

Research Paper

Development and Standardization of an Emotional Intelligence Inventory for Teacher Trainees: A Psychometric Approach

Sandip Kumar Bera^{1*}, Mou Banerjee², Lokanath Mishra³

ABSTRACT

The ability to recognize, comprehend, and control emotions in order to reduce stress, communicate clearly, sympathies with others, overcome obstacles, and diffuse conflict is known as Emotional Intelligence (EI). The present research paper focused on the construction of an Emotional Intelligence Inventory for the Teacher Trainees. The inventory was based on the Emotional Intelligence theory of Daniel Goleman. The items were categorized into four dimensions (Self-Awareness, Social Awareness, Self-Management, and Relationship Management) of Emotional Intelligence. The final Inventory consisted with Twenty-Four items. Face validity and Content validity which were also satisfactory, applied with the help of psychometricians and subject experts. The coefficient of reliability of the inventory was found to be 0.78.

Keywords: Development, Standardization, Emotional Intelligence Inventory, Teacher Trainees

Emotional intelligence (EI) is the crossing point of emotion and thought. The capacity of people to identify their own and other people's emotions, to distinguish between various emotions and name them appropriately, and to use emotional information to influence thought and behaviour is known as Emotional Intelligence (EI) or Emotional Quotient (EQ). The ability to recognize, comprehend, and control emotions in order to reduce stress, communicate clearly, sympathies with others, overcome obstacles, and diffuse conflict is known as Emotional Intelligence (EI).

Theoretical Background:

Michael Beldoch (1964) and B. Leuner (1966) use the word "Emotional Intelligence" in their research paper. But, Peter Salovey and John D. Mayer (1990) coined the term 'Emotional Intelligence' in modern concept as "a form of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action". The book, "Emotional Intelligence – Why it can matter more than IQ" - the famous book of Daniel Goleman (1995) led to popularise the term. "Emotional Quotient"(EQ) is a similar word to Emotional Intelligence. Keith Beasley (1987) first published used the term EQ in his article in the British Mensa magazine.

¹Research Scholar, Department of Education, Patna University, Patna, Bihar, India.

²Research Scholar, Department of Education, Mizoram University, Mizoram, India.

³Professor, Department of Education, Mizoram University, Mizoram, India

*Corresponding Author

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Emotional Quotient (EQ) is a concept closely related to Emotional Intelligence (EI). Different psychologists tried to define the EQ from various perspectives. Reuven Bar-On (1997) defined EQ as "a cross-situational trait that is responsible for facilitating effective emotional and social functioning". He developed the Bar-On Emotional Quotient Inventory (EQ-i) which is a widely used assessment tool for EQ. Daniel Goleman (1998) described EQ as "the capacity for recognizing our own feelings and those of others, for motivating ourselves, for managing emotions well in ourselves and in our relationships". He also emphasized the importance of EQ in personal and professional relationships, leadership, and overall well-being. Travis Bradberry and Jean Greaves (2009) defined EQ as "your ability to recognize and understand emotions in yourself and others, and to use this awareness to guide thought and behaviour". In the 1990s, psychologist and well-known behavioural science author Daniel Goleman found and popularised the work of Salovey and Mayer on emotional intelligence. Goleman started researching emotional intelligence after being inspired by Salovey and Mayer's findings, and he eventually produced "Emotional Intelligence: Why It Can Matter More Than IQ (1995)". The concept of emotional intelligence was introduced to the public and business sectors by this seminal work. Goleman (1995) provided an explanation of the definition of emotional intelligence. Self-awareness, self-management, social awareness, and relationship management are the four attributes of emotional intelligence. 'Self-awareness' is the capacity to comprehend one's own emotions and understand their effects while utilising them to inform choices. 'Self-management' entails restraint of one's feelings and impulses as well as flexibility in response to shifting conditions. Social awareness is the capacity to see, comprehend, and respond to the emotions of others while also understanding social networks. The last attribute is 'Relationship management' which includes the capacity to motivate, influence, and grow others while handling conflict. The third construct, social awareness, consists of the capacity to perceive, comprehend, and respond to the emotions of others while understanding social networks. (Goleman, 1998).

