

Measuring Emotional Intelligence Competency of Undergraduate Students during Online Class learning

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Abstract— Emotional quotient is highly important in the current education system. The COVID-19 pandemic period has mandated the online classes among the students. The aim of this work is to analyze the characteristics of Emotional Intelligence (EI) of students during the online class learning. Totally 130 students have participated in this empirical study with interest. There are 50 questions in a self-report questionnaire with a 5-point likert scale that covers the different aspects of self-awareness, self-management, motivation, empathy and social skills. The students' responses are collected through Google form. The scores of each participant with respect to self-awareness, self-management, motivation, empathy and social skills are calculated. The descriptive statistics are applied and then Confirmatory Factor Analysis (CFA) is performed to find the important factors. Further Kaiser-Meyer-Olkin (KMO) and Bartlette' test are also made to measure the sample adequacy. From the results of the CFA, it is concluded that social skill component of EI played a major role among the students.

Keywords— Emotional Intelligence; Empathy; Self-awareness; Self-management; Social Skills; Statistical Analysis; Undergraduate Students;

I. INTRODUCTION

EMOTIONAL Intelligence (EI) is defined as the capacity to recognize, comprehend, demonstrate, manage, assess, and use emotions in productive and positive ways when interacting with others. The four major components of EI are self-awareness, self-management, social awareness and relationship management. Self-awareness and self-management are grouped together and considered as personal competence whereas social awareness and relationship management are grouped together and considered as social competence. Personal competence is the capacity to control and manage the behavior and habits while being emotionally aware. Self-awareness is the capacity to recognize and remain conscious about the emotions and self-management is the

capacity to handle the stress and emotions in an acceptable way. Social competence is the ability to understand other people's emotions, behaviors and motivations in order to build better relationships with others. Social awareness is the ability to identify and interpret the primarily nonverbal clues that people use to communicate with others by having social awareness. It allows us to understand how others genuinely feel, how their emotional state changes over time, and what matters most to them. Relationship management is the capacity to effectively communicate, uphold positive relationships with others, establish connections with people from different cultures, work in teams, and handle conflicts. EI components are shown in Figure 1. EI can be expressed in three primary models: ability model, mixed model and trait model. EI models and its corresponding components are shown in Figure 2. The ability model is developed by Peter Salovey & John Mayer (2004), it indicates that people should have few skills in order to be emotionally intelligent, understand and control emotions by being aware of them and knowing what to do with them. The trait model, developed by Petrides, K. V., & Furnham, A. (2001), it disassociates emotional intelligence from the notion that it is based on skills. It makes the case that persons have emotional self-perceptions and personality qualities. Assertiveness, self-esteem, and happiness are a few examples of trait model. The mixed model combines diverse EI traits; it consists of skills, characteristics and additional attributes.

The importance of emotional intelligence in the educational and teaching fields is enormous. Teachers that possess emotional intelligence are better able to comprehend their students. Teachers might develop a pedagogical method to identify their students' needs and establish goals for them. A student with a high EQ can empathise with others, settle problems, build relationships, communicate more effectively, and cope with life's challenges. Higher emotional intelligence students are better able to monitor their own emotions and show empathy for those around them.

II. RELATED WORKS

The proposed EI model by Adamakis et al. (2021) contains Schutte Self-Report Questionnaire for measuring the traits of EI among pre-service physical education teachers of Greek. Data reliability is checked with cronbach alpha test and confirmatory factor analysis is used to perform different factor

analysis, Amos 21.0 is used for analysis. Authors concluded that the proposed EI model works well for two-level factor model, in order to fit the proposed model in higher level factors, the questionnaire items can be rephrased.

The motivation of this work by Agbaria, Qutaiba (2021) was to inspect the emotional intelligence and self-efficacy as indicators of classroom management ability among Arab kindergarten educators in Israel. The responses were gathered from 337 kindergarten educators who were chosen utilizing a comfort test. Three surveys were utilized with the instructors. This study concluded that there exist a positive relationship between emotional intelligence and self-efficacy with classroom management abilities.

