

MEASURING EMOTIONAL INTELLIGENCE OF SCHOOL CHILDREN – A PILOT STUDY

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ABSTRACT

The aim of this current pilot study is to develop a self-report measure of emotional intelligence specifically for school children aged between 14 to 17 years of age. For this purpose, a list of 50 items including items from tested questionnaire relating to emotional intelligence was framed. Exploratory factor analysis was used to extract 5 factors of emotional intelligence based on Daniel Goleman model. The sample respondents were 248 Government school children with age ranging between 14 to 17 years of age. A total of 140 ninth grade and 108 eleventh grade children with equal number of boys and girls i.e., 124 participated in the current study. The items were further validated using face, content, and construct, concurrent and convergent validity. Cronbach's alpha scale was used to find the reliability of the emotional intelligence self report measure.

KEYWORDS: *Emotional Intelligence, School Children, Pilot Study, Factor Analysis*

INTRODUCTION

Emotional intelligence as described by Daniel Goleman (1995) is the “person’s ability to manage his feelings so that those feelings are expressed appropriately and effectively”. Though Gardener (1983) concepts of inter and interpersonal skills have laid the foundation for emotional intelligence model in the later years, it was Salovey and Mayer (1990) who introduced the term ‘Emotional intelligence’. This Emotional Intelligence model comprising of three dimensions such as appraisal, expression and utilization of emotions in problem solving was later on in 1997 was further expanded to four branches such as perception, appraisal, expression and emotional facilitation. However, the concept of emotional intelligence was further popularized in the year 1995 (Shutte et al., 1998). So far, several research studies on emotional intelligence have proved that emotional intelligence is a very good predictor of success in workplace (Cherniss and Adler, 2001), academic achievement (Parker et al., 2004) leadership (Mumford et al., 2000), coping styles (Salovey, 1999), personality development (Myers, 1998).

So far, several emotional intelligence scales have been used to measure the different dimensions of emotional intelligence on different respondents based on various models. Some popular scales include Mayer Salovey-Caruso Emotional Intelligence Test (MSCEIT) in 1997 based on four branches emotional ability such as emotional perception, facilitating thoughts, understanding emotions and managing emotions (141 items), Bar-on emotional quotient inventory

test (EQ-i) test developed by Bar-on which comprised of interpersonal, intrapersonal, stress management, adaptability, and general mood components (133 items), Self Report Emotional Intelligence Test (SREIT) developed by Shutte et al., (1998) consisting of 33 items, The Genos Emotional Intelligence Inventory (Genos EI) developed by Palmer, B (2001) comprising of 70 items, The Trait Emotional Intelligence Questionnaire (TEIQ) developed by Cooper et al., (2010) in full form comprises of 153 items and in short form consists of 30 item questionnaire had been used to test the emotional intelligence on several respondents.

Since the present study involves respondents of 9th and 11th grade school children, the items used in the above inventories may not be suitable for the school children. Hence, this is a modest attempt to develop a self report measure for assessing emotional intelligence suitable for the school children so as to facilitate them in filling up the questionnaire on their own without any assistance from others.

METHODOLOGY

Description of the Sample

The Sample consisted of 248 school children from 'Adidravida Government Higher Secondary School', Chennai city, from the State of Tamil Nadu, India. A total of 260 questionnaires on emotional intelligence were distributed out which only 248 were found complete in all aspects. 140 ninth grade and 108 eleventh grade children in the age group ranging from 14 to 17 years of age are the participants for the study. The sample children consisted of equal numbers of boys and girls i.e, 124 children in all. Almost majority of the students are from economically and socially backward sections of the society.

