RESEARCH PAPERS

DEVELOPMENT AND VALIDATION OF EMOTIONAL COMPETENCE SCALE (ECS) FOR UPPER PRIMARY SCHOOL STUDENTS

By

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ABSTRACT

This paper is an attempt to develop and validate the Emotional Competence Scale (ECS) in order to assess the emotional competence of upper primary school students. This review was done to find the dimensions that measure emotional competence. The dimensions are classified into two broad categories, such as personal competence and social competence. Personal competence includes self-awareness, emotional awareness, emotional regulation, responsible decision-making, and trust in expressivity. Social competence includes social awareness, social skills, and relationship management. The ECS was constructed to measure emotional competence across personal and social dimensions. The scale underwent rigorous development stages, including item collection, expert validation, piloting, item analysis, and refinement. The final ECS comprised 14 items with a five-point Likert scale for responses. Reliability analysis using Cronbach's alpha and split-half reliability demonstrated high internal consistency ($\alpha = 0.70$, split-half reliability = 0.77). Face and content validity were established through expert evaluations, confirming the scale's appropriateness for measuring emotional competence in upper primary school students.

Keywords: Emotional Competence Scale, Personal Competence, Social Competence, Upper Primary School Students, Reliability Analysis, Development Stages.

INTRODUCTION

Emotional competence is defined as the capacity of self efficacy in the eliciting emotional and social transactions (Saarni & Weber, 1999). Emotional competence means constructing oneself and is therefore an independent phenomenon (Denham et al., 2003). This includes three components, such as the expression of emotions, understanding of emotions and experience of emotions (Denham et al., 2003; 2004). The expression of emotions is how one communicates positive or negative emotions to others. This is because it will aid in developing and maintaining relations with others. Understanding emotions means understanding of emotions not only of oneself but also of others which will consequently help in creating and maintaining healthy relationships (Denham et al., 2003; 2004; 2007). The third component of experience of emotions is to recognize and regulate them. This also includes controlling and modifying emotions in different circumstances. Daniel Goleman developed a framework for emotional intelligence which consists of five components. These are self-awareness, self-regulation, social ability, empathy, and motivation. However, this model was further revised and components were reduced to four. Figure 1 shows the Daniel Goleman Framework of Emotional Intelligence.

1. Literature Review

Table 1 shows the research that has been conducted so

This paper has objectives related to SDG

Figure 1. Daniel Goleman Framework of Emotional Intelligence PNGITEM (n.d.)

far, which results in different dimensions of emotional competence.

Schutte et al. (1998) developed a tool in order to measure emotional intelligence. The tool is based on the model developed by Salovey and Mayer in 1990. A pool of 62 items was there that represented different dimensions of the model. The factor analysis of 346 participants resulted in the formation of 33-item scale that was based on alexithymia, attention to feelings, clarity of feelings, mood repair, optimism and impulse control. Some studies revealed good internal consistency, test-retest reliability and validity. Another study conducted by Sriram et al. (2002) focuses on preparation of tool to measure emotional competence. The questionnaire consists of 51 items. The initial factor analysis resulted in a single large factor where positive items indicate competence while the other 3 factors measure inappropriateness. The competence side includes dealing with emotions, knowing one's own feelings and behavior emphasizing others' feelings and reactions, managing one's emotions and restoring to normalcy after emotional damage. The negative side includes emotional sensitivity, isolation, and inability to manage oneself or others whenever needed.

The discriminant validity resulted in a single function discriminating between those who have high and low scores on the scale. The usefulness of the test measuring emotional competence is measured using moderate reliability.

Another study was conducted by Latha (2004), which resulted in the Emotional Competency Scale (ECS). The study assessed the reliability, validity and utility of the Emotional Competency Scale (ECS) that helps to measure emotion-related skills in an individual. The items were divided into two major components, such as emotional competency and emotional incompetence. There were 37 items, of which 25 directly measure emotional competency and the rest 12 measure emotional sensitivity and reactivity. The findings revealed a stable, internally consistent measure of emotional competence and sensitive tool. Wang et al. (2010) developed and validated Widener Emotional Learning Scale (WELS) to measure social and emotional competence in higher education. The scale consists of 33 items that cover five subscales. These subscales are awareness of oneself and others, tolerance of difference and conflict, flexibility in perspective-taking and behavior,

