of the population cannot read and write fluently in English (Fleisch, 2008; Setati et al., 2002). The researcher purposefully chose schools within Durban city to increase the likelihood of the learners' being adequately fluent in English since the measures being used require a 4th grade English reading level. The sample of learners also did not include any white learners.

The generalisability of the results is also limited by the small sample size. Although 119 learners participated in the study, they were only from six different classes in two different schools. The school climate was hence based on the perspectives of only six teachers, and school comparisons were between two schools. Some of the classes also had under 10 learners who were eligible to participate in the study, which limited the conclusions that could be drawn from the data analysis results.

6.5.2 Measuring instruments

There were limitations regarding both analysing the data continuously and analysing the data categorically. With the MCI-SF, there are limited values in each scale, so some classes have the exact same score for a scale. There were also large gaps between the scores, so the scale is not truly continuous. Due to these very small variances, very small correlations were determined by the regression analysis. The same issue was present when the data were analysed categorically. Although there might be a significant difference in the TEI means between the classes on ANOVA, these classes could have almost identical classroom climate scale scores

and therefore it could not be determined that there is a significant relationship between class climate and EI. The small variance in the MCI-SF scale scores was therefore a limitation in this study.

6.5.3 Research design

One of the conditions that need to be met in order to establish a cause and effect relationship is the temporal antecedent condition, which indicates that variable B needs to occur before variable A if we wish to prove that variable B caused variable A to occur (Johnson & Christensen, 2010). Since a cross-sectional research design was used in this study, learners' TEI and their perceptions of the classroom climate were assessed at the same time, so it cannot be established that classroom climate inhibits or promotes the development of TEI. Mavroveli et al. (2009) explained that they couldn't be certain if positive self-perceptions resulted in more academic competence or if those students who performed well academically had a higher self-concept as a result. In the same manner, it cannot be confirmed that learners' in this study had higher EI as a result of more positive classroom climates, or if those with higher EI viewed the world and hence their classroom more positively. According to Austin et al. (2010) high EI levels correlate with greater life satisfaction and lower levels of stress. To address the temporal antecedent condition, the data were analysed categorically (in addition to the correlational analysis) by looking at the mean scores per class of EI and of each of the scales of classroom climate and school climate. This was done under the assumption that it would be unlikely that many learners in the same class would coincidentally have higher TEI scores, and that it is more likely that if the learners of a specific class have significantly higher TEI scores than other classes, it is due to their shared classroom climate. This, however, is only an assumption and cannot be confirmed from this study.

Although the researcher attempted to control for extraneous variables by conducting the study within two schools in the same area, with learners from very similar socio-economic backgrounds, there is always a risk in non-experimental research that the results have been confounded by extraneous variables.

6.6 RECOMMENDATIONS FOR FUTURE RESEARCH

In order to ensure that all children receive a fair start in life, it is important for governments and communities to understand the factors that influence child development and how they relate to one another (Shepherd & Zubrick, 2012). The preschool years lay the foundation for future development, but experiences during middle childhood can amplify, sustain, or even reverse these advantages or disadvantages (Huston & Ripke, 2006). In order to improve the quality of education, it is important to understand what happens at the school and classroom level (Leu, 2005). While the local circumstances and the physical conditions of the school do influence educational quality, the feelings, values, behaviours, and attitudes within the school play a large role as well (Leu, 2005). According to the ecological model of development, developmental outcomes are influenced by interactions between children and elements within their proximal environment (Bronfenbrenner & Morris, 1998). Children usually do not learn in isolation, they learn collaboratively with their teachers and together with their peers (Durlak et al., 2011).

Many question whether EI intervention programmes have lasting effects (Salovey et al, 2001; Zeidner et al. 2002). It appears more effective to fully integrate EI learning into the school's academic programme, with an EI ethos becoming part of the climate of the school and of the classrooms (Elias et al., 2003; Zins et al., 2004). The culture of the school needs to

change, including the quality of relationships within the school and the nature of the educational experience (Leu, 2005).

Evan et al. (2009) explained that most of the research into the outcomes and results of a positive classroom climate have been correlational, very few have been experimental. These authors believed that this is partly because of the difficulty involved in understanding how and why the climate of a classroom develops. It is recommended that further research be conducted into the classroom climate factors that promote or inhibit the development of EI in primary school learners using larger samples. If the results of future research confirm that satisfaction and cohesiveness within the classroom promote the development of EI in learners, and friction, competitiveness, and difficulty inhibit it, it would be easier to design experimental research using this newfound understanding of how and why a positive classroom climate develops. Longitudinal research that assesses learners TEI levels at the beginning of a school year upon entering a new class, and again at the end, would better allow for a cause and effect relationship to be determined. Experimental research that involves implementing a programme to increase satisfaction and cohesiveness within a classroom, and decrease friction, competitiveness, and difficulty, and assessing the impact that this has on EI levels, could provide even more concrete evidence of cause and effect.