Tools Used for the Study

The current study is based on the primary data elicited through a well framed structured questionnaire. Items were adapted from Self Report Emotional Intelligence Test (SREIT) developed by Shutte et al., (1998). The questionnaire focused on five dimensions of emotional intelligence model developed by Daniel Goleman such as self awareness, self regulation, motivation, empathy and social skills. Five point likert scales such as strongly agree to strongly disagree used to test the level of emotional intelligence. The highest score 5 was assigned to 'strongly agree', 4 to 'agree', 3 to 'neutral', 2 to 'disagree' and the least score 1 was assigned to 'strongly disagree'. For this purpose, 21 items were adapted from SREIT. Apart from this, additional items were also included in the questionnaire so as to add value to all the five dimensions of emotional intelligence in a comprehensive way. Since the school students belong to Tamil medium, the statements were translated in Tamil for easy understanding and this bilingual questionnaire was subsequently distributed to the school children. This has facilitated the school children to understand and fill the questionnaire easily. Moreover, the school teachers also assisted them in filling up the questionnaire. After collecting data from 248 school children, using exploratory factor analysis, 5 factors were extracted and data was reduced from fifty items to twenty eight statements.

Sampling and Statistical Technique Used

Convenience sampling method was adopted for the study. Exploratory factor analysis was carried out to extract factors and reduce data. Cronbach's reliability scale was used to test the reliability of the measure after factor extraction and data reduction. Further the items are further validated using face, content, construct and convergent validity.

Exploratory Factor Analysis

A total of 50 items were used as the criteria to assess the level of emotional intelligence among school students. Factor analysis, a technique adopted for reduction of larger number of variables into fewer numbers of factors by exploring common dimensions among the variables, was used to reduce data collected on 50 statements. The KMO and Bartlett's test showed a high value of .817 which is more than 0.05. This implies that factor analysis can be performed for the current data. The significant value for KMO Bartlett's test is 0.000 further indicates that there exists a strong relationship among the variables and is fit to perform factor analysis.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.817
Bartlett's Test of Sphericity	Approx. Chi-Square	4.812E3
	df	1225
	Sig.	.000

The next stage was extraction of factors using Principal Component Analysis method generally based on the Eigen value greater than unity. Since the questionnaire was based on Daniel Goleman five factor models, the numbers of factors was specified as 5 under extraction, while performing the factor analysis test. The component matrix so formed was rotated orthogonally using varimax rotation and the resultant Rotation component matrix is given below.

Table 2: Rotated Component Matrix^a

Items	Component				
	1	2	3	4	5
I help other people feel better when they are down **	.752	.223			
I like to share my knowledge with others	.742				
I compliment others when they have done something well**	.685	.195			
I interact effectively with peers and others	.648	.139	.115	.156	
I like to share my emotions with others **	.547		.103		.193
I Help those who are in difficult situations	.504	.273	.120		.267
I try to adopt positive/optimistic approach	.495	.319		.135	
I try to show concern about others feeling and emotions	.494	.285			.324
I understand and appreciate others point of view	.492		.250	.175	.300
I take decisions keeping in mind the betterment of all concerned parties	.487	.122	.168		.270
I expect good things to happen**	.476	.474			
Even if others don't encourage me, I don't lose my effort	.429	.405	.184	.195	
Till I reach the goal, I work tirelessly	.423	.370	.226	.186	
I motivate myself by imagining a good outcome to tasks I take on **	.206	.741			
I expect that I will do well on most things I try **	.241	.731		.126	.122
Whatever work I do, I do it whole-heartedly	.188	.651		.116	
I am doing things I really want to		.581	.173	.189	
I am compassionate to those, who have undergone/experience painful events (eg.death, serious illness etc.,)	.302	.571	.120		
When I meet with failures, I easily overcome those failures with a positive attitude always	.281	.548	.162	.164	.101
I try to accept happiness and worries in a balanced state		.470	.425		

