



STUDY OF EMOTIONAL INTELLIGENCE AMONG UNIVERSITY STUDENTS: TECHNICAL COMPETENCE

Arvind Kumar

Ex Research Scholar, Monad University

ABSTRACT

The artificial intelligence (AI) system related research and concepts are changing with rapid pace and are becoming more and more important and relevant to the present needs. The concept of emotional intelligence is one of the primary concern for AI research. The interaction with human emotions intelligently is the need of the hour for the technology. The integration of AI with emotional intelligence systems should work along with humans. Emotions in humans is a multidimensional parameter and therefore could not be considered as a mechanism for enhancing intelligence.

We have studied the emotional intelligence among the university students of different School of Studies. The issues related to technical competence have been discussed. A sample of 100 students (70 males and 30 females) drawn from 6 School of Studies has been considered. A questionnaire consisting of 16 questions was prepared and mailed to the students. The data collected was analysed. We observed that under the category of reading people, all the four variants namely self-analysis, analysis of others, self-expression and discrimination, the emotional intelligence is very high, more than 70%.

All the four variants under the category using emotions, the emotional intelligence is very high, more than 80%. In case of judgement, the emotional intelligence was extremely high (90%). The three variants under the category understanding emotions, the emotional intelligence is very high, more than 80%. The three variants under the category managing emotions, the emotional intelligence is very high, more than 70%. In case of self-control, the emotional intelligence was extremely high (90%).

Key Words: Emotional Intelligence, Artificial Intelligence, Technical Competence

INTRODUCTION

The possible ways of data communicating the emotional state of a person to a machine are many and are shown in Fig. 1. It is clear that Physiology cannot measure every machine because it will require individual sensors. It is the Artificial Intelligence which is making it possible. Thus, understanding emotions of large section of the people will help in artificial intelligence for future machines.

The Emotional Intelligence (EI) can be understood based on personal competence, social competence and technical competences. In personal competence, we consider self-awareness, self-regulation and self-motivation while in social competence, we consider social awareness and social skills. This have been studied by Kumar (2020) in detail for the university students. The technical competence consists of four factors namely reading people, using emotions, understanding emotions and managing emotions (Table 1).

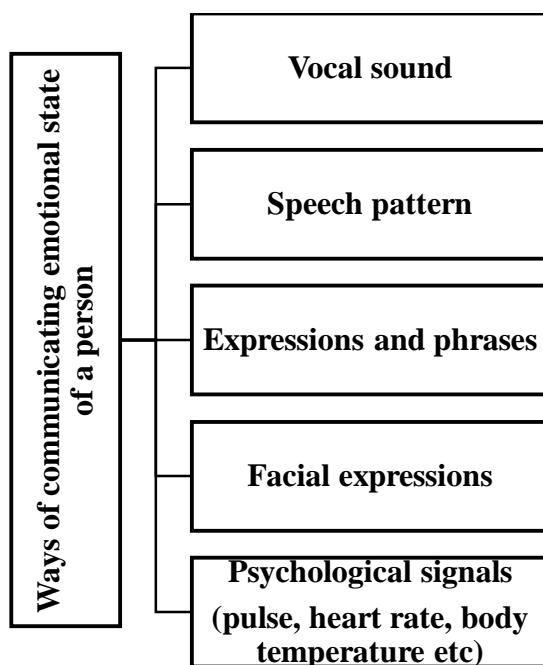


Fig. 1: Possible ways of Data Communicating the Emotional State of a Person to a Machine

Table 1: Technical Competence

TECHNICAL COMPETENCE			
1. Reading People	2. Using Emotions	3. Understanding Emotions	4. Managing Emotions
<p>Self-analysis: You are in touch with your feelings and emotions and notice when your mood changes.</p> <p>Analysis of others: You pay attention to and identify other people's feelings and emotions.</p> <p>Self-expression: You are able to describe and communicate your feelings and emotions.</p> <p>Discrimination: You pick up on emotional cues and can tell when something is wrong.</p>	<p>Thinking: You follow your hunches and feelings and let your feelings guide your thinking.</p> <p>Judgment: You allow your instincts and intuition to influence your judgments and decisions.</p> <p>Sensitivity: You are able to capitalize on mood changes in a positive way to explore and analyse things.</p> <p>Problem solving: You use your own and other people's feelings and emotions to help solve problems.</p>	<p>Symptoms: Your ability to recognize a range of common emotions – for example, happiness, anger, fear, surprise, interest etc.</p> <p>Causes: How far you understand the factors that lead people to experience different feelings and emotions.</p> <p>Complexity: You understand complex feelings, emotional blends and contradictory states.</p> <p>Transitions: You are aware of and can anticipate how emotions progress and change.</p>	<p>Openness: You stay open to pleasant and unpleasant feelings to help manage situations and events.</p> <p>Monitoring: You are able to reflectively engage or ignore your feelings and emotions to help guide your actions.</p> <p>Self-control: Your ability to stay in control of your feelings and emotions when you are under pressure and stress.</p> <p>Managing others: You are able to manage other people's feelings and emotions in a sympathetic manner.</p>