Author	Year	Dimensions
Schutte et al.	1998	Alexithymia
		Attention to feelings
		Clarity of feelings
		Mood repair
		Optimism and Impulse control
Sriram et al.	2002	Positive side-Dealing with emotions
		Knowing one's own feelings and behavior
		Emphasize others feeling and reactions
		Managing one's emotion
		Restore to normalcy after emotional damage
		Negative side-Emotional sensitivity
		Solation
		Inability to manage oneself or others
Latha	2004	Emotional competency
		Emotional incompetence-Emotional Reactivity
Wang et al.	2010	Awareness of self and others
		Tolerance of difference and conflict
		Interpersonal Relationship Skills
		Flexibility in perspective-taking and behavior
		Self- management skills
Coryn et al.	2009	Task Articulation
		Peer Relationships
		Self-Regulation
Zhou and Ee	2012	Self-awareness
		Social-awareness
		Self-management
		Relationship management
		Responsible decision making
Mehta and Singh	2013	Personal Competence- Self–Awareness
		Self-motivation
		Emotional Regulation
		Social Competence- Social Awareness
		Social Skills
		Emotional Receptivity
Ulvay and Ozkul	2017	Social awareness
		Social-isolation
		Self- control
		social anxiety
		Establishing relationships
Mantz et al.	2018	Responsible decision making
		Relationship skills
		Self-management
		Social- awareness
Cassa et al.	2021	Emotional awareness
		Emotional regulation
		Emotional autonomy
		Social competence and life
		Well-being competencies
Gerbeth et al.	2021	Attention to one's own emotions
		Clarity of perception of emotions
		Empathy
		Phantasy
		Perspective taking
		Perception of others' emotions
		Expressivity of emotions
		Trust in one's own expressivity
		Expression of negative and positive emotions
		Masking of emotions
		Control of emotions
		Reflexive handling of emotions.

Table 1. Dimensions of Emotional Competence

interpersonal relationship skills and self- management skills. WELS was cross-validated with the Bar-on Emotional Quotient Inventory (Bar-On-EQ-i) and then with Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT).

Another scale named, Social-Emotional Learning Scale (SELS) was constructed by Coryn et al. (2009) which consists of 20 items. Three factors were taken into consideration for determining social and emotional competence. These three factors include task articulations, peer relationships, and self-regulation. The study covers a sample of 633 fourth, fifth and sixth-grade elementary students so as to determine the reliability and validity of the SELS. It was found that three factors were convergent in internal consistency and had discriminatory validity.

Zhou and Ee (2012) prepared a tool to measure the social and emotional competence development of children and adolescents. A literature review was done to identify the characteristics of each dimension and an examination was done of existing scales that consist of different aspects of SEC. SEL experts, including local scholars in this field and in the SEL program in the Ministry of Education (Singapore), examined and evaluated the items in terms of fidelity to the relevant construct, and clarity, including the semantics and language employed. A pool of 25 items was created for the Social and Emotional Competence Questionnaire (SECQ) based on the model of CASEL. The 25 items that were created cover five dimensions. These dimensions are self-awareness, social awareness, self-management, relationship management and responsible decision making. Four studies were conducted during its development, reliability and validation. The sample was conducted in three primary and secondary schools. The first study was conducted on 444 fourth-grade students in order to measure the validity of the construct. Further, the second study was conducted to see that the tool that was developed to measure SEC in primary schools can also be used to measure adolescents so a study on 356 secondary school students was done. The validity of the tool was confirmed by the correlation among five SEC components. The third study was conducted on 344

students to see if the reliability could be measured with different samples and the fourth and last study was conducted on 167 fourth grade students from different public primary schools to provide evidence for the measure's predictive validity by linking SEC measures to academic achievement scores.