Table 2: Condt...					
I admit my mistakes		.459	.204		
I try to negotiate and resolve disagreements between others	.275	.401		.130	.329
I present myself in a way that makes a good impression on others **	.102	.360		.136	.323
I seek out activities that make me happy **	.301	.340	-.124	.211	-.187
I can control my anger	.193		.695	.153	
I try to get rid of unnecessary fear	.144	.285	.673	.126	
I keep commitments and promises	.123	.418	.549		
I know when to speak about my personal problems to others **	.127	.134	.451	.163	.157
I take the task gracefully, even if it is unsuccessful	.314	.248	.436	.258	
I avoid unhealthy habits under stress	.275		.427		-.184
When I am faced with a challenge, I give up because I believe I will fail**	.142		-.388		-.272
I consider others view while taking decisions	.302	.230	.318		.281
I can identify the causes of my physical emotions	.129	.268	-.102	.618	
I am capable of taking sound decisions during difficult situations	.189		.253	.612	
I have confidence to face challenges	.292		.212	.565	
Emotions are one of the things that make my life worth living**			.102	.497	
I know why my emotions change **		.246		.427	.119
I can understand my strengths and weaknesses	.235	.164		.418	-.125
I think clearly and stay focused under pressure	-.102	.363	.308	.390	
I am aware of the non-verbal messages other people send**				.384	.286
I arrange events others enjoy **	.159			.339	.157
When I am faced with obstacles, I remember times I faced similar obstacles and overcame them **	.156	.265	-.232	.323	
I am aware of the non-verbal messages I send to others **		.122	.114	.294	
I easily recognize my emotions as I experience them **	.173			.241	.223
I can tell how people are feeling by listening to the tone of their voice **	.107				.634
I know what other people are feeling just by looking at them **				.148	.633
When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself **	.170		.124	-.181	.552
By looking at their facial expressions, I recognize the emotions people are experiencing **	.180	.280			.535
Other people find it easy to confide in me **	.308	.210		.127	.360
I know why I am not able to accept others criticisms /feedback	-.162	.110	.244	.192	.322
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					
a. Rotation converged in 8 iterations.					

** Items adapted from 33 item Emotional Intelligence Scale developed by Shutte et al.,(1998).

FACTOR EXTRACTION

Factor 1 - Social Skills

The above Rotation component matrix shows that items are converted into 5 factors. From the above table, one can infer that the items are sorted according to the size and an only loading which is above .40 are included under the

factors. The other items which are less than .40 are ignored. The following items with loadings highlighted under component ONE is converted into a single factor – “Social Skills”. They are as follows:

- I help other people feel better when they are down
- I like to share my knowledge with others
- I compliment others when they have done something well
- I interact effectively with peers and others
- I like to share my emotions with others
- I help those who are in difficult situations
- I understand and appreciate others point of view

However, following items shows that, though they are above .40, these statements, the face validity and content validity of experts reveals that they do not represent ‘Social Skills’ and hence it is not included under the ‘Social skills’ factor. Moreover, since their loadings in the other factors are less than .40, the following items cannot be grouped under other factors also.

- I try to adopt positive/optimistic approach (.495)
- I try to show concern about others feeling and emotions (.494)
- I expect good things to happen (.476)
- Even if others don’t encourage me, I don’t lose my effort (.429)
- Till I reach the goal, I work tirelessly (.423)

FACTOR II - MOTIVATION

The following items with loadings highlighted under component TWO are converted into a single factor “Motivation”. They are as follows:

- I motivate myself by imagining a good outcome to tasks I take on
- I expect that I will do well on most things I try
- Whatever work I do, I do it whole-heartedly
- I am doing things I really want to
- When I meet with failures, I easily overcome those failures with a positive attitude always.

But the following items though appear under ‘Motivation’ with loading above .40, the face validity and content validity indicates that they do not satisfy the motivation criteria and hence not included under motivation. The below items cannot be grouped under other factors because the loading in the other factors are less than .40. Therefore the following items are totally ignored.