EI is now emerging a strong research area because it helps individuals to achieve the life quality to make them successful. The studies focused on measurement of EI level have been increasing day by day. EI literature reveals that the researches are mainly focused on students oriented towards impact of emotional intelligence on success. These studies revealed that emotional intelligence is required to explain success. Along with the effects of

emotional intelligence on the individual, characteristics and environment of an individual also have determinative role on emotional intelligence. The fact that development of emotional intelligence is a lifetime process, determining the effect of education on development of emotional intelligence becomes important. In this context, it is crucial to determine whether or not there is a difference between emotional intelligences of students studying at different disciplines.

The emotional intelligence deals with one's ability to perceive, understand, manage, and express emotion within oneself and at the same time in dealing with others. Many researchers in artificial intelligence and human-computer interaction have started in taking emotions quite seriously only in the late 1990s. Efforts in building emotionally intelligent entities continued to be concentrated on the areas like empowering the machine to detect emotions, enabling the machine to express emotions and enabling the machine in a virtual or physical way. Mirjana et. al. (2015) proposed a distributed environment utilizing agents for efficient processing of emotional information.

Emotions are involved in every activity, action and reaction of human being. Emotionally intelligent people are able to recognize their potentialities and they exercise this in their personal and professional life. In the span of last twenty year, emotional intelligence concept has become very popular parameter.

There are studies which reveal that there is a relationship or there are differences between sex, department students study at, social, economic and demographic conditions and emotional intelligence of students whereas some researches do not suggest a relationship or difference. Use of emotions is the ability to use emotions for facilitating cognitive activities such as thinking and problem solving. Understanding emotions is the ability to comprehend the language of emotions and to understand the complex relationships between emotions.

Now it is being considered widely that emotional intelligence is also required for the job satisfaction, motivation, decision taking in adverse situations etc. It is felt now that inclusion of emotional intelligence in higher education is needed because it will make students able to reduce their academic pressure and in becoming a better decision maker. Emotional intelligence is not only useful for their academic life but also useful for post academic life.

Daniel Goleman (2001) and Mehta and Singh (2013) have developed a framework of five elements that define emotional intelligence as:

- (1) **Self-Awareness:** People with high emotional intelligence are usually very self-aware. They understand their emotions, they're confident, they're also willing to take an honest look at themselves. They know their strengths and weaknesses, and they work on these areas so they can perform better. Many people believe that this self-awareness is the most important part of emotional intelligence.
- (2) **Self-Regulation:** This is the ability to control emotions and impulses. People who self-regulate typically don't allow themselves to become too angry or jealous, and they don't make impulsive and careless decisions. Characteristics of self-regulation are thoughtfulness, comfort with change, integrity, and the ability to say no.
- (3) **Motivation:** People with a high degree of emotional intelligence are usually motivated. They're willing to defer immediate results for long-term success. They're highly productive, love a challenge and are very effective in whatever they do.
- (4) **Empathy:** Empathy is the ability to identify with and understand the wants, needs, and viewpoints of those around. People with empathy are good at recognizing the feelings of others, even when those feelings may not be obvious. As a result, empathetic people are usually excellent at managing relationships, listening, and relating to others. They avoid stereotyping and judging too quickly, and they live their lives in a very open & honest way.
- (5) **Social Skills:** It's usually easy to talk to and like people with good social skills, a sign of high emotional intelligence. They help others to develop and shine, can manage disputes, are excellent communicators, and are masters at building and maintaining relationships. The ability to manage people and relationships is very important in all leaders, so developing and using your emotional intelligence can be a good way to show others the leader inside of you.

