IDENTIFYING THE UNDERLYING DIMENSIONS OF TEACHERS' EMOTIONAL INTELLIGENCE

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Abstract

Within the area of educational research that has its focus on individual differences, the concept of emotional intelligence and its study in relation to the professional lives of teachers has raised considerable interest over the past decade. This article reports on data from a new measure of emotional intelligence specifically related to situations in the teaching environment. The four underlying dimensions that are identified in this study appear to be a more relevant way of characterising emotional intelligence for those in the teaching profession than other conceptualisations of emotional intelligence. The article concludes with an examination of the contention that emotional intelligence is strongly connected to effective teaching practice.
Key words: *effective teaching, emotions, emotional intelligence, teachers.*

Introduction

Current research into the role of teachers and the practice of teaching indicates a change in the educational paradigm from a focus on teaching students content knowledge and facts to a greater focus on teaching students 'how to learn' as the core business of schools, the 'glue' of schools. Although even as far back as Dewey (1933), this intent was evident.

> *When the teacher fixes his [sic] attention exclusively on such matters as these (the acquisition of skills and knowledge), the process of forming underlying and permanent habits, attitudes and interests are overlooked. Yet the formation of the latter is more important for the future. (p.58).*

The challenge now faced by teachers is in understanding students as individual learners and attending to their individual differences as learners. Consequently the practice of teaching in this new paradigm not only involves knowledge, cognition and skill, but it has also become an emotional activity. Hargreaves (1998) contends that emotion and cognition, feeling and thinking, combine together in all social practices in complex ways. He argues that teaching and learning are *irretrievably* emotional in nature. Nias (1996; 1999a, 1999b) identifies the need to study the role that emotions play in the context of teaching arguing that emotions are an integral part of teachers' lives and the way teachers feel about themselves and their professional performance. Gibbs (2002, p.5) notes that "teachers' emotions and moods are persuasive as a source of information that influences self-efficacy judgements". Therefore having a capacity to understand and manage emotional knowledge

to enhance thought and action, that is emotional intelligence, should be a significant part of a teachers' practice.

The context of learning

For both teachers and students, the institutional and cultural factors surrounding schools create emotional environments. For teachers, the complex social context of schools requires emotional competence. As Hargreaves (2000, p.824) notes,

> *Interacting with numerous children and adults each working day, teachers use their emotions all the time. This use of emotion can be helpful or harmful, raising classroom standards or lowering them; building collegiality and parent partnerships or putting other adults at a distance.*

From the psychological field, there has been a significant emergence of research related to emotions and the regulation of those emotions in particular contexts. Gross (1998) defines emotional regulation as the process by which an individual determines which emotions they have, when they have them and how these emotions are expressed. An attempt to understand this regulation through an examination of the concept of emotional intelligence has recently emerged in the psychological literature.

Sutton and Wheatley (2003) for example, indicate in their review of literature focussing on the emotional aspects of teachers' lives, that there appears surprisingly little research related to examining teachers' levels of emotional intelligence. To date research relating emotional intelligence to the educational environment has mainly focused on students and student achievement (for example, Parker, Creque, Bardhart, Harris, Majeski, Wood, Bond and Hogan, 2004; Petrides, Fredrickson and Furnham, 2004) and student transitions (for example, Parker, Duffy, Wood, Bond and Hogan, 2005). Some discussion has highlighted how teachers can build an environment to develop students' emotional intelligence (for example, Elias and Arnold, 2006).

However, researching emotional intelligence in the context of schools is not just about students and their performance. Examining the culture within the school can also focus on the role that emotional intelligence plays in the life of the teacher. Nelson and Low (2005) suggest that the development of an emotionally safe environment lowers teachers' levels of stress and contributes to their effective management of the learning context. Continued examination of the role that emotional intelligence plays for teachers in creating effective teaching practice, therefore seems warranted.

The research reported in this paper, grows from an interest in individual differences. Such research might focus on one aspect of how all people are alike, or how some people are alike; or how all people are unique (Revelle, 1995). In regard to emotional intelligence it is the second of these aspects that is the focus here. The research is concerned primarily with emotional intelligence as "a quantitative spectrum of individual differences …. Such that people can be rank ordered in terms of how much emotional intelligence they possess" (Matthews Zeidner and Roberts, 2002, p.22).