- I am compassionate to those, who have undergone/experience painful events (eg.death, serious illness etc..) (.571)
- I try to accept happiness and worries in a balanced state (.470)
- I admit my mistakes (.401)
- I try to negotiate and resolve disagreements between others (.470)

FACTOR III - SELF REGULATION

The following items with loadings highlighted under component THREE are converted into a single factor “Self Regulation”. They are as follows:

- I can control my anger
- I try to get rid of unnecessary fear
- I keep commitments and promises
- I know when to speak about my personal problems to others
- I take the task gracefully, even if it is unsuccessful
- I avoid unhealthy habits under stress

FACTOR IV - SELF AWARENESS

The following items with loadings highlighted under component FOUR are converted into a single factor “Self Awareness”. They are as follows:

- I can identify the causes of my physical emotions
- I am capable of taking sound decisions during difficult situations
- I have confidence to face challenges
- I know why my emotions change
- I can understand my strengths and weaknesses

But the statement ‘Emotions are one of the things that make my life worth living’, though have factor loading of more than.40, if deleted showed that the reliability of the inventory increased from.875 to .882. Therefore the statement has been ignored.

FACTOR V - EMPATHY

The following items with loadings highlighted under component FOUR are converted into a single factor “Empathy”. They are as follows:

- I can tell how people are feeling by listening to the tone of their voice
- I know what other people are feeling just by looking at them

- When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself
- By looking at their facial expressions, I recognize the emotions people are experiencing

The Loadings for the Following Items are Less than .40 and Therefore the Below Items are Ignored

- I present myself in a way that makes a good impression on others
- I seek out activities that make me happy
- When I am faced with a challenge, I give up because I believe I will fail*
- I consider others view while taking decisions
- I think clearly and stay focused under pressure
- I am aware of the non-verbal messages other people send
- I arrange events others enjoy
- When I am faced with obstacles, I remember times I faced similar obstacles and overcame them
- I am aware of the non-verbal messages I send to others
- I easily recognize my emotions as I experience them
- Other people find it easy to confide in me
- I know why I am not able to accept others criticisms /feedback

The Total Variance table shows that the Factor 1 – ‘Social Skill, Factor II – Motivation, Factor III – Self Regulation, Factor IV – Self Awareness and Factor V – Empathy accounted for 13.3%, 11.7%, 9.2%, 7.9% and 7.8% of the variance and all the five factors contributed 50.1% of the total variance.

Table 3: Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.732	13.330	13.330
2	3.280	11.713	25.043
3	2.584	9.228	34.270
4	2.235	7.982	42.252
5	2.200	7.858	50.110

Extraction Method: Principal Component Analysis.

Thus, using factor analysis, the 50 items are reduced to 27 items under the major 5 factors such as Self Awareness, Self Regulation, Motivation, Empathy and finally Socially Skills.

Table 4: Summary of the Factors Measuring Emotional Intelligence of School Children

S.No	Item Description
I Self Awareness	
1	I can identify the causes of my physical emotions
2	I am capable of taking sound decisions during difficult situations
3	I have confidence to face challenges
4	I know why my emotions change
5	I can understand my strengths and weaknesses
II Self Regulation	
6	I can control my anger
7	I try to get rid of unnecessary fear
8	I keep commitments and promises
9	I know when to speak about my personal problems to others
10	I take the task gracefully, even if it is unsuccessful
11	I avoid unhealthy habits under stress
III Motivation	
12	I motivate myself by imagining a good outcome to tasks I take on
13	I expect that I will do well on most things I try
14	Whatever work I do, I do it whole-heartedly
15	I am doing things I really want to
16	When I meet with failures, I easily overcome those failures with a positive attitude always.
IV Empathy	
17	I can tell how people are feeling by listening to the tone of their voice
18	I know what other people are feeling just by looking at them
19	When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself
20	By looking at their facial expressions, I recognize the emotions people are experiencing
V Social Skills	
21	I help other people feel better when they are down
22	I like to share my knowledge with others
23	I compliment others when they have done something well
24	I interact effectively with peers and others
25	I like to share my emotions with others
26	I help those who are in difficult situations
27	I understand and appreciate others point of view

VALIDITY OF THE EMOTIONAL INTELLIGENCE MEASURE

Face Validity

All the 50 items included in the emotional intelligence questionnaire satisfied the face validity i.e., appeared valid on the face of it. Only then, exploratory factor analysis was used to extract factors.