LITERATURE REVIEW

Research activities are needed to design an agent-based architecture, in which agents are capable of reasoning about and displaying some kind of emotions based on emotions detected in human speech, as well as online documents. Many authors have studied intelligent human-computer interaction (Mirjana et. al 2014), interrelation of humans and emotions (Singhal et. al. 2016), artificial minds (Crowder and Shelli 2013).

Crowder (2012) concluded that the proposed framework will provide artificially intelligent framework and the system can learn, self-adapt and react to rapid changes in situational conditions. Kumar and Sharma (2012) discussed about augmentation of emotions with AI. They also discussed that the behaviour and intelligence of human beings, artificial agents use neural architecture from parent generation to child generation.

Ravi Kant (2019) studied the emotional intelligence among the university students to find the difference between EI on the basis of gender, locality, level of course and school of study. This survey based study used data from 200 students of a Central University. The result indicates that all students of School of Education have emotional Intelligence of high level except in comparison of students of School of Law & Governance. Male and female students are significantly differed from each other on Emotional Intelligence on overall sample. Female students found more Emotional Intelligent with high mean value. UG and PG students of were found not significantly differ from each other on Emotional intelligence. UG students were more emotionally intelligent on the basis of mean value. Residential location does not have any significant role but rural students were more emotionally intelligent in comparison to their counterpart.

Sharma (2014) studied the relationship between environmental awareness and emotional intelligence of student-teachers and teachers. The sample of the study consisted of 200 student- teachers (100 male and 100 female) and also of 100 teachers (50 male and 50 female). The results showed that there was no significant difference between male and female student-teachers and teachers regarding environmental awareness and emotional intelligence. The results also showed that the environmental awareness of male and female student-teachers was also found to be slightly positively but not significantly correlated with emotional intelligence. The environmental awareness of male teachers was found to be moderately, positively and significantly correlated with emotional intelligence. On the other hand the environmental awareness of female teachers was found to be slightly positively but not significantly correlated with emotional intelligence.

The impact of emotional intelligence on the academic achievement of students, different experts and researchers presented several views about the relationship between the two. (Vernon et al.,2008; Panboli and Gopu, 2011) observed significant correlation between main components of emotional intelligence including self-motivation, self-awareness, self-regulation, social consciousness, social skills and students' academic achievement. There are several studies which have noticed positive correlation between EI and academic performance (Vernon et al. , (2008) ; Abdullah et. al.(2004).

Tariq et. al. (2011) researched on the emotional intelligence of university students for the purpose of explaining self-perception status of students in terms of different factors of emotional intelligence, comparing female and male students and establishing a relationship between the academic achievements and perceived emotional intelligence. The results confirmed that university students are highly aware of self-reports. Although there is a great difference between perceptions of female and male students, male students believe that they are more superior in factors of emotional intelligence, compared to the female students. Furthermore, the conclusions did not reveal a relationship between students' emotional intelligence and academic achievements.

METHODOLOGY OF RESEARCH

The model of emotional intelligence, technical competences with four sub branches namely reading people, using emotions, understanding emotions and managing emotions is considered. A total of 16 questions were placed in the questionnaire. The concept is given in Table 1. The factors on the scale are as follows; self-awareness, self-regulation, self- motivation, social awareness, and social skills. All questions are answered by using Likert scale 1 – Strongly Disagree, 2- Disagree, 3 - Undecided ,4 – Agree, 5- Strongly Agree.