The authors Bermejo-Martins et al. (2021) conducted a survey to address stress with emotional intelligence and self-care during COVID-19 lockdown. To collect responses from the participants, a self-report questionnaire was designed which includes socio-demographic traits, trait emotional intelligence, self-care activities and stress. Participants included in this study are 1082 from Chile, Colombia, Ecuador and Spain. With Statistical analysis, they concluded that gender acts as a moderator for self-care and stress relationship. Future research is planned to conduct the same experiment with diverse participants.

To observe the association of personality traits and emotional intelligence of workers in Italy, two studies were conducted by Di Fabio, A., & Saklofske, D.H. (2021), one examined the relationship between compassion, self-compassion and emotional intelligence traits and the second one was to examine the relationship between compassion, self-compassion and personality traits. Totally 219 participants are included in the study. Hierarchical regression analysis is used for analysis. Authors concluded from the two studies that emotional intelligence trait is the most important factor for building compassion and self-compassion.

The objective of this study is to show the way that the EI value people on a more profound level, which is a fundamental aspect in the development and management of emotional competencies expected to construct sustainable societies, take part in improving learner's academic performance in the classroom through sympathy and scholarly responsibility. The exploration model was tried by Guillen et al. (2021) with a survey addressed to 550 understudies from four advanced education foundations and one optional school. The consequences of a primary condition examination affirmed the review speculations. EI was demonstrated to be emphatically connected with sympathy and more elevated levels of responsibility, which, thusly, prompted better scholarly execution. This finding will support interest in creating EI to appreciate anyone on a profound level, not just for its drawn out esteem in preparing sound residents, yet additionally for its transient outcomes in the classroom.

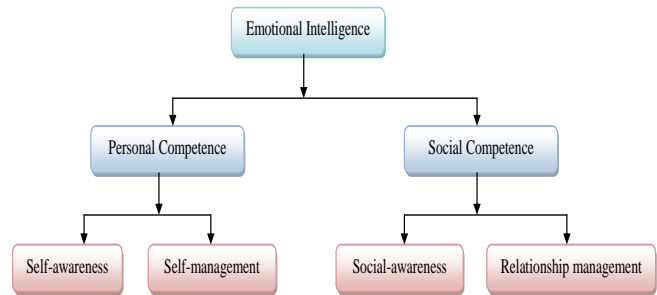


Fig.1. Emotional Intelligence Components

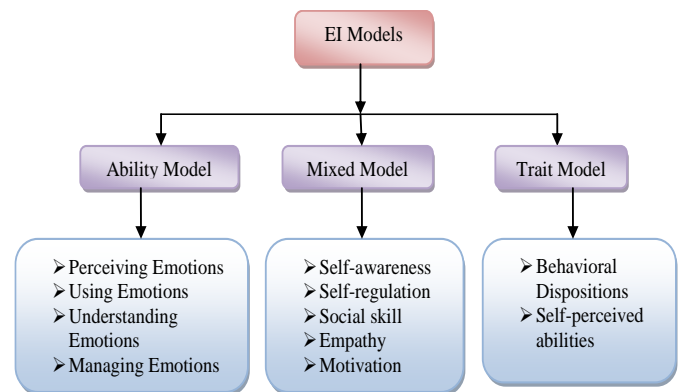


Fig.2. Emotional Intelligence Models

Progressions of strategies to measure the factors of interest were applied to a particular group of teenagers to decide their psychological well-being levels, focusing on suicide and anxiety. 154 Spanish undergraduate students are considered as participants. Responses are collected from the participants using self-report questionnaire. Data analysis is done with multiple regression and correlation techniques. From this study, Montero et al. (2021) concluded that suicide is correlated with anxiety and stress which are considered as emotional skills.

Moron, M., & Biolik-Moron, M. (2021) examined the EI traits of people in the first week of the COVID-19 lockdown in Poland. 130 participants are involved in this research study. From the result of this study positive effects such as happiness are happening more frequently compared to the negative effects.