A study was conducted to measure emotional intelligence in the workplace. Mehta and Singh (2013) developed the questionnaire which was divided into personal competence and social competence. Personal competence is divided into three parameters named as SSEs. Personal competence is divided into three parameters, self-awareness, self-motivation, and emotional regulation (SSEs). On the other hand, the SSEs of social competence include social awareness, social skills, and emotional receptivity. The scale consists of 69 items measured on a 5-point scale. The scale has undergone a pilot study on 200 respondents. Estimates of internal consistency for the subscales ranged from 0.78 to 0.91. Ülvay and Özkul (2017) conducted another study in which the Social and Emotional Learning Scale developed in English was used by adapting it into Turkish to find out the social and emotional learning competencies. The study also searches for the reliability and validity of the scale used. The scale consists of 26 items with five sub-divisions, social awareness, social isolation, self-control, social anxiety and establishing relationships. 534 secondary science education students under the Ministry of National Education were taken as samples for study to find the reliability and validity of the scale incorporated. Out of this 300 are female and 234 are male.

Mantz et al. (2018) developed a tool named the Delaware Social–Emotional Competency Scale (DSECS-S). DSECS-S consists of 12 items, with each item assessing each of the four factors, such as responsible decision making, relationship skills, self-management and social awareness. Confirmatory factor analyses were conducted on 32,414 students from 126 public, elementary, middle and high schools. The factors were found to be consistent across grade levels, racial-ethnic groups and gender. The evidence of the scale's criterion validity shows that total social-emotional competence scores correlated significantly and positively with students' self-reported cognitive, behavioral, emotional and total engagement. Social-emotional competence correlated positively with school-level academic achievement and negatively with suspensions at the school level.

López-Cassà et al. (2021) conducted a study on the importance of emotional education in primary education by developing the Emotional Development Questionnaire (CDE9–13) and the Emotional Competencies Observational Scale. In this scale, a classification of competencies is proposed, which is structured into five broad blocks of contents, emotional awareness, emotional regulation, emotional autonomy, social competence and life and well-being competencies. The tool developed was based on the theoretical framework of GROP. It consists of 83 items. It was scored on 11-point scale. The reliability analysis was established by means of internal consistency calculated by Cronbach's alpha yielding values between 0.75 and 0.84. The study concluded that there were significant differences in favor of girls in the development of most emotional competencies in all three educational cycles. Differences were observed in the academic performance of girls and boys at the primary level. The grades of girls were found to be higher than those of boys. A positive correlation was found to be between academic performance and emotional competencies. Emotional education is found important in primary education. A short self-report tool for the Multidimensional Emotional Competence Questionnaire (MECQ) which consists of 109 items that represent 11 factors was constructed by Gerbeth et al. (2021). It resulted in ineffective usability in combination with other measurement instruments and thus constitutes the reason for the study. After the study, which includes the selection criteria at content and also at the statistical level on the analyses on 777 participants the items were reduced to 32. The factors included attention to one's own emotions, clarity of perception of emotions, empathy, phantasy, perspective taking, perception of others' emotions, the expressivity of emotions, trust in one's own expressivity, expression of

negative and positive emotions, masking of emotions, control of emotions and reflexive handling of emotions.

2. Dimensions of Emotional Competence Scale

The emotional Competence Scale was developed in order to measure the emotional competence of upper primary-level students. In order to develop the scale, initially two broad categories, namely, personal competence and social competence, were taken. They are further divided into eight categories, some under personal competence and the rest under social competence, which are self-awareness, emotional awareness, emotional regulation, responsible decision-making, trust in expressivity, social awareness, social skills and relationship management.

2.1 Personal Competence

2.1.1 Self -Awareness

It refers to the ability to be aware of different aspects of oneself, including traits, behaviors and feelings. It is an understanding of how thoughts and emotions have an impact on one's behavior and performance. It is also the ability to be aware of one's own strengths and weaknesses.

2.1.2 Emotional Awareness

This is the skill of recognizing and understanding emotions. This is one of the important components of emotional competence, and with this skill, one can easily communicate emotions easily and clearly to others, get out of difficulties faster, and be helpful to others by being able to understand others.

2.1.3 Emotional Regulation

This ability doesn't mean suppressing the emotions, but effectively controlling them. It includes the skill of influencing which emotions people have and how they express them, and developing strategies that allow them to self-regulate difficult emotions.

2.1.5 Trust in Expressivity

This skill means that one is able to express the emotions and feelings of the heart on the face and in words as they exist in the heart.