Content Validity

Then a team of four experts specialized in the field of emotional intelligence assessed the items and the subsequent results concluded that all the items under the factors - self awareness, self regulation, motivation, empathy and social skills describe the factors. Further, after examining the items some items were removed though the factor loading of the item was high. For instance, "I try to show concern about others feeling and emotions (.494)" under the factor 'social skills',

“I try to accept happiness and worries in a balanced state (.470)” under the factor ‘motivation’ owing to lack of content validity.

Construct Validity

Under this validity, the items under each factor were examined on the basis of the operational definition.

Daniel Goleman in his article on emotional intelligence (1990) defines social skills as “Proficiency in managing relationships and building networks, and ability to find common ground and build rapport”. As per the definition, the effectiveness to persuade, lead the change, building and managing teams are the hallmarks of social skills. Thus the above items clearly describe the above characteristics in terms of the ability to share knowledge & emotions, interact, show concern, help, compliment, appreciate the other’s view interpersonal relationship with the others and to take decisions for the betterment of the other people Therefore, all the EIGHT items are grouped under a single factor - ‘**Social Skills**’.

“A passion to work for internal reasons that go beyond money and status -which are external rewards, - such as an inner vision of what is important in life, a joy in doing something, curiosity in learning, a flow that comes with being immersed in an activity, a propensity to pursue goals with energy and persistence”. This definition by Daniel Goleman (1990) indicates optimism despite failures, drive to achieve goals wholeheartedly forms the basis for motivation. Thus the above statement portrays the ability to motivate the self, despite failure and trying to balance both happiness and worries and hence the FIVE items are converted and grouped under a single factor -‘**Motivation**’.

Goleman (1990) defines Self awareness as “The ability to recognize and understand personal moods and emotions and drives, as well as their effect on others”. According to this definition, the ability to monitor one’s emotions which include self confidence, realistic self assessments and correct identification of emotions leads to self awareness. Hence, one can infer from the above statements, the ability to be aware of one’s emotions like identifying the causes, capability of oneself, self confidence, reasons for change in the emotions and awareness of one’s strength and weakness clearly describes ‘Self Awareness’. Therefore, the FIVE items are converted and grouped under the single factor – ‘**Self Awareness**’

“The ability to understand the emotional makeup of other people. A skill in treating people according to their emotional reactions” This definition of Daniel Goleman depicts one’s ability to put themselves in the ‘other person’s shoes’ and trying to understand the feelings and emotions. Therefore, the FOUR items are converted and grouped under the single factor – ‘**Empathy**’.

Daniel Goleman (1990) defines self regulation as “The ability to control or redirect disruptive impulses and moods, and the propensity to suspend judgment and to think before acting”. Accordingly, the above SIX items illustrate the ability to regulate emotions such as anger, fear, control over their commitments & promises, accepting failures and avoiding unhealthy habits under stress and hence these items are grouped and converted into a single factor – ‘**Self Regulation**’.

Hence, all the items under the different factors matches the operational definition laid down by Daniel Goleman

Concurrent Validity

All the items under each and every factor exactly measure only the concerned factor and not any other factor.

Hence, there is no overlapping of a statement which implies a clear distinction is made between the factors. For eg: 'I can tell how people are feeling by listening to the tone of their voice' clearly measures only empathy and does not exactly measure self awareness or self regulation or motivation or social skills. Similarly, this is applicable for all the items under different factors. So there is a clear demarcation in the items used between the factors.

Convergent Validity

The significant value for KMO Bartlett's test is 0.000 indicates that there exists a strong correlation among the variables and thus all the five factors converge into a single concept of 'Emotional Intelligence'. Further the correlation matrix reveals that there exists a strong correlation between the items within the factors.