Parker et al. (2020) analyzed the effect of trait EI (TEI) on relationship fulfillment more than a 15-year time frame. 314 adults who finished measures of TEI at double cross places: as first-year college understudies and afterward around 15 years after the fact in center adulthood are considered as participants in this study. TEI was found to include high inside individual strength north of 15 years, predictable with the conceptualization that the build envelops different demeanor from the character area. TEI was too viewed as a moderate indicator of relationship fulfillment, supporting the view that TEI contributes to the improvement of fulfilling relational connections. The connection among TEI and relationship fulfillment likewise has significant ramifications for figuring out the fruitful progress to adulthood.

Pegalajar et al. (2014) analyzed the emotional intelligence development levels of secondary level students. 94 students are involved in this study as participants; data was collected as

a self-report questionnaire. This study concluded that Spanish students performed well when compared to the immigrant students, in stress management have high scores when compared to interpersonal skill scores. To develop emotional intelligence in skills among students various emotional skills development programs can be conducted in future.

A study is conducted to measure the financial behavior of university students by Perez et al. (2021). Financial behavior is measured between the students and professionals with finance background. Further this study analyzes the dimensions of EI and Personality traits with Trait EI and Inventory Questionnaire. From the findings they concluded that university students are lacking in specific dimensions of EI and Personality traits, they suggested that to improve the traits in both EI and personality, students should be given with training related to EI.

A cross-sectional analytical study was conducted among nurses working under Ardabil University of Medical Sciences to measure the relationship between EI and communication skills by Raeissi et al. (2019). Responses are collected from the participants using Goleman's EI Scale and communication skill questionnaire. Pearson correlation, Spearman correlation and analysis of variance are done for data analysis. Findings from this study are there exists a strong significant relationship between the four skills of EI and communication skill.

To make students succeed in their academics, to balance the stress in the Confucian heritage culture (CHC) and also to find out the importance of emotional intelligence in their academic performance, Tam et al. (2021) conducted a study with 737 students from primary school education in Hongkong. With this experiment, they have concluded that students' learning motivation is increased in parallel with the academic performance by improving their emotional intelligence levels.

From the various researches conducted by different authors with respect EI skills and personal traits, there should be a positive impact in the academic performance of students with EI and EI act as an important factor for building compassion and self-compassion. EI is also used for employees in reducing stress, improves communication skills and also for their career development.

III. RESEARCH OBJECTIVES

To do this empirical research study, two Research Questions (RQs) are framed with the objective of measuring the EI competency of undergraduate students in online learning. The RQs are,

RQ1: Is Self-awareness and self-management skills of undergraduate students during online class at the time of COVID-19 pandemic is maintained or not?

RQ2: What is the level of social competency of undergraduate students in COVID-19 pandemic period?

IV. METHODOLOGY

A Self-report questionnaire is used to collect responses from the participants. Self-report questionnaire is based on five different EQ components developed by Daniel Goleman in 1995. It consists of 50 questions with 5-point Likert scale, addressing the five dimensions of EI: Self-awareness, Self-regulation or Self-management, Motivation and Social-skills.

Self-awareness in simple words, a team leader with bad emotion make a bad decision will affect their entire team, self-management means able to control or manage emotions during bad or negative experiences, motivation is finding the good in any scenario, even those that didn't go well, and being optimistic and resilient, empathy is the capacity to place oneself in another person's circumstances and consider things from their point of view and social skills means people who are socially competent, equally adept at listening to others as they are at speaking for themselves. After collecting responses from the participants, each dimension of EI is analyzed based on the following split ups. Questions 1, 6, 11, 16, 21, 26, 31, 36, 41, 46 corresponds to self-awareness, Questions 2, 7, 12, 17, 22, 27, 32, 37, 42, 47 corresponds to self-management, Questions 3, 8, 13, 18, 23, 28, 33, 38, 43, 48 corresponds to motivation, Questions 4, 9, 14, 19, 24, 29, 34, 39, 44, 49 corresponds to empathy and Questions 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 corresponds to social skills. If the total scores value is from 10 to 17, it is termed as Immediate Rain which means we need to take immediate action in a particular area. If the value of the score is between 18 to 34, it is termed as Cloud which means the participant analyzes, finds the root cause and give attention while feel weak. If the score is from 35 to 50 it is termed as Shining Star which means it is the strongest emotional element of the participant, it is also considered as the strength of a person. The number of participants belonged to each category is given in Table I. From the responses collected we have calculated the scores mean, standard deviation, median and average deviations of the participants. From the results, the mean of the emotional competency of the student measured as 39.45.