Emotional Intelligence

Mayer, Roberts and Barsade (2008, p. 511) define emotional intelligence as that which "concerns the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought." Emotional intelligence is "a collection of emotional abilities that constitute a form of intelligence that is different from cognitive intelligence or IQ" (Bechara, Tranel and Damasio, 2000, p.211). Individual differences in emotional intelligence relate to differences in our ability to judge our own emotions and those of others. Mayer and Salovey (1997) have developed an ability model of emotional intelligence. This model sets out four different abilities or skills, referred to as branches: *identifying emotions, using emotions, understanding emotions and managing emotions.* These authors assert that a person's skill in recognising emotional information and carrying out abstract reasoning using the emotional information can be measured. Each of these areas is seen as developing from early childhood into adulthood, with ability in each and all of the areas growing over time and experience (Mayer and Salovey, 1997; Salovey and Mayer, 1990).

Measuring emotional intelligence

> As Austin, Saklofske and Egan (2005, p.547) note,
>
> *the idea that people differ in measurable ways in their emotional skills is an interesting idea in its own right, suggesting the opening up of an area of individual differences assessment not currently covered by existing measures of intelligence and personality.*

Mayer, Caruso, and Salovey (1999) and Roberts, Zeidner, and Matthews (2001) have provided empirical support for the four-branch model of emotional intelligence, employing the Multifactor Emotional Intelligence Scale (MEIS) and later the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). These and other measures of emotional intelligence gather information about the individual in a general context.

However line with the assertion that emotions can be understood more clearly by knowing the contextual circumstances surrounding that emotion (Parkinson, 1996; Nias, 1996), research has now begun to focus on the way in which levels of emotional intelligence may be influenced by particular environments or contexts and also the extent to which an individual may utilise their emotional intelligence in that context. For example, literature is emerging that investigates what relationships may exist between emotional intelligence and business practice (for example, Zeidner, Matthews and Roberts, 2004); health professionals (for example, Cadman and Brewer, 2001) and in educational contexts (for example, Stough, Sakiofske and Hansen, 2005).

For both teachers and students, the institutional and cultural factors surrounding schools create emotional environments. Researchers argue persuasively that for a context such as education, detailed examination of the emotional practices related to school structures and purposes is needed.

Measuring teachers' emotional intelligence

Zeidner, Matthews and Roberts (2004) note that any career-relevant emotional intelligence measure should be one with demonstrated theoretical and empirical relevance to a particular occupational context.

The *Reactions to Teaching Situations* (RTS) (Perry, Ball and Stacey, 2004; Perry and Ball, 2005) relates directly to the work of teachers in schools. The RTS draws on the four-branch model of emotional intelligence as a framework. A series of ten teaching situations are presented. The situations are typical of those that could be expected as part of the practice of teaching. The situations portray emotional experiences that can be perceived as either positive or negative. For example,

> *Situation 1: One of your students, whose learning is generally slow and erratic, has just made a breakthrough and has acquired a concept you have been teaching for some time.*
>
> *Situation 2: A parent has lodged a formal complaint about your teaching methods which you feel is totally unjustified and blown out of all proportion. Moreover you are unsure about how "just" the Principal will be in handling this issue.*

Participants are asked to consider how they would feel and think (i.e. suggest an emotional response) in each of the ten situations. The ten situations vary in emotional character, some reflecting a positively charged emotional context, with other situations reflect a more negatively charged context**.** Each of the four possible reactions (reflecting the four branches, that is, identifying, using, understanding or managing emotions) are rated as to the likelihood of that particular reaction being made, ie rating how the respondent would typically deal with these particular emotional aspects of teaching. The ratings are made on a five point Likert scale labelled: "never likely, seldom likely, sometimes likely, usually likely, always likely".

Evidence from studies of the RTS total scores suggests that the instrument is a reliable and valid measure of emotional intelligence expressed in teaching situations. Two studies (Perry, Ball and Stacey, 2004 and Perry and Ball, 2005) detail the discriminant and convergent validity of the

measure and indicate that the reliability of the total scores on the measure is acceptable and compares favourably with other measures of emotional intelligence.