Table 5: Correlation Matrix

Items within the Factor	Correlation Matrix - Range			
	Low	P Value (Sig.Value)	High	P Value (Sig.Value)
Self Awareness	.171	.004**	.406	.000*
Self regulation	.152	.001*	.560	.000*
Motivation	.317	.000*	.577	.000*
Empathy	.265	.000*	.452	.000*
Social Skills	.218	.000*	.615	.000*

Significant at 1 % level ** significant at 5% level

RELIABILITY TEST

After extraction of 5 factors showed using exploratory factor analysis, the Cronbach's alpha scale of reliability test of questionnaire on emotional intelligence showed .872 which is above .6. Therefore the high reliability of the inventory indicates that the inventory can be used to test the emotional intelligence of the school children.

Table 6: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
.872	.877	28

Table 7: Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	No of Items
Item Means	3.953	3.669	4.270	.601	1.164	.029	28
Item Variances	1.046	.731	1.650	.919	2.258	.046	28

CONCLUSIONS

The self reported measures of emotional intelligence of school children, thus developed can be used in schools and college students to assess the level of emotional intelligence. Since the internal consistency of the items of the measure is good and items have been validated under various methods, the instrument hopes to measure emotional intelligence of school children.

REFERENCES

1. Cherniss, C. & Goleman, D, 2001. *The emotionally intelligent workplace*. San Francisco, CA: Josey-Bass
2. Cooper, A. & Petrides, K, V, 2010. 'A psychometric analysis of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) using Item Response Theory', *Journal of Personality Assessment*, 92, 449-457.
3. Goleman, D., 1995. *Emotional Intelligence*. New York: Bantam Books.
4. Dona Rai, *Assessment of Emotional Intelligence and Emotional Maturity of Undergraduate Students*, *International Journal of Humanities and Social Sciences (IJHSS)*, Volume 6, Issue 4, June-July 2017, pp. 75-80
5. Mayer, J.D. & Salovey, P, 1997. *What is emotional intelligence?* In P. Salovey & D.J. Sluyter (Eds.), *Emotional Development and Emotional Intelligence: Educational Implications: 3- 31*. New York: Basic Books.
6. Parker, J.D.A, Summerfeldt, L.J., Hogan, M., J. and Majeski, S, 2004. 'Emotional Intelligence and academic success: Examining the transition from high school to university', *Personality and Individual Differences*, 36, 163-172.
7. Sudeshna Das, *Emotional Intelligence in Communication Skills*, *International Journal of English and Literature (IJEL)*, Volume 4, Issue 4, July-August 2014, pp. 15-22
8. Palmer, B. and Stough, C, 2001. *Workplace SUEIT: Swinburne University Emotional Intelligence Test – Technical Manual*, Organisational Psychology Research Unit, Swinburne University, Hawthorn.
9. Schutte, N.S., Malouff, J.M., Hall, L.E., Haggerty, D.J., Cooper, J.T., Golden, C.J., et al. 1998. 'Development and validation of a measure of emotional intelligence', *Personality and Individual Differences*, 25, 167-177.
10. Mumford, M.D., Zaccaro, S.J., Harding, F.D., Jacobs, T.O., & Fleishman, E.A, 2000. 'Leadership skills for a changing world: Solving complex social problems', *The Leadership Quarterly*, 11 (1), 11-35.
11. Myers, D.G, 1998. *Psychology*, 5th Ed. NY: Worth Publishers.
12. Vinutha U. Muktamath, Pushpa B. Khadi & Umesh Muktamath, *Interrelation of Emotional Intelligence and General Intelligence among Staff and Students of UAS, Dharwad*, *International Journal of Humanities and Social Sciences (IJHSS)*, Volume 5, Issue 5, August-September 2016, pp. 95-100
13. Salovey, B.T. Bedell, J. Detweiler, J.D, Mayer, 1999. *Coping Intelligently: Emotional intelligence and the coping process* C.R. Snyder (Ed.), *Coping: The psychology of what work.*, Oxford University Press, New York.