2.2 Social Competence

2.2.1 Social-Awareness

Social-awareness is the ability to recognize and understand the behavior emotions and feelings of others. This is necessary so that they may respond accordingly. It is the state in which oneself becomes the source of attention.

2.2.2 Social Skills

These are the skills used to communicate with others where social rules and relations are created, communicated and changed which leads to more and better relationships, opening personal and career related doors and increase happiness.

2.2.3 Relationship Management

This skill enhances the relationship with others by strengthening communication assertively, managing conflicts, influencing others positively, being open to negative feedback from others, and being calm and confident even in difficult situations. Studies revealed that children who are rejected by their peers experience more loneliness and social isolation and who affiliate with more disaffected peers are more likely to disengage from academic activities and consequently leave school.

3. Development of Emotional Competence Scale

3.1 Collection of Items

In order to develop the scale to measure emotional competence, the researcher collected some items related to different parameters that completely measure emotional competence. So, for collecting these items related to different dimensions, different sources such as books, journal articles, review papers and experts in the field of education were considered. All these sources played a significant role in collecting relevant items from the various dimensions of emotional competence such as self-awareness, emotional regulation, emotional awareness, decision making, trust in expressivity, social awareness, social skills, and relationship management. In addition to this, the self-experience of the researcher also helped to prepare some sorts of items for the scale. By using all the resources, a total of 40 items both positive and negative were collected as a whole.

3.2 Construction of Primary Form of Emotional Competence Scale

The collected 40 items were arranged on the basis of the parameters or components of emotional competence i.e., self-awareness, emotional regulation, emotional awareness, decision making, trust in expressivity, social awareness, social skills, and relationship management. The researcher analyzed the component-wise items, and then the items and the dimensions that were not clear or repeated, or were difficult to understand were removed or merged. Thus, in the preliminary form a total of 35 items were included, five items were removed, and the selected items were arranged randomly according to their components, and its primary form was prepared. The primary form of emotional competence scale included name of the scale, demographic data of the respondents, instructions for students response, and the selected 35 statements. The students had to give responses on a five-point scale, i.e., strongly agree, agree, undecided, disagree, and strongly disagree.

3.2.1 Expert's Opinion

A preliminary form of emotional competence scale was sent to the experts in the field of education. The experts were requested to look into the suitability of each item on the basis of its components. The experts were selected purposefully as they had much experience in the fields of education, research and psychology. Some of the experts suggested reforming some of the statements and also merging or removing the parameters to make it easier for the upper primary students to understand. As per the suggestions of the experts, the items of the scale were prepared both in English and Hindi. This is because most of the upper primary students of the government school were appearing for their examination in Hindi. Thus, the suggestions of the experts were appreciated and accordingly modifications were made to the preliminary form of the scale.

3.3 Construction of Secondary Form of Emotional Competence Scale

On the basis of expert's opinion, necessary changes were made to the emotional competence scale. The valuable suggestions of each expert were highly appreciated, and accordingly the secondary form of emotional competence scale was made. The items that were asked to be removed were removed, some dimensions were asked to be merged and shifting of items was also made. As a result of all this secondary form, the emotional competence scale consists of 26 items.

3.3.1 Piloting

Before the piloting of the emotional competence scale, the researcher conducted pre-piloting of the scale with a sample of five upper primary school students and critically analyzed the responses of the students to remove the defects in the items. It helped the researcher to know the difficulty level of the language of the scale items and appropriateness of the scale for the students. In the final try out, the researcher administered the same scale to a sample of 100 upper primary school students with the prior permission of the principals. The researcher was physically present during the administration of the scale. After that the responses of the students were collected and evaluation of their responses was done by following the scoring procedure.

3.4 Final Form of Emotional Competence Scale

3.4.1 First Trial

Item analysis and selection were done with the help of Cronbach's alpha, split-half reliability and item-total correlation in SPSS-23. The 'Cronbach's alpha if the item was deleted' (SPSS-23) option was used to gain understanding about the Cronbach's alpha value and item-total correlation of each item on the scale. While testing the Cronbach's alpha reliability of the preliminary scale, it was found that the reliability comes out to be 0.36 and item total correlation comes out to be negative for many items. Table 2 shows the reliability statistics of the first trial of ECS. Table 3 shows the item-total correlation of the first trial of ECS.