As an outcome the term "emotional intelligence" is intangible and affects how we manage our behaviour, deal with social challenges, and make choices that will help us succeed in life. A person's behaviour and social interactions are just two of the numerous aspects of daily life that are influenced by emotional intelligence.

Item development for Emotional Intelligence Inventory:

The researcher initially conducted a thorough literature review and examined both domain-specific and generic operationalizations of emotional intelligence. After an analysis of the literature, the researcher identified four dimensions (viz. Self - Awareness, Social Awareness, Self - Management, and Relationship Management) from Daniel Goleman's theory on Emotional Intelligence (Goleman, 2002). The investigator examined each dimension carefully and generated a short item pool of 50 items that are related to these dimensions in the English version. The scale included both positively stated items as well as negatively stated items.

The preliminary pooled printed items along with Goleman's proposed model on emotional competence framework have been sent to the experts from the field of educational psychology and have been requested to check these items for clarity. Goleman's model has been noted for reference. The items which were considered by experts as ambiguous, abstract, complex, difficult terminology were discarded. After experts' consideration regarding the items of the EII, 40 items were retained in the constructed inventory.

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Scoring pattern of Emotional Intelligence Inventory:

After expert verification, the remaining 40 items were printed in the form of a self-report questionnaire with a three-point scale ranging from strongly agree to strongly disagree aligned with each item. The scores for the response for positively stated items were '3' for Agree, '2' for Undecided, '1' for Disagree. The scores for the response for negatively stated items were '1' for Strongly Agree, '2' for Agree, '3' for Undecided and '3' for Disagree. Accordingly, if one respondent would choose 'Agree' for the response in a positively stated 40 item, the respondent would get a score of '3' and for the same response if the statement has been negatively stated, one would get a score of '1'. But the respondent would get always a score of '2' for choosing the 'Undecided' response in an item whether the statement has been positive or negatively stated the sum of the scores for all the statements by the respondent was an individual's total score in this scale. The highest probable score for an individual respondent is $3 \times 40 = 120$ and the lowest probable score is $1 \times 40 = 40$.

Pilot study of Emotional Intelligence Inventory:

Before setting up the final form of a psychological measurement scale, it is essential to conduct a pilot study. A pilot study is a small-scale preliminary study conducted to evaluate feasibility, time, cost, adverse events, and improve upon the study design prior to performance of a full-scale research project (Kothari, 2023). Additionally, it exposes the weaknesses and strength of the scale and the survey techniques. In the present study, a pilot study was conducted on the basis of Likert's method on a random sample of 400 Teacher Trainees. The pilot study was conducted to eliminate any ambiguous or vague item so that students do not feel any difficulty responding to the items in the emotional intelligence scale (EII). Scoring was done on the three-point scale as mentioned above where both the positive and negative stated items were evaluated. The total score for each sample was calculated. The sum of the items has represented the individual's total score.

Item analysis of Emotional Intelligence Inventory:

Item analysis is a crucial phase in test design that evaluates each test item to determine the level of authenticity and effectiveness of standardized tool. It helps educators identify areas where students struggle and refine assessments to better align with learning objectives (Linn and Gronlund, 2012). This process involves calculating item difficulty and item discrimination indices to determine how well each item evaluate between high- and low-performing students. The summated ratings approach was used to analyse the items and determine whether the assertions should be accepted or rejected. This was done by taking into account the average amount distribution of scores depending on how each respondent answered each statement in the pilot survey. In the following phase, the respondent's overall score was sorted in descending order.

After that, from the total response sheets, the top 27 % and the bottom 27 % were used for item selection as criterion group. Then the 't' value of each item was calculated by analysing the responses of the said two criterion group. Now, it is decided at what level of confidence we want to examine the effectiveness of items on the basis of certain level of confidence. The most common levels of confidence in Behavioural Science are 95% and 99%. The critical value of 95% = 1.96 (Items with CR 1.96 or higher will be selected) and 99% = 2.58 (Items with CR 2.58 or higher will be selected).