According to Letseka et al. (2012), over 80% of the dysfunctional schools in South Africa are in rural areas and townships. In this study, school climate was not found to be a significant predictor of learners' EI levels. However, the school climates within the two schools studied would be very different from the school climate within dysfunctional schools, where resource shortages and safety concerns are more prevalent. It is recommended that research be conducted into the effects of school and classroom climate in rural and township schools, and on the impact of both school and classroom climate factors within such schools. For this to

occur, the research measures would need to first be translated into the home language of the learners and the teachers, and piloted.

6.7 CHAPTER SUMMARY

The findings from this study suggest that classroom climate is a significant predictor of trait emotional intelligence while school climate is not. Further analyses into the classroom climate factors that promote or inhibit emotional intelligence suggest that satisfaction is the most significant predictor of emotional intelligence and it correlates positively with EI levels. Cohesiveness also has a positive correlation with EI levels, whereas friction, competitiveness, and difficulty correlate negatively with EI levels. Results of the causal-comparative analysis show a distinct difference between the classes on all of the classroom climate scales. The only significant difference in TEI scores is between two different classes within the same school, there was no significant difference in TEI scores between the two schools, or between the races or genders. Although this study suggests a relationship between TEI and classroom climate factors, cause and effect cannot be established due to the research design. The sample of the study was also not representative of the population as a whole due mainly to language barriers and was not large enough to draw conclusions from. The results from this study suggest that further research into the topic of emotional intelligence and the classroom factors that promote or inhibit its development is warranted.

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APPENDIX B

Permission to conduct research in KZN DoE institutions



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

Enquiries: Phindile Duma

Tel: 033 392 1063

Ref:214/81571

Miss S Erasmus
PO Box 38359
Point
Durban
4069

Dear Miss Erasmus

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **"THE RELATIONSHIP BETWEEN SCHOOL CLIMATE, CLASSROOM CLIMATE, AND EMOTIONAL INTELLIGENCE IN PRIMARY SCHOOL LEARNERS"**, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the Intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 10 July 2018 to 02 January 2021.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Miss Phindile Duma at the contact numbers below,
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report/dissertation/thesis must be submitted to the research office of the Department. Please address it to The Office of the HOD, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education.

(PLEASE SEE LIST OF SCHOOLS ATTACHED)


Dr. EV Nzama
Head of Department: Education
Date: 12 July 2018

KWAZULU-NATAL DEPARTMENT OF EDUCATION

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APPENDIX C

Consent forms

Parent/Guardian Informed Consent

Project Title

The relationship between school climate, classroom climate, and emotional intelligence in primary school learners

Identification of Investigators & Purpose of Study

Your child is being asked to participate in a research study conducted by Sasha Erasmus, a Master of Arts in Psychology student at the University of South Africa (UNISA). The purpose of this study is to explore the relationship between school climate, classroom climate, and emotional intelligence in primary school learners. This study will contribute to the researcher's completion of her Master's dissertation.

Research Procedures

Should you decide to allow your child to participate in this research study, you will be asked to sign this consent form. This study consists of two surveys that will be administered to individual participants at their school. Your child will be asked to provide answers to a series of multiple-choice questions related to emotional intelligence, and to their classroom climate.

Time Required

Participation in this study will require approximately 35 minutes of your child's/children's time.

Risks

The investigator does not perceive more than minimal risks from your child's involvement in this study (that is, no risks beyond the risks associated with everyday life).

Payment for participation

There is no payment for taking part in this study, it is purely voluntary

Confidentiality

The results of this research will be presented in a Master's dissertation. No information will be included that would reveal your child's identity nor the identity of their school. Your child will be identified in the research records by a code name or number.

Participation & Withdrawal

Your child's participation is entirely voluntary. He/she is free to choose not to participate. Should you and your child choose to participate, he/she can withdraw at any time without consequences of any kind.

Questions about the Study

If you have questions or concerns during or after your child's participation in this study, please contact:

Name: Sasha Erasmus

Institution: UNISA

Email: 41966260@mylife.unisa.ac.za

Giving of Consent

I have read this consent form and I understand what is being requested of my child as a participant in this study. I freely consent for my child to participate. I certify that I am at least 18 years of age.

Name of Child (Printed)

Name of Parent/Guardian (Signed)

Date

Name of Researcher (Signed)

Date

Participant informed consent form

I, _____, agree of my free will to participate in this research topic, which focuses on the relationship between school climate, classroom climate, and emotional intelligence in primary school learners. I understand that the information that I will share will be used for research purposes only and that nowhere will my identity be made known in any research report or publication. I am also aware of that fact that I can withdraw at any time during the study without incurring penalty.