The RTS has been used in a study examining the relationship between emotional intelligence and teacher efficacy with a sample of 211 Australian primary and secondary school teachers (Penrose, 2006). Results from this study indicated that those teachers who reported higher levels of emotional intelligence also reported higher levels of teaching efficacy. Gender, age, experience, and status did not moderate this relationship. Given that teacher efficacy is associated with a wide range of outcomes including student achievement, developing a teacher's emotional intelligence might be a significant means to improving student learning outcomes. The RTS was also used in a study (Sivaniah, 2007) with 63 staff and 162 teacher education students in an educational psychology course. This study found differences in levels of emotional intelligence between males and females, but found no correlation between emotional intelligence, the number of years of teaching or the age of teachers.

Research Purpose

For teachers, the situational context in which they teach affects the way emotional intelligence is engaged. Thus the purpose of this study is to examine aspects of emotional intelligence as it relates to the professional lives of teachers, and in particular, to identify the underlying dimensions of the activation of this intelligence in the workplace.   Such knowledge should be valuable in guiding the design of teacher professional development in this area.

Methodology of Research

The participants for this study were experienced primary and secondary teachers (n=239) from schools in the government and independent sectors in metropolitan Melbourne, Victoria. The teachers were recruited for the study through professional development networks. There were 51 males and 187 females participating. The most frequent age group was "36 or over" which contained 79% of the sample. The smallest group (5%) was aged "25 and under".

In terms of experience in teaching, the group was varied: 30% had 10 or less years of experience, 26% had between 11-20 years of experience, and the remaining 44% had 21 or more years of experience. There were 39% of the sample teaching in primary schools and the remaining 61% were employed in secondary high schools and colleges.

Representativeness

The sample provides a reasonable cross section of the populations in the selected schools, and is considered to reflect the overall characteristics of teachers in Victorian schools, particularly in the gender imbalance within and between primary and secondary schools. The Australian Bureau of Statistics (2004) indicates that within both education sectors there are more female than male teachers.   In secondary schools there are slightly more female than male teachers, whereas in primary schools there are four times as many female teachers. These proportional differences are reflected in the sample. It is concluded that within the restrictions imposed by ethical requirements the data are suitable for further analysis.

Analytic procedures

The patterns of intercorrelations between the likelihood scores for the four reactions for each of the ten situations were examined by factor analysis. In the following description each reaction is referred to as an item. Exploratory factor analysis determined the simple structure that best represents the data. Principal components analysis was chosen. Kline (1994, p.36) asserts "components are real factors because they are derived directly from the correlation matrix".

As the source of these data was the RTS, which used the four branches of emotional intelligence as the framework, it would have been appropriate to curtail extraction to four factors. However the scree test also suggested that only four factors be rotated. For rotation, the varimax criterion was

employed as it produces factors that are not correlated with each other, and therefore most easy to interpret, compared with oblique rotation methods.

In the following table each item had been written to relate to one of the four branches and this is indicated in the following description of results.

Results of Research

Tables 1 - 4 record the four highest loadings of items for each factor. As is normal for varimax rotations, the factors appear in their order of the magnitude of their eigenvalues, with the first factor accounting for the highest amount of total variance. The four highest loadings on a factor are presented to allow the reader to identify those items that contribute most significantly to the factor under consideration. Removal of the lower, often insignificant loadings helps to focus attention on what is more important. It should be noted that the four factor solution looks at less than 50% of total variance in the analysis, and that there are many other smaller factors which represent some unique variation in RTS scores.

Table 1.   Four highest loading items and their loadings on Rotated Factor 1.

Item	Reaction	Loading
10C	I would feel reassured that the effort I had put in had paid off.	0.78
10A	I would realise that being recognized is often linked with feelings of satisfaction.	0.74
6B	I would feel acknowledged.	0.70
10B	I would not be afraid to show my feelings of joy.	0.68

Table 1 shows the first rotated factor for this sample. This factor accounted for 13.2% of total variance. There were 15 items having high to moderate loadings >.30. Of these, 13 items were associated with positively charged situations, and there was a fairly even split between situations involving peers and other adults and those involving students. *Identifying emotions* was the modal category, but *using emotions* was also highly represented. All four branches appeared on this factor. In terms of the four highest loadings, noted above, these were all related to an underlying dimension of emotional intelligence related to *a general willingness to receive or acknowledge positive feedback*.

Table 2.   Four highest loading items and their loadings on Rotated Factor 2.