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Next to that, the items were arranged in the rank order according to their calculated 't' values and items with 't' values equal to or less than 2.58 (at 99% level) were rejected. A total of 24 statements were included in the final form of the scale that listed the 't' value equal to or greater than 2.58. The score in the final scale of emotional intelligence was ranged from 24 to 72 in the direction of increasing levels of emotional intelligence. The sum total of the scores for all the statements by the subject (Summated ratings) was an individual's score. The details of the 't' values of 40 items are tabulated in following table. Total number of items reported on the scale for the pilot study was 40. **Eight items were rejected** due to insignificant values out of 40 't' values. Hence, the final form of the EII contains 24 items out of 32 items, which have higher calculated values than critical values (at 99% level).

Table for the value of Critical Ratio of Upper and Lower Group of samples

| Item No. | Upper Group | | Lower Group | | Critical Ratio (CR) Value |
|----------|-------------|--------------------|-------------|--------------------|---------------------------|
| | Mean | Standard Deviation | Mean | Standard Deviation | |
| 1 | 1.93 | 0.79 | 1.61 | 0.63 | 3.2 |
| 2 | 1.72 | 0.75 | 1.43 | 0.89 | <u>2.49</u> |
| 3 | 1.57 | 0.67 | 1.27 | 0.43 | 15.95 |
| 4 | 2.19 | 0.74 | 1.69 | 0.79 | 5.00 |
| 5 | 2.26 | 0.81 | 1.11 | 0.42 | 12.60 |
| 6 | 2.21 | 0.52 | 1.53 | 0.63 | 8.50 |
| 7 | 2.41 | 0.46 | 1.57 | 0.64 | 10.66 |
| 8 | 1.84 | 0.67 | 1.76 | 0.59 | <u>1.00</u> |
| 9 | 2.81 | 0.43 | 1.84 | 0.65 | 12.44 |
| 10 | 1.56 | 0.58 | 1.12 | 0.53 | 5.60 |
| 11 | 1.97 | 0.77 | 1.59 | 0.89 | 3.23 |
| 12 | 2.19 | 0.58 | 2.09 | 0.44 | <u>1.37</u> |
| 13 | 2.82 | 0.41 | 1.67 | 0.59 | 16.00 |
| 14 | 1.98 | 0.63 | 1.65 | 0.52 | 4.04 |
| 15 | 1.45 | 0.67 | 1.22 | 0.47 | 2.81 |
| 16 | 1.51 | 0.63 | 1.47 | 0.72 | <u>0.41</u> |
| 17 | 2.90 | 0.59 | 1.89 | 0.61 | 12.63 |
| 18 | 1.57 | 0.47 | 1.32 | 0.67 | 3.05 |
| 19 | 2.84 | 0.52 | 1.75 | 0.58 | 13.99 |
| 20 | 1.43 | 0.65 | 1.12 | 0.43 | 3.11 |
| 21 | 1.56 | 0.72 | 1.41 | 0.69 | <u>1.50</u> |
| 22 | 2.21 | 0.46 | 1.87 | 0.56 | 4.69 |
| 23 | 2.41 | 0.46 | 1.98 | 0.61 | 5.62 |
| 24 | 2.26 | 0.82 | 1.46 | 0.76 | 7.16 |
| 25 | 1.53 | 0.79 | 1.21 | 0.46 | 3.56 |
| 26 | 2.67 | 0.42 | 1.82 | 0.73 | 10.09 |
| 27 | 2.82 | 0.48 | 1.91 | 0.66 | 11.15 |
| 28 | 1.97 | 0.73 | 1.45 | 0.58 | 5.78 |
| 29 | 2.92 | 0.55 | 2.22 | 0.48 | 9.59 |
| 30 | 2.81 | 0.42 | 2.31 | 0.59 | 6.90 |
| 31 | 1.98 | 0.48 | 1.89 | 0.68 | <u>1.08</u> |
| 32 | 1.84 | 0.86 | 1.32 | 0.48 | 5.27 |
| 33 | 1.72 | 0.58 | 1.39 | 0.51 | 4.27 |
| 34 | 2.53 | 0.51 | 2.18 | 0.79 | 3.88 |
| 35 | 2.67 | 0.49 | 2.52 | 0.48 | <u>2.18</u> |