Signature of research participant

APPENDIX D

Race and gender differences

Table D1

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	<i>F</i>	Sig	<i>t</i>	<i>df</i>	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
TEI									
Equal variances assumed	1.33	0.25	-1.38	117.00	0.17	-4.35	3.15	-10.58	1.88
Equal variances not assumed			-1.39	114.14	0.17	-4.35	3.14	-10.58	1.87
Satisfaction									
Equal variances assumed	2.22	0.14	-1.24	117.00	0.22	-0.57	0.46	-1.49	0.34
Equal variances not assumed			-1.23	112.92	0.22	-0.57	0.46	-1.49	0.35
Friction									
Equal variances assumed	0.28	0.60	0.10	117.00	0.92	0.06	0.61	-1.14	1.27
Equal variances not assumed			0.10	116.72	0.92	0.06	0.61	-1.14	1.27
Competitiveness									
Equal variances assumed	9.81	0.00	1.45	117.00	0.15	0.85	0.59	-0.31	2.02
Equal variances not assumed			1.45	109.36	0.15	0.85	0.59	-0.31	2.01
Difficulty									
Equal variances assumed	0.022	0.88	-0.29	117.00	0.78	-0.11	0.40	-0.91	0.68
Equal variances not assumed			-0.29	116.88	0.78	-0.11	0.40	-0.91	0.68
Cohesiveness									
Equal variances assumed	0.73	0.40	-1.99	117.00	0.05	-1.14	0.57	-2.27	-0.01
Equal variances not assumed			-1.99	116.21	0.05	-1.14	0.57	-2.27	-0.01

Gender differences in TEI and classroom climate scale scores

Table D2

Test for homogeneity of variance of race scores

		Levene statistic	df1	df2	Sign.
TEI	Based on mean	0.033	2	116.000	0.968
	Based on median	0.055	2	116.000	0.947
	Based on median and with adjusted df	0.055	2	112.758	0.947
	Based on trimmed Mean	0.033	2	116.000	0.968
Satisfaction	Based on mean	0.247	2	116.000	0.781
	Based on median	0.342	2	116.000	0.711
	Based on median and with adjusted df	0.342	2	89.292	0.711
	Based on trimmed Mean	0.253	2	116.000	0.777
Friction	Based on mean	2.388	2	116.000	0.096
	Based on median	1.191	2	116.000	0.307
	Based on median and with adjusted df	1.191	2	107.270	0.308
	Based on trimmed Mean	2.124	2	116.000	0.124
Competitiveness	Based on mean	2.842	2	116.000	0.062
	Based on median	2.883	2	116.000	0.060
	Based on median and with adjusted df	2.883	2	115.644	0.060
	Based on trimmed Mean	2.993	2	116.000	0.054
Difficulty	Based on mean	1.966	2	116.000	0.145
	Based on median	0.997	2	116.000	0.372
	Based on median and with adjusted df	0.997	2	105.463	0.372
	Based on trimmed Mean	1.304	2	116.000	0.275
Cohesiveness	Based on mean	1.682	2	116.000	0.190
	Based on median	1.226	2	116.000	0.297
	Based on median and with adjusted df	1.226	2	94.737	0.298
	Based on trimmed Mean	1.643	2	116.000	0.198
Classroom climate	Based on mean	4.789	2	116.000	0.010
	Based on median	2.818	2	116.000	0.064
	Based on median and with adjusted df	2.818	2	90.230	0.065
	Based on trimmed Mean	4.326	2	116.000	0.015

Table D3

		Sum of Squares	Df	Mean Square	F	Sig.
TEI	Between Groups	1004.369	2	502.185	1.712	0.185
	Within Groups	34026.740	116	293.334		
	Total	35031.109	118			
Satisfaction	Between Groups	5.221	2	2.611	0.406	0.667
	Within Groups	746.241	116	6.433		
	Total	751.462	118			
Friction	Between Groups	18.047	2	9.024	0.826	0.440
	Within Groups	1267.348	116	10.925		
	Total	1285.395	118			
Competitiveness	Between Groups	102.459	2	51.229	5.297	0.006*
	Within Groups	1121.978	116	9.672		
	Total	1224.437	118			
Difficulty	Between Groups	8.155	2	4.077	0.853	0.429
	Within Groups	554.400	116	4.779		
	Total	562.555	118			
Cohesiveness	Between Groups	32.225	2	16.112	1.631	0.200
	Within Groups	1145.708	116	9.877		
	Total	1177.933	118			
Classroom climate	Between Groups	611.635	2	305.818	2.805	0.065
	Within Groups	12648.214	116	109.036		
	Total	13259.849	118			

ANOVA results of race differences in TEI and classroom climate scores

Table D4

Scheffe Multiple Comparisons post-hoc results for race differences

Dependent Variable			Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
competitiveness	Black	Coloured	1.213	0.831	0.348	-0.85	3.27
		Indian	2.349*	0.749	0.009*	0.49	4.21
	Coloured	Black	-1.213	0.831	0.348	-3.27	0.85
		Indian	1.136	1.004	0.529	-1.35	3.63
	Indian	Black	-2.349*	0.749	0.009*	-4.21	-0.49
		Coloured	-1.136	1.004	0.529	-3.63	1.35

*. The mean difference is significant at the 0.05 level.