TABLE I
CATEGORIES OF EMOTIONAL COMPETENCY

Category	Self-awareness	Self-management	Motivation	Empathy	Social-skills
Shining stars	99	68	75	103	96
Clouds	29	60	53	23	30
Immediate rain	2	2	2	4	4

V. RESULTS AND DISCUSSION

The Tables II, III, IV and V represent the outcomes of the factor analysis for the given questionnaire. The statistical outcomes are average scores for each question, the KMO measure is used to determine the sampling adequacy.

TABLE II
DESCRIPTIVE STATISTICS

Questions	Mean	Std. Dev	Rank
6.I am always aware of my happiness	4.18	0.947	1
29. Other individuals are not 'difficult' just 'different'	4.07	0.92	2
35. I prefer to ask questions to find out other's priority	4.05	0.938	3
44. I can sometimes see things from others' point of view	4.04	0.879	4
25. I love to meet new people and know them better	4.02	1.034	5
4. I am able to see other's perspective/ viewpoint	4.01	0.964	6
19. I understand if team members are not getting	3.99	0.852	7

along with each other			
31. Awareness of my own emotions is very important to me	3.99	0.879	8
50. I generally build solid relationships with my colleagues and co workers	3.99	0.948	9
38. I believe in living in Present	3.97	1.068	10
5. I am an active listener	3.95	1.014	11
16. When I am being 'emotional' I am aware of this	3.91	0.914	12
9. I am excellent at understanding other's problem	3.88	0.968	13
10. I do not interfere when others are talking	3.87	1.1	14
15. I am good at adapting and mixing with different types of people	3.86	1.102	15
14. I can tell if others are not happy with me	3.84	1.049	16
36. I can tell if someone has upset or annoyed me	3.84	1.011	17
46. I know the catalyst that makes me happy	3.84	1.004	18
13. I ensure to meet my timelines	3.81	1.008	19
21. I usually know the reason of my anxiety	3.81	0.942	20
45. I am good at reconciling differences with other people	3.81	0.83	21
30. I need heterogeneous teams to make my job interesting	3.8	0.987	22
26. I exactly know when I'm being unreasonable with people or situations	3.79	0.89	23
49. I am very clear about reasons for disagreements	3.79	0.957	24
20. People are the most interesting thing in life for me	3.75	1.111	25
48. Motivations has been the key to my achievements	3.75	1.053	26
8. I am generally able to priorities important activities in daily life	3.74	0.979	27
34. I can understand if I am being unreasonable	3.74	0.834	28
39. I can understand why I sometimes offend others	3.74	0.97	29
40. I look at working with difficult people as simply a challenge to win them over	3.72	0.944	30
43. I can always motivate myself in unhappy situations	3.72	1.172	31
47. Others often do not know how I am feeling about things	3.71	1.064	32
24. I can identify why people are being difficult towards me	3.66	1.012	33
42. I can suppress my emotions whenever needed	3.65	1.073	34
28. I believe in addressing and completing difficult assignments first	3.64	1.088	35
2. I can rework around bad situations immediately	3.63	0.985	36
11. I usually acknowledge my stressed self	3.62	1.009	37
1. I instantly notice when I lose my temper	3.6	1.027	38
7. I do not show my feelings every now and then	3.6	1.086	39
41. I can let anger 'go' quickly so that it no longer affects me	3.6	1.128	40
3. I am always welcoming to do difficult tasks	3.59	0.932	41
27. I can consciously alter my frame of mind or mood	3.56	0.926	42
23. I do not try to beat around the bush	3.47	1.016	43
32. I do not let stressful assignments or people affect me once I have left work	3.47	1.097	44
33. Delayed gratification is a virtue that I consciously avoid	3.43	0.951	45
17. I rarely lose temper at other people	3.36	1.217	46
22. Difficult people do not irritate me	3.34	1.064	47
12. Others can rarely see my mood swing	3.33	1.134	48
18. I do not waste time	3.05	1.178	49
37. I rarely worry about work or life	2.95	1.233	50