SAMPLING AND DATA COLLECTION

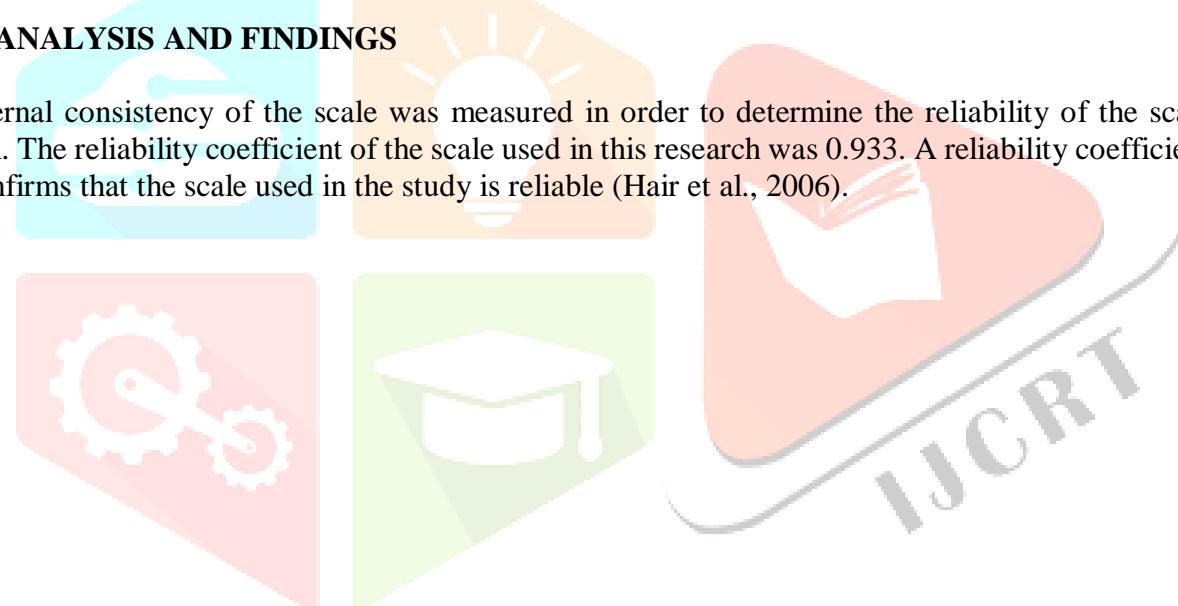
The Schools of Applied Sciences, Engineering, Agriculture, Management and Commerce, Pharmacy were included in the research. The students numbers chosen for the research are given in Table 2. “Questionnaire method” was used as the data collection method. The questionnaire form having only closed ended questions were filled in. The sample consists of 100 students (70 Males and 30 Females).

Table 2: The Faculty Members and Students involved in the Study

Schools of Studies	Students		Total
	Male	Female	
Computer Science and Engineering	20	5	25
Mechanical Engineering	10	5	15
Electrical Engineering	10	5	15
Management and Commerce	10	5	15
Education and Teacher Training	10	5	15
Applied Sciences	10	5	15
Total	70	30	100

DATA ANALYSIS AND FINDINGS

The internal consistency of the scale was measured in order to determine the reliability of the scale used in the research. The reliability coefficient of the scale used in this research was 0.933. A reliability coefficient greater than 0.70 confirms that the scale used in the study is reliable (Hair et al., 2006).



RESULTS AND DISCUSSION

We have analysed the emotional intelligence level of the students by combining 5 categories into three. The strong disagree and disagree have been put together. The agree and strong agree has also put together. The results are summarised in Table 3.

Table 3: Emotional Intelligence (%) to Various Emotions

Q.No.	Parameter	Disagree (%)	Undecided (%)	Agree (%)
Reading People				
1	Self-analysis: The degree to which you are in touch with your feelings and emotions and notice when your mood changes.	10	10	80
2	Analysis of others: The extent to which you pay attention to and identify other people's feelings and emotions.	0	30	70
3	Self-expression: How far you are able to describe and communicate your feelings and emotions.	20	10	70
4	Discrimination: How far you pick up on emotional cues and can tell when something is wrong.	20	0	80
Using Emotions				
5	Thinking: The degree to which you follow your hunches and feelings and let your feelings guide your thinking.	20	0	80
6	Judgment: The extent to which you allow your instincts and intuition to influence your judgments and decisions.	10	0	90
7	Sensitivity: The extent to which you are able to capitalize on mood changes in a positive way to explore and analyse things.	10	10	80
8	Problem solving: The extent to which you use your own and other people's feelings and emotions to help solve problems.	10	10	80
Understanding Emotions				
9	Symptoms: Your ability to recognize a range of common emotions , happiness, anger, fear, surprise, interest etc.	0	20	80
10	Causes: How far you understand the factors that lead people to experience different feelings and emotions.	0	20	80
11	Complexity: The extent to which you understand complex feelings, emotional blends and contradictory states.	10	10	80
12	Transitions: The degree to which you are aware of and can anticipate how emotions progress and change.	30	10	60
Managing Emotions				
13	Openness: The extent to which you stay open to pleasant and unpleasant feelings to help manage situations and events.	0	20	80
14	Monitoring: How far you are able to reflectively engage or ignore your feelings and emotions to help guide your actions.	10	20	70
15	Self-control: Your ability to stay in control of your feelings and emotions when you are under pressure and stress.	0	10	90
16	Managing others: The degree to which you are able to manage other people's feelings and emotions.	20	0	80

The results for reading people are shown in Fig. 2. It can be seen that all the four variants namely self-analysis, analysis of others, self-expression and discrimination, the emotional intelligence is very high, more than 70%. We did not observe any significant difference between male and female students.