APPENDIX E

Box plots and correlation matrices

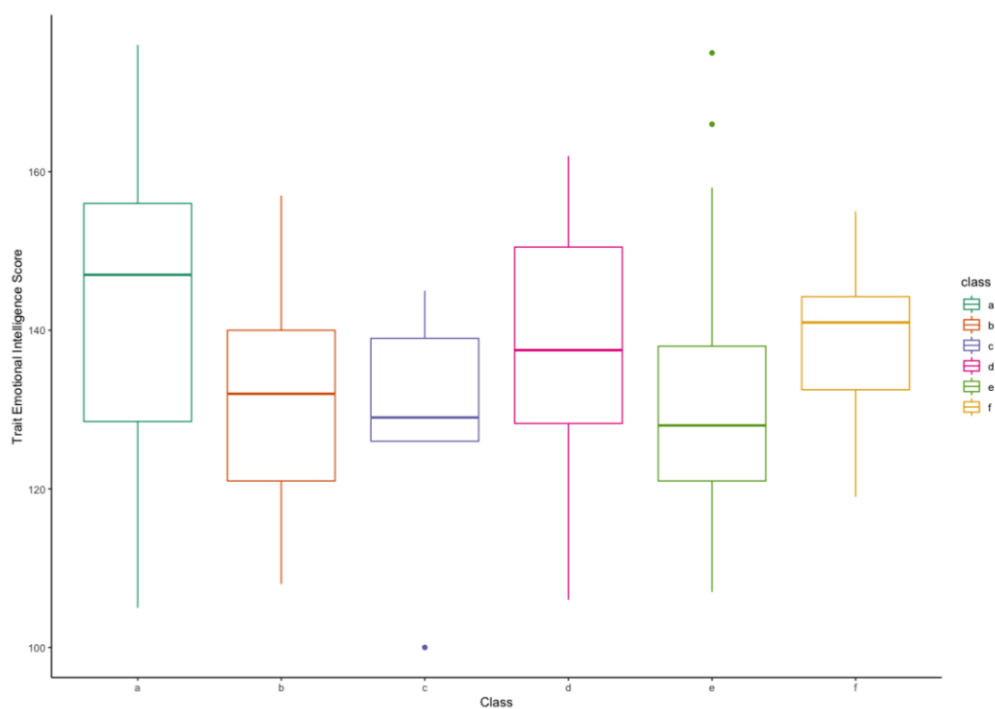


Figure E1. Box plot of mean TEI scores by class

Table E1

Matrix of significance between TEI means

Class	a	b	C	d	e	f
A	-	0.027*	0.400	0.804	0.372	0.989
B	0.027*	-	0.998	0.912	0.997	0.916
C	0.400	0.998	-	0.921	0.985	0.898
D	0.804	0.912	0.921	-	0.996	0.999
E	0.372	0.997	0.985	0.996	-	0.988
F	0.990	0.916	0.898	0.9998	0.988	-

*. The mean difference is significant at the 0.05 level.