Item	Reaction	Loading
2C	I would be feeling insecure in this situation.	0.72
2D	I would remember that things like this tend to upset me.	0.62
5D	I would feel a real failure.	0.61
4B	Momentarily I would want to wring the co-ordinator's neck.	0.60

Table 2 shows Factor 2 in this analysis that accounted for 8.4% of total variance. There were 11 items having loadings >.30 ten of which relate to negatively charged situations, but there is a fairly even balance between situations involving peers and other adults and those involving students. There were six of the items that related to *identifying emotions*, but all branches were represented in the 11 items. This factor can be interpreted as being concerned with an underlying dimension of emotional intelligence related to the *identification and acceptance of negatively evaluated emotions*.

Table 3.   Four highest loading items and their loadings on Rotated Factor 3.

Item	Reaction	Loading
8C	I would remember my hurt response and include all the staff in my Christmas function.	0.60
8D	I would feel hurt but would make more of an effort to join in the social interaction in the staffroom.	0.59
8A	I would understand that it is normal to feel sensitive about such incidents.	0.55
3D	I would feel comfortable about being able to handle this.	0.45

Table 3 shows Factor 3 of the teachers' analysis. This factor accounts for 7.8% of total variance. There were 15 items with loadings >.30. Of these, the modal category was *using emotions*, but *understanding emotions* and *managing emotions* were also strongly represented. This factor has much to do with an underlying dimension of emotional intelligence related to the taking of a *reflective approach to negative charged situations, and an adoption of a strategy to move forward*.

Table 4.   Four highest loading items and their loadings on Rotated Factor 4.

Item	Loading	Reaction
2B	I would think that there is too much confusion about teaching methods.	0.57
1C	I would feel validated as a teacher.	0.51
1D	I would wonder about how to make best use of this situation.	0.43
5B	My feeling of embarrassment would lead me to think about what I'd done in similar situations.	0.42

Table 4 shows the final factor in the teachers' analysis that accounted for 5.5% of total variance. There were 9 items that had loadings >.30, and of these, most involved interactions with students. There was a fairly even split between positively charged and negatively charged situations. All four branches were represented with more of *managing emotions* than other categories. This factor has much to do with the capacity to be able to evaluate one's professional practice indicating an underlying dimension of emotional intelligence to do with the *ability to manage oneself in teaching situations*.

The four factors identified in these data suggest that we can define and describe emotional intelligence for those in the teaching profession, through four underlying dimensions, ie

1.   a general willingness to receive or acknowledge positive feedback
2.   an identification and acceptance of negatively evaluated emotions
3.   taking a reflective approach to negative charged situations, and an adoption of a strategy to move forward
4.   the ability to manage oneself in teaching situations.

Teachers expressing high levels of emotional intelligence would exhibit high levels of ability in these four dimensions.

It will be apparent that the framework of the four branch model did not reproduce in the rotated loadings reported above. As indicated, most often the pattern of the items involved a cluster of branches. It was considered desirable to examine the intercorrelations of these factor scores with those obtained by summing across each of the four branches. Table 5 shows these intercorrelations.

Table 5. **Intercorrelations between the four underlying dimensions (factor scores) and branches of emotional intelligence.**

EI branch/ dimensions	Factor 1	Factor 2	Factor 3	Factor 4
Identifying emotions	0.55	0.47	0.15	0.09
Using emotions	0.47	-0.11	0.64	0.16
Understanding emotions	0.54	0.21	0.56	0.21
Managing emotions	0.48	0.17	0.46	0.51
Total	0.66	0.35	0.57	0.31

Note: All coefficients greater than 0.25 are significantly different from zero correlation $p<0.01$.

There are several points of difference between the results for the teachers using the RTS and the four branch model theorised by Mayer and Salovey (1997). It can be seen that for the dimension described as "*willingness to receive or acknowledge positive feedback*", the factor scores correlate consistently with all the branch scores and the total emotional intelligence scores.

In comparing the correlations for the dimension described as a "*identification and acceptance of negatively evaluated emotions*" it can be seen that the highest correlations are those with the identifying emotions branch, and there are generally lower, non significant, correlations with total emotional intelligence scores.