3.4.2 Second Trial

The total correlation value that turned out to be negative

Cronbach's Alpha	No. of Items	N
.358	26	100

Table 2. Reliability Statistics of first trial of ECS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ITEM1	87.97	69.060	.286	.487	.332
ITEM2	89.41	58.770	.397	.609	.255
ITEM3	88.40	68.323	.148	.399	.338
ITEM4	89.86	66.061	.157	.465	.331
ITEM5	88.56	67.522	.161	.399	.334
ITEM6	90.38	73.046	-.113	.433	.393
ITEM7	88.85	72.937	-.108	.374	.392
ITEM8	90.19	65.186	.195	.361	.321
ITEM9	88.74	68.437	.118	.501	.343
ITEM10	90.41	68.265	.056	.553	.357
ITEM11	87.89	71.897	.035	.324	.357
ITEM12	88.93	66.732	.138	.475	.336
ITEM13	88.49	69.020	.159	.471	.339
ITEM14	88.91	66.547	.217	.403	.323
ITEM15	89.47	64.433	.237	.460	.311
ITEM16	88.84	72.237	-.076	.446	.383
ITEM17	89.76	72.952	-.112	.491	.395
ITEM18	90.03	71.100	-.029	.383	.374
ITEM19	88.81	68.620	.093	.404	.347
ITEM20	88.98	74.101	-.157	.474	.399
ITEM21	89.30	72.111	-.086	.360	.393
ITEM22	89.03	74.595	-.178	.460	.404
ITEM23	89.33	61.557	.353	.525	.279
ITEM24	88.53	65.322	.294	.471	.308
ITEM25	89.78	66.658	.112	.494	.342
ITEM26	89.65	66.513	.130	.408	.338

Table 3. Item -Total Correlation of First Trial of ECS

was rejected. Based on the result of item-total correlation, 8 items (6, 7, 16, 17, 18, 20, 21, and 22) were rejected, and rest 18 items were selected for the final form of the emotional competence scale. Again, after removing the items Cronbach's alpha reliability and item-total correlation were calculated. The reliability increased to 0.62 and the corrected item total correlation turned out to be positive. Table 4 shows the reliability statistics of the second trial of ECS. Table 5 shows the item-total statistics of the second trial of ECS.

3.4.3 Final Trial

Items for which item total correlation came out to be less than 0.1 were removed further, so again 4 (3, 9, 11, and 19) were removed and reliability and item total correlation were calculated. Thus, the Cronbach's alpha reliability was found to be 0.70, which reveals high internal consistency. The items turn out to be 14. Table 6 shows the reliability statistics of the final item analysis of ECS. Table 7 shows the item total statistics of the final item analysis of ECS.

Cronbach's Alpha	No. of Items
.623	18

Table 4. Reliability Statistics of second trial of ECS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ITEM1	61.22	75.244	.206	.450	.615
ITEM2	62.66	60.408	.534	.546	.552
ITEM3	61.65	75.684	.043	.328	.630
ITEM4	63.11	70.301	.200	.319	.614
ITEM5	61.81	73.226	.144	.317	.620
ITEM8	63.44	68.067	.294	.255	.599
ITEM9	61.99	76.071	.010	.334	.636
ITEM10	63.66	68.671	.247	.420	.606
ITEM11	61.14	77.556	.006	.257	.626
ITEM12	62.18	66.533	.373	.327	.586
ITEM13	61.74	74.558	.149	.410	.618
ITEM14	62.16	72.318	.194	.354	.613
ITEM15	62.72	67.254	.341	.393	.591
ITEM19	62.06	74.320	.079	.287	.628
ITEM23	62.58	64.630	.443	.462	.574
ITEM24	61.78	74.012	.117	.353	.623
ITEM25	63.03	68.433	.248	.382	.606
ITEM26	62.90	68.697	.255	.368	.605