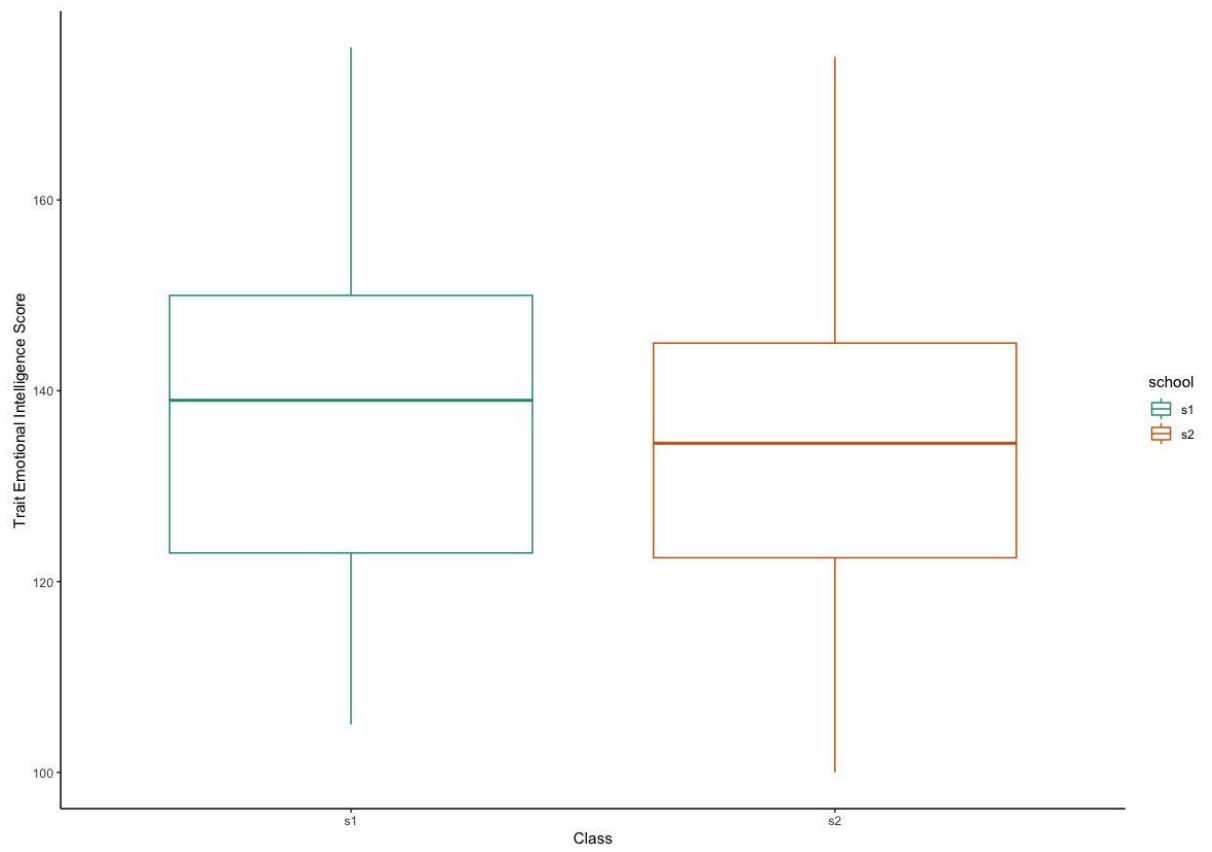


Figure E2. Box plot of mean TEI scores by school

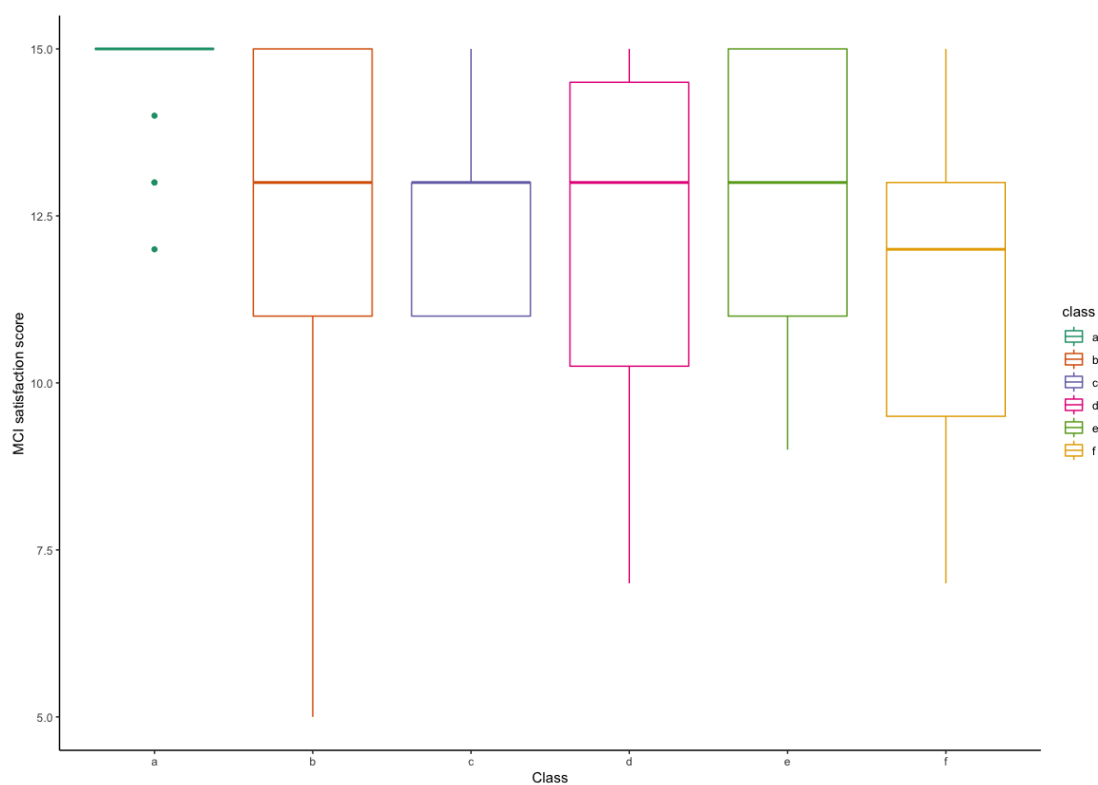


Figure E3: Box plot of class mean differences in Satisfaction

Table E2

Correlation matrix of post-hoc results of mean differences in Satisfaction

Class	a	b	c	d	e	f
a	-	0.000*	0.023*	0.000*	0.001*	0.002*
b	0.000*	-	0.863	0.889	0.904	0.832
c	0.023*	0.863	-	0.998	0.953	0.999
d	0.000*	0.889	0.998	-	1.000	0.999
e	0.001*	0.904	0.953	1.000	-	0.837
f	0.002*	0.832	0.999	0.999	0.837	-

*. The mean difference is significant at the 0.05 level.