The descriptive statistics shown in Table II depicts the question wise aggregate score, of these the first question of 'I am always aware of my happiness' has impacted more with mean value 4.18 it stands in Rank 1, and next to it is 'Other individuals are not difficult just different' in Rank 2. In total, if we take restrict the collective score to 4.0, it represents people are emotionally attached with others opinions or thoughts. Further, it is noted that the number of samples that are used to run the Factor analysis is adequate and helpful to get proper convergence to define the principal components and also to explain the variability among the questions (Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.844).

TABLE III
ROTATED COMPONENT VARIABILITY

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.091	8.182	8.182
2	4.064	8.128	16.309
3	3.263	6.527	22.836
4	2.942	5.885	28.721
5	2.825	5.651	34.372
6	2.742	5.484	39.856
7	2.666	5.332	45.188
8	2.432	4.863	50.051
9	1.851	3.702	53.754
10	1.816	3.632	57.386
11	1.758	3.516	60.902
12	1.706	3.413	64.314
13	1.700	3.400	67.715

The number of principal components are extracted using a multivariate technique namely, Principal Component Analysis with varimax rotation. Entire analysis is conducted using IBM SPSS 23.0 version. The Table III depicts that 50 questions can be restructured into 13 components and these 13 components helps out in explaining the variability in the data and exhibit the information about the aspects of other people opinion in emotional intelligence up to 67.715. This percentage of total variance has the following split of variance under each component. From the Table IV, rotated component matrix, the identification of questions will be done to see that to which component they belong to. In other words, basing of the proximity, the questions gets placed under a particular component. For instance, first component includes five questions from social skills, two questions from self-awareness, one question in empathy, self-management and motivation. Likewise each component contains distribution of questions among EI components which is shown in Table V.

TABLE IV
ROTATED COMPONENT MATRIX

	Rotated Component Matrix												
	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1. I instantly notice when I lose my temper													0.816
2. I can rework around bad situations immediately													0.487
3. I am always welcoming to do difficult			0.495										

47. Others often do not know how I am feeling about things							0.617						
48. Motivations has been the key to my achievements		0.421											
49. I am very clear about reasons for disagreements		0.468											
50. I generally build solid relationships with my colleagues and co workers		0.378											

TABLE V
COMPONENTS AND ITS CORRESPONDING QUESTIONS

Components	Self-awareness	Self-management	Motivation	Empathy	Social-skills
1	41,46	42	43	24	5,15,25,45
2	6,31		38,48	49,29,44,49	50
3	26		3,28	19	20,30
4			8,18		
5	11,16,36	22			
6	21	27,32	23,33		
7		47		34,39	40
8			13	14	35
9		17			
10		7,12			
11					10
12		3			
13	1	2			

VI. CONCLUSION

From the factor analysis results majority of questions in first and eleventh components represent social skills, majority of questions in second component represents empathy, likewise fourth and sixth components represents motivation, fifth component represents self-awareness and tenth component represents self-management respectively. While considering the research questions. RQ1: Self-awareness and self-management skills of undergraduate students during online class at the time of COVID-19 pandemic are maintained, it is confirmed that 76% of the students who participated in this research study falls under Shinning Stars category, 23% of the students falls under Clouds category in self-awareness component and 53% of the students falls under Shinning Stars category, 47% of the students falls under Clouds category in self-management component. RQ2: Social skill competency of undergraduate students plays a predominant role in COVID-19 pandemic period; it is proved with 74% of the student's falls under Shinning Stars category and 23% of the student's falls under Clouds category in social-skills component. If 50% of the students in a class are not able to come under the Clouds or Shinning Stars category then necessary EI training should be planned and given to the students by their teachers or mentors. In future this work is planned to extend with other professional fields like medicine, social studies.

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