The results for using emotions are shown in Fig. 3. It can be seen that all the four variants namely thinking, judgement, sensitivity and problem solving, the emotional intelligence is very high, more than 80%. In case of judgement, the emotional intelligence was extremely high (90%). We observe small difference between male and female students. The female students were having more judgement level than male students.

The results for understanding emotions are shown in Fig. 4. It can be seen that three variants namely symptoms, causes and complexity, the emotional intelligence is very high, more than 80%. In case of transitions, the emotional intelligence was (60%). We observe small difference between male and female students. The female students were having more understanding of emotions level than male students.

The results for managing emotions are shown in Fig. 5. It can be seen that three variants namely openness, self-control, monitoring and managing others, the emotional intelligence is very high, more than 70%. In case of self-control, the emotional intelligence was extremely high (90%). Here also, the female students were having more understanding of emotions level than male students.

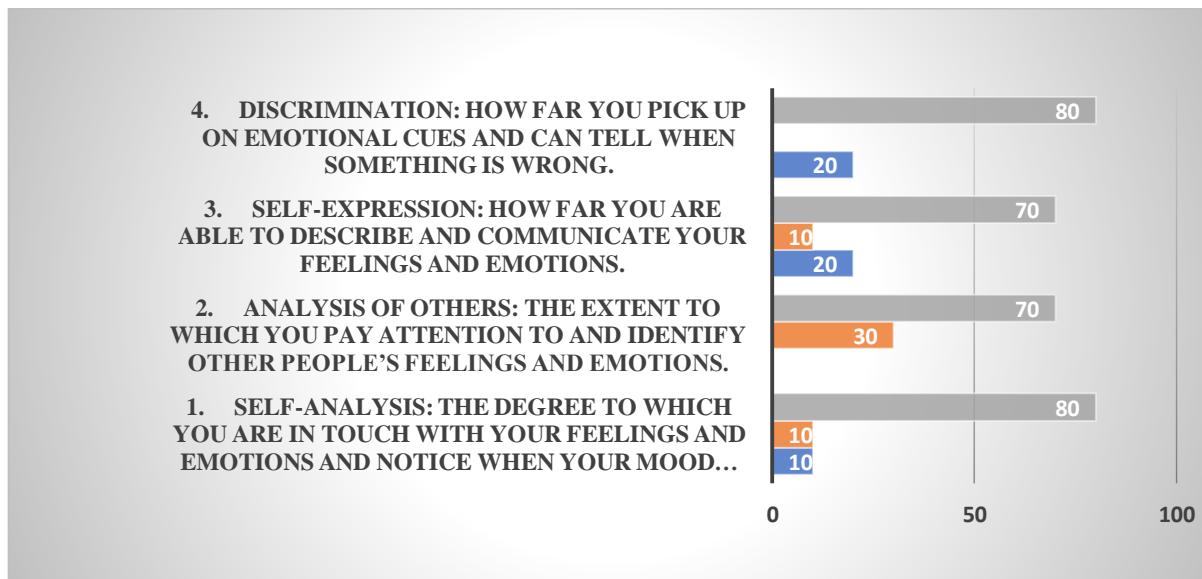


Fig. 2: Variation of Reading People

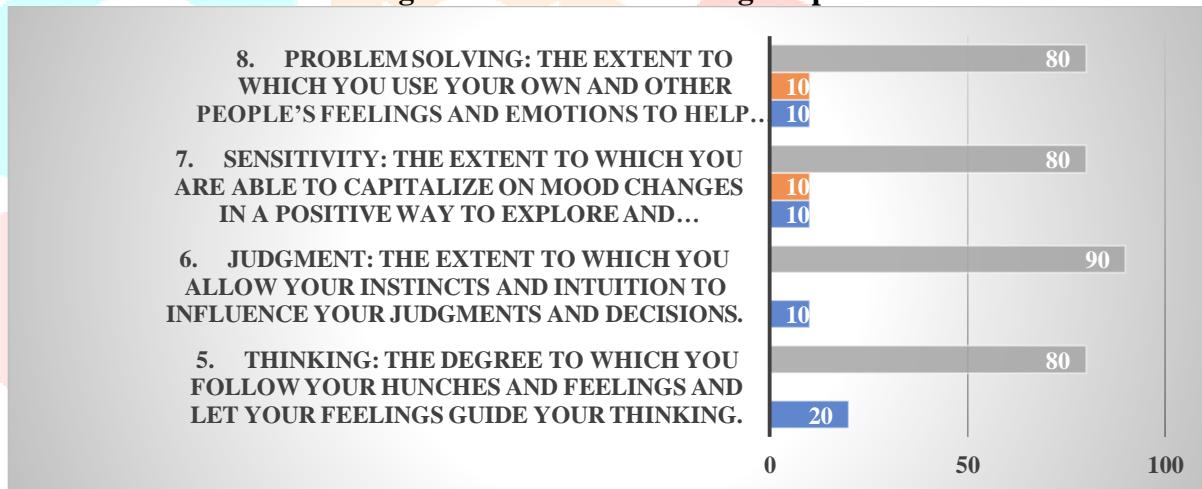


Fig. 3: Variation of Using Emotions