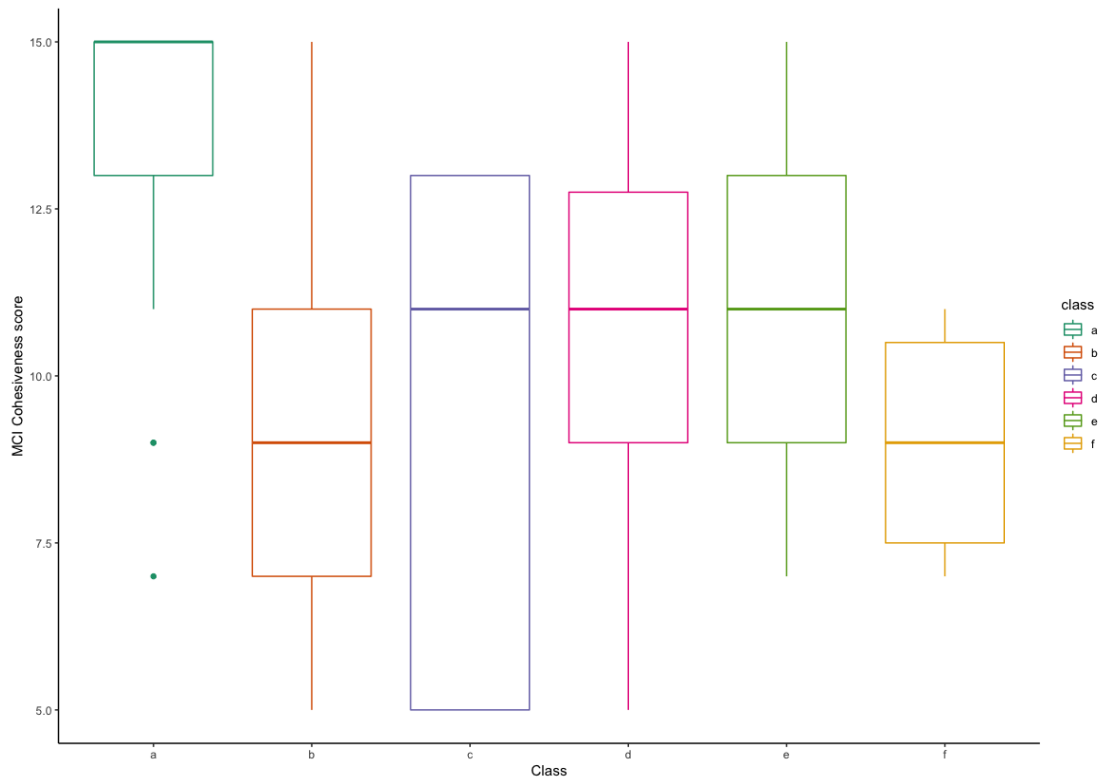


Figure E4: Box plot of class mean differences in Cohesiveness

Table E3

Correlation matrix of post hoc test results of mean differences in Cohesiveness

Class	a	b	c	d	e	f
a	-	0.000*	0.013*	0.003*	0.002*	0.002*
b	0.000*	-	0.993	0.457	0.525	0.776
c	0.013*	0.993	-	0.775	0.792	0.770
d	0.003*	0.457	0.775	-	0.947	0.475
e	0.002*	0.525	0.792	0.947	-	0.473
f	0.002*	0.776	0.770	0.475	0.473	-

*. The mean difference is significant at the 0.05 level.