The results showing the dimension described as a "*reflective approach to teaching in negatively charged situations*" has little relationship to the identifying emotions branch, but a relationship to each of the others and the total score. The highest correlation is with using emotions. This may signify that teachers tend to reflect on emotional issues in their professional practice and role expectations, and that teachers have carried out some evaluation of the experienced emotional reactions.

Finally, the correlations for Factor 4 described as a dimension showing "*capacity to manage oneself in a teaching situation*" show a moderate relationship with managing emotions branch but not with the other branches. The correlations between the factor scores and total emotional intelligence are the lowest in the set.

In summary, these findings suggest that the underlying dimensions (as noted in Table 5) work as more appropriate descriptors of emotional intelligence in regard to the teachers than do the four branch descriptors. These underlying dimensions appear, for the profession of teaching, to be a more useful way of describing emotional intelligence and dividing the ability and skills of teachers related to their levels of emotional intelligence, and may provide a useful framework for further teacher professional development.

Discussion

The four underlying dimensions reported here, that is, a general willingness to receive or acknowledge positive feedback; an identification and acceptance of negatively evaluated emotions; taking a reflective approach to negative charged situations, and an adoption of a strategy to move forward and the ability to manage oneself in teaching situations, represent what the teachers responding to the RTS are 'likely' to feel and think across a range of teaching situations. They bear some varying relationships to the four branches of emotional intelligence proposed by Mayer and Salovey (1997), but certainly do not reproduce these exactly. As contended earlier in this paper, it is possible that when working with a particular professional group, in this case teachers, the discrete factors that define this profession from others, produce effects that bring about variations and interactions between the branches. Thus distinctive facets of emotional intelligence relevant to teaching situations are being indicated by these responses, but by varying degrees for groups of individuals.

Teaching environments should be emotionally healthy and supportive in order to encourage teachers to enhance their levels of emotional intelligence. Teachers with low levels of emotional

intelligence are less able to take the opportunity to 'capture the moment', and to deal with feedback in a constructive way.

Perry and Ball (2007) report that for teachers with low levels of emotional intelligence, teaching situations eliciting negative emotions become even more problematic. These teachers are seemingly not able to use emotional skills and would experience a lack of control and a threat to their effectiveness as a teacher. It may be that for some teachers, such experiences would likely engender feelings of self-doubt and feelings of frustration. In situations involving teaching peers, teachers with low levels of emotional intelligence may experience negative emotions but do not transform this emotion into a constructive solution. They remain trapped by the emotional state. They have very little opportunity to develop emotional resilience. These teachers are less able to 'bounce back' from negative emotional experiences than their colleagues who have high levels of emotional intelligence (Tugade and Fredrickson, 2004). As Gohm, Corser and Dalsky (2005) note, it is often these teachers who show an inability to trust their own emotions and demonstrate higher levels of emotional stress. It might be conjectured that such teachers experience a higher propensity to burn out.

In analysing the data, four quite different underlying dimensions appear, implying that any description of the emotional context of teaching needs to be fairly complex, and the many highly unique responses made by individual teachers are a result of complex processes in the school context. As Nias (1996, p.293) reminds us, "the emotional reactions of individual teachers to their work are intimately connected to the view that they have of themselves and others".

The underlying dimension of emotional intelligence identified in this study seem to be working in the same way as various researchers have conjectured about the role that teachers' meanings play in their educational practice, for example van den Berg (2002). This role appears to be central to the concept of teacher self-efficacy, that is, the belief teachers have about their ability to bring about change and impact on student behaviour and student learning outcomes (Gibson and Dembo, 1984). Emotional intelligence has been linked to teacher self-efficacy (Chan, 2004; Penrose, 2006). Further, (Sutton, 2004) has demonstrated that teacher self-efficacy is linked to teacher effectiveness. The underlying dimensions of emotional intelligence identified in this study, namely, a general willingness to receive or acknowledge positive feedback; identification and acceptance of negatively evaluated emotions; taking a reflective approach to negative charged situations, with an adoption of a strategy to move forward; and the ability to manage oneself in teaching situations, can thus be seen as important elements in this linkage between the emotional intelligence of teachers and their effectiveness as educators.

Conclusion

Our evidence confirms the proposition that teaching is an emotional practice. For teachers, the underlying dimensions identified in this study indicate emotional intelligence. These four dimensions appear to be a descriptive and appropriate way of characterising emotional intelligence for those in the teaching profession.

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