Table 5. Item-Total Statistics of Second Trial of ECS

Cronbach's Alpha	No. of Items
.661	14

Table 6. Reliability Statistics of Final Item Analysis of ECS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ITEM1	44.10	69.909	.095	.282	.663
ITEM2	45.54	53.827	.568	.529	.590
ITEM4	45.99	63.788	.210	.258	.656
ITEM5	44.69	68.378	.066	.212	.671
ITEM8	46.32	61.674	.303	.210	.641
ITEM10	46.54	61.241	.298	.383	.642
ITEM12	45.06	59.269	.428	.302	.621
ITEM13	44.62	68.400	.132	.353	.661
ITEM14	45.04	67.352	.122	.317	.664
ITEM15	45.60	60.020	.392	.375	.627
ITEM23	45.46	56.938	.523	.420	.604
ITEM24	44.66	69.580	.014	.229	.677
ITEM25	45.91	61.032	.297	.373	.642
ITEM26	45.78	60.800	.327	.313	.637

Table 7. Item Total Statistics of Final Item Analysis of ECS

4. Validity of the Emotional Competence Scale

The validity of the emotional competence scale was found using face validity and content validity.

4.1 Face Validity

Face validity refers to the degree to which a test appears to measure what it purports to measure (Gay, 1990, p.130). The emotional competence scale was sent to the subject experts, who have expertise in education and psychology for their opinion about it. The opinion of the experts suggested the face validity of the emotional competence scale.

4.2 Content Validity

Content validity is the degree to which a test measures an intended content area with item validity, where item validity refers to whether the test items represent measurement in the intended content area (Gay, 1990, p. 129). The emotional competence scale was based on five components i.e., self and emotional awareness, emotional regulation, decision making skills, social skills and relationship management. The researchers prepared the items based on the components and sent them to the experts for their comments. By analyzing the comments of the experts, the researchers concluded that almost all the items represented the components of the scale, which revealed content validity of the emotional competence scale.

5. Reliability of the Emotional Competence Scale

The reliability of the emotional competence scale was found by using Cronbach's alpha reliability and split-half reliability methods with the help of SPSS-23.

5.1 Cronbach's Alpha and Split-Half Reliability

In order to establish internal consistency on the emotional competence scale, Cronbach's alpha reliability and split-half reliability were used. The reliability was calculated with the help of SPSS-23. Table 8 shows the Cronbach alpha and split-half reliability values of the scale obtained from the output of the SPSS analysis.

It can be concluded that number of items in the final Emotional Competence Scale is 14. The Cronbach's alpha reliability and split-half reliability as calculated from SPSS-23 come out to be 0.70 and 0.77 respectively, which depicts high internal consistency of the final Emotional Competence Scale.

Tool Name	No. of Items	Cronbach's Alpha Reliability	Split-Half Reliability
Emotional competence scale	14	.70	.77

Table 8. Cronbach's Alpha Reliability and Split-half Reliability of ECS

6. Scoring of Emotional Competence Scale

The scoring procedure of the emotional competence scale was based on a five-point Likert type scale, where for each statement there were five alternative options, i.e., 5=strongly agree, 4=agree, 3=undecided, 2=disagree, and 1=strongly disagree for positive items and for negative items the scoring was reversed. The total number of items on the scale was 14, so the range of scoring was 14-70, based on which interpretation was made while testing the emotional competence of upper primary school students. Table 9 shows the scoring of the ECS.

Conclusion

It can be concluded that some common dimensions were found through the review of the literature conducted, and after observation, they were divided into two broad categories of personal and social competence.

The process of developing the ECS involved multiple stages, including item collection, expert consultation, piloting, and rigorous item analysis. Through these steps, the scale comprises 14 items that demonstrate high internal consistency and reliability. Both Cronbach's alpha and split-half reliability analyses indicated strong internal consistency, affirming the robustness of the ECS as a measurement tool.

The validity of the ECS was established through face validity and content validity assessments. The scoring of the ECS followed a clear and straightforward procedure, allowing for easy interpretation of results. By utilizing a five-

S.No.	Components	Items	Serial wise item No.	Total	
1	Personal competence	Positive	Item 1,4,8,9	04	10
		Negative	Item 2,3,5,6,7,10	06	
2	Social competence	Positive	Item 12	01	04
		Negative	Item 11,13,14	03	
		Total			14

Table 9. Scoring of ECS

point Likert scale, respondents could express their agreement or disagreement with each statement, providing a view of their emotional competence levels.

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