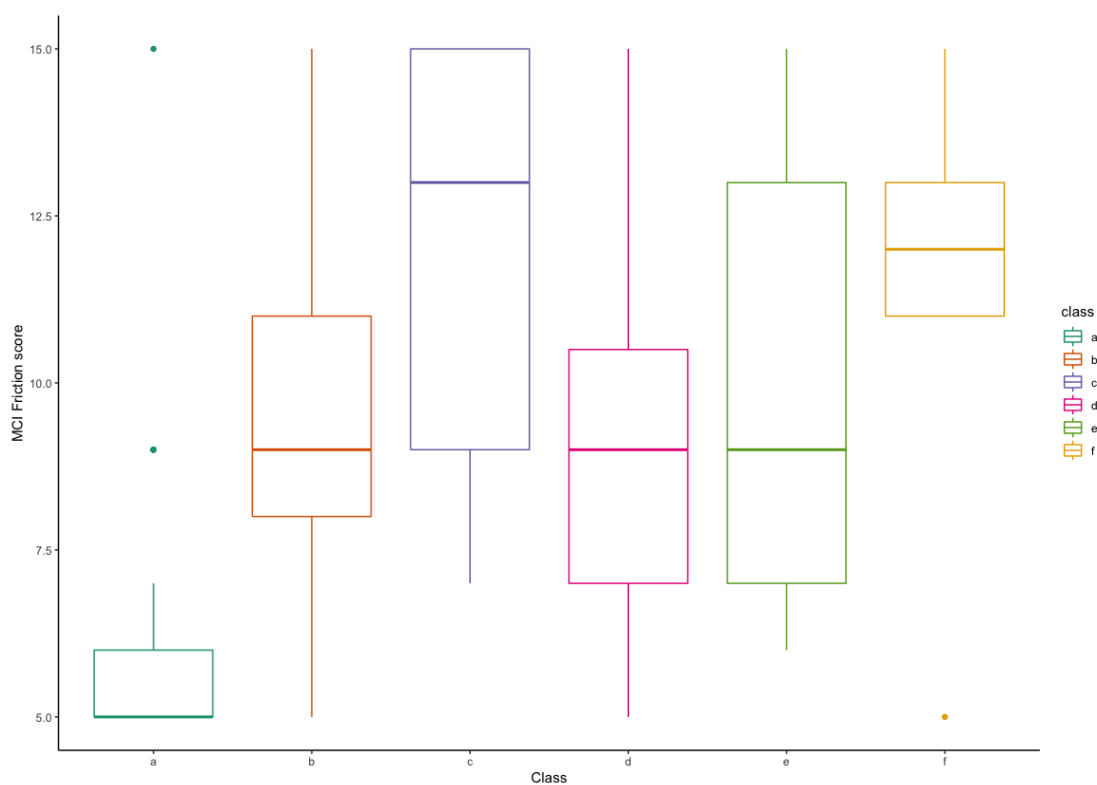


Figure E5: Box plot showing class mean comparisons for Friction

Table E4

Correlation matrix showing post hoc results of mean differences in Friction

Class	a	b	c	d	e	f
a	-	0.000*	0.001*	0.002*	0.000*	0.001*
b	0.000*	-	0.705	0.666	0.939	0.622
c	0.001*	0.705	-	0.515	0.640	0.940
d	0.002*	0.666	0.515	-	0.634	0.528
e	0.000*	0.939	0.640	0.634	-	0.577
f	0.001*	0.622	0.940	0.528	0.577	-

*. The mean difference is significant at the 0.05 level.