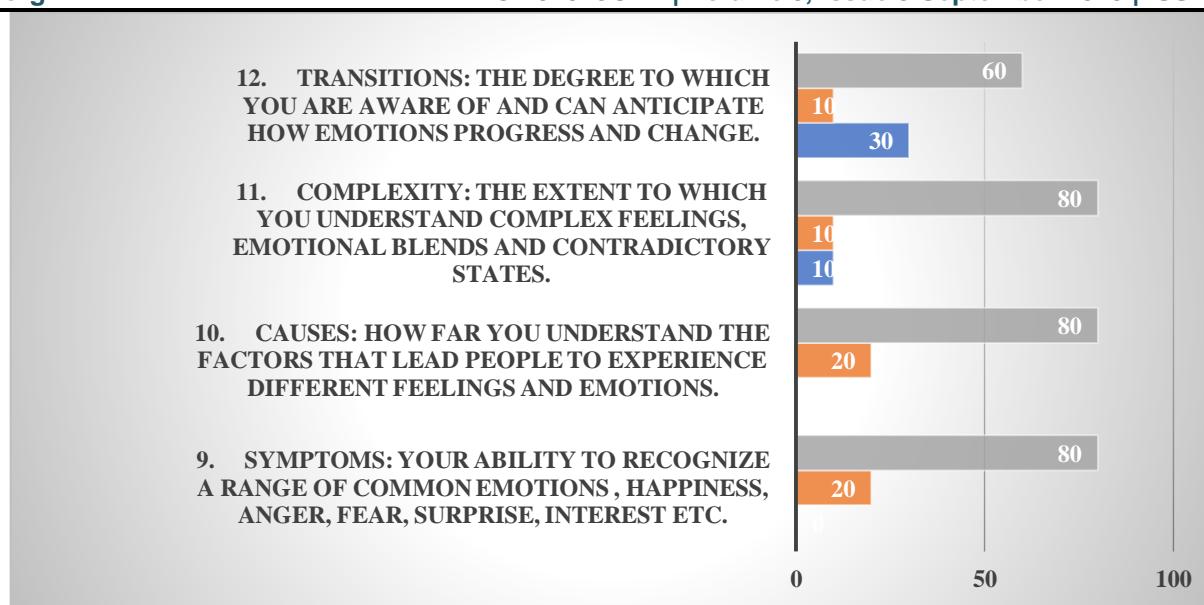


Fig. 4: Variation of Understanding Emotions

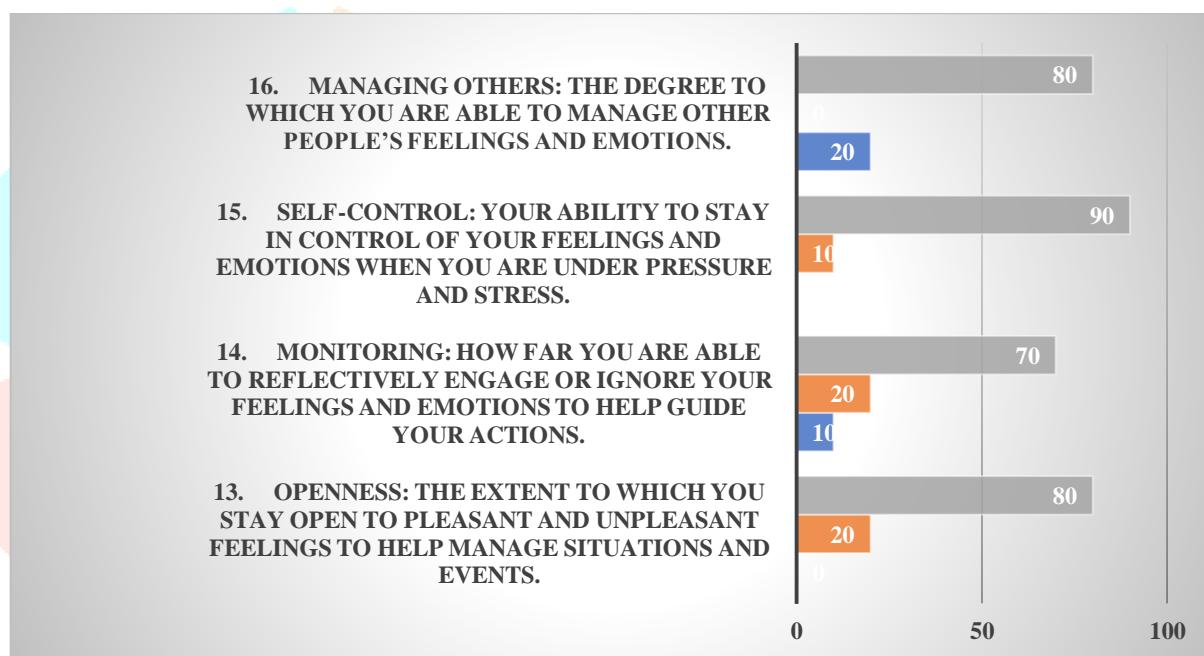


Fig. 5: Variation of Managing Emotions

CONCLUSION

The model of emotional intelligence technical competences with four sub branches namely reading people, using emotions, understanding emotions and managing emotions has been investigated. A total of 16 questions were placed in the questionnaire. All questions are answered by using Likert scale 1 – Strongly Disagree, 2- Disagree, 3 - Undecided ,4 – Agree, 5- Strongly Agree. We observed that under the category reading people category, all the four variants namely self-analysis, analysis of others, self-expression and discrimination, the emotional intelligence is very high, more than 70%. We did not observe any significant difference between male and female students.

All the four variants under the category using emotions namely thinking, judgement, sensitivity and problem solving, the emotional intelligence is very high, more than 80%. In case of judgement, the emotional intelligence was extremely high (90%). We observe small difference between male and female students. The female students were having more judgement level than male students. The three variants under the category understanding emotions namely symptoms, causes and complexity, the emotional intelligence is very high, more than 80%. In case of transitions, the emotional intelligence was (60%). We observe small difference between male and female students. The female students were having more understanding of emotions level than male students. The three variants under

the category managing emotions namely openness, self-control, monitoring and managing others, the emotional intelligence is very high, more than 70%. In case of self-control, the emotional intelligence was extremely high (90%). Here also, the female students were having more understanding of emotions level than male students.

REFERENCES

Abdullah, M.C., Elias, H., Mahyuddin, R., & Uli, J. (2004). Emotional intelligence and academic achievement among Malaysian secondary students. Human Resource Management Papers, Islamabad: National Institute of Psychology.

Crowder, James. A, (2012): The Artificial Cognitive Neural framework(ACNF), Proceedings of the 13th Annual International Conference on Artificial Intelligence, Las Vegas, Nevada.

Crowder, James A and Friess, Shelli,(2013): Artificial Psychology: The Psychology of Art, Systematics, Cybernetics and Informatics.

Goleman, D. (2001). Emotional intelligence: Issues in paradigm building. In C. Cherniss and D. Goleman (Ed's.), The Emotionally Intelligent Workplace. San Francisco: Jossey-Bass.

Hair, F.J., Black, C.W., Babin, J.B., Anderson, E