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| Item No. | Upper Group | | Lower Group | | Critical Ratio (CR) Value |
|----------|-------------|--------------------|-------------|--------------------|---------------------------|
| | Mean | Standard Deviation | Mean | Standard Deviation | |
| 36 | 2.92 | 0.42 | 2.55 | 0.48 | 5.80 |
| 37 | 2.19 | 0.59 | 2.09 | 0.58 | 1.21 |
| 38 | 1.53 | 0.75 | 1.17 | 0.59 | 3.77 |
| 39 | 1.67 | 0.69 | 1.11 | 0.81 | 5.26 |
| 40 | 1.98 | 0.72 | 1.49 | 0.65 | 5.05 |

Reliability of Emotional Intelligence Inventory:

For the development of EII, reliability is a necessary condition for the validity of the instrument. The investigator was employed test-retest method to find out the reliability of the inventory. The test was administered to 100 teacher trainees. With a gap of fifteen days, the inventory was again administered on the same group. The product moment coefficient of correlation between test and retest score of the inventory was found to be 0.81 which is higher than average reliability. So, the test can be considered as reliable.

Validity of Emotional Intelligence Inventory:

For ascertaining the face validity and Content validity of the Emotional Intelligence Inventory, it was given to subject experts. According to them, format, size and language of the scale were found to be suitable for the subjects under study.

Norms of the Emotional Intelligence Inventory:

The possibility of high achieving score in the EII, any respondent is ($24 \times 3 = 72$) and the possibility of acquiring lowest score is ($24 \times 1 = 24$). The mean and standard deviation are 47 and 9 respectively. The **M +/- 1SD** has been used for dividing three strata.

| Range | Remarks |
|-----------------------|--------------------------------|
| Less than equal to 38 | Low Emotional Intelligence |
| 39 - 64 | Average Emotional Intelligence |
| More than equal to 65 | High Emotional Intelligence |

Final form of Emotional Intelligence Inventory:

The final form of the EII is consisted with 24 items. These 24 items are distributed into four dimensions as shown given below –

| Dimensions | Item Number |
|-------------------------|---|
| Self-Awareness | 1(P), 2(P), 3(N), 4(N), 5(P), 6(N),7(N) |
| Social Awareness | 8(N), 9(P), 10(P), 11(N), 12(P), 13(P) |
| Self-Management | 14(P),15(P),16(P),17(P), 18(N),19(P) |
| Relationship Management | 20(P), 21(P), 22(N), 23(N), 24(P) |

* 'P' and 'N' denote Positive and Negative questions respectively.

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| Items | Agree | Undecided | Disagree |
|--|--------------|------------------|-----------------|
| 8. I take help from others to solve problem. | | | |
| 9. I can take right decisions at right time. | | | |
| 10. I learn to control myself more through practice. | | | |
| 11. I lose patience for the fear of failure. | | | |
| 12. I can't calm down when insulted. | | | |
| 13. I feel uncomfortable to take revenge on someone. | | | |
| 14. I try to understand the relationship of friends / others. | | | |
| 15. I don't want to involve myself in others. | | | |
| 16. Others think that I am calm in difficult times. | | | |
| 17. I can spot idiots/foolish easily. | | | |
| 18. I feel annoying when others observe me or my work. | | | |
| 19. I fully believe that my friends will be there in bad times. | | | |
| 20. I easily get cooperation & sympathy from others. | | | |
| 21. I am happy to help others during their complications. | | | |
| 22. I hate to talk with dislike people. | | | |
| 23. My classmates often quarrelled with me. | | | |
| 24. When meeting a person, I listen carefully and give them respect. | | | |