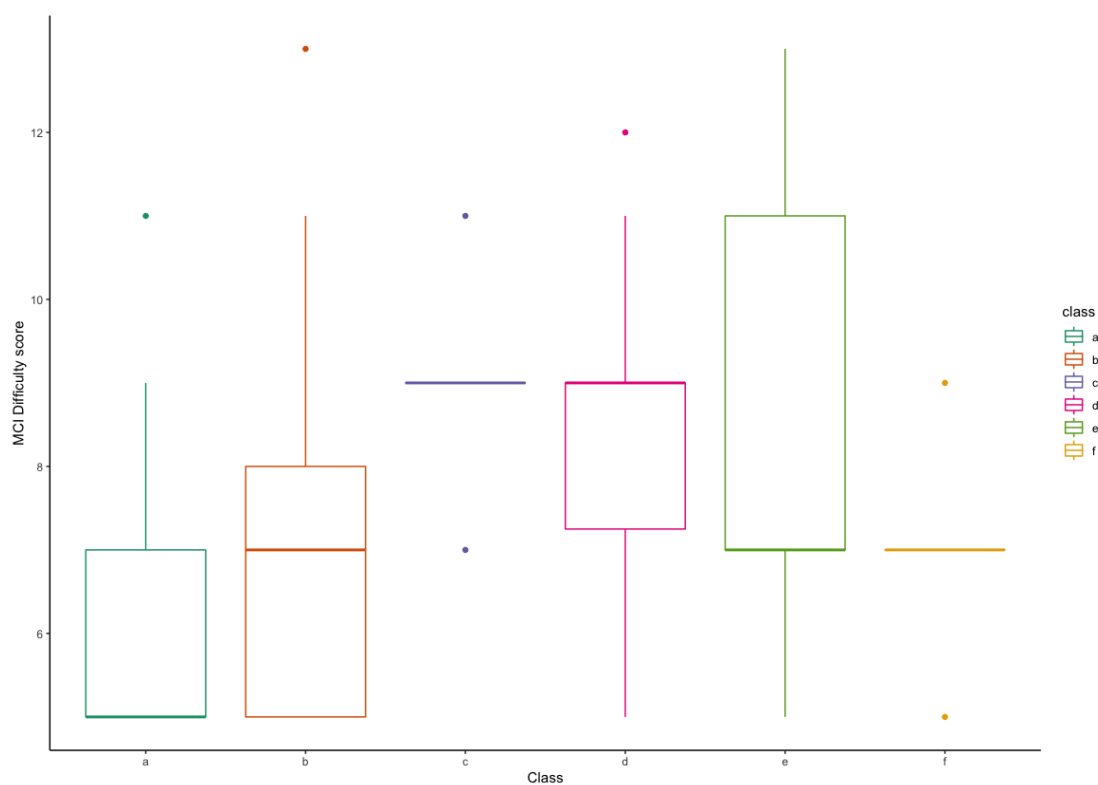


Figure E6: Box plot showing class mean differences in difficulty

Table E5

Correlation matrix showing post hoc results for mean differences in difficulty

Class	a	b	c	d	e	f
a	-	0.400	0.035*	0.009*	0.040*	0.429
b	0.400	-	0.064	0.031*	0.182	0.667
c	0.035*	0.064	-	0.648	0.436	0.291
d	0.009*	0.031*	0.648	-	0.504	0.363
e	0.040*	0.182	0.436	0.504	-	0.558
f	0.429	0.667	0.291	0.363	0.558	-

*. The mean difference is significant at the 0.05 level.

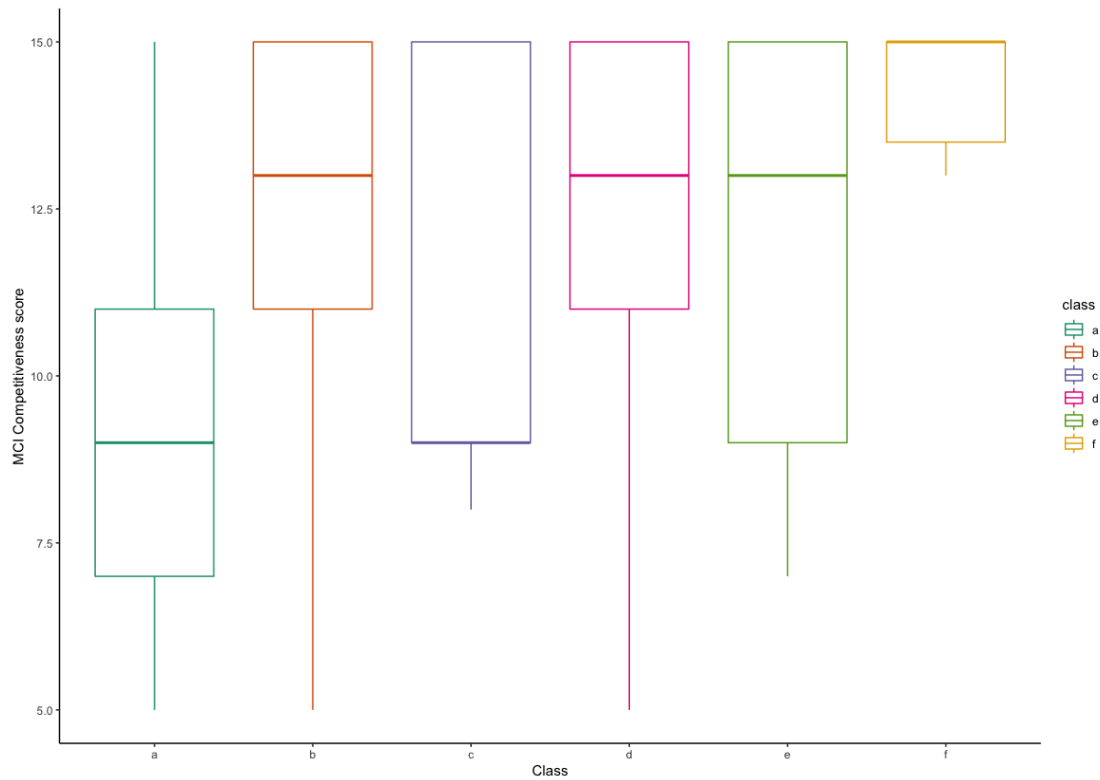


Figure E7: Box plot showing class mean differences in Competitiveness

Table E6

Correlation matrix showing post hoc results for mean differences in Competitiveness

Class	a	b	c	d	e	f
a	-	0.000*	0.392	0.016*	0.005*	0.002*
b	0.000*	-	0.449	0.662	0.697	0.438
c	0.392	0.449	-	0.656	0.651	0.313
d	0.016*	0.662	0.656	-	0.858	0.398
e	0.005*	0.697	0.651	0.858	-	0.407
f	0.002*	0.438	0.313	0.398	0.407	-

*. The mean difference is significant at the 0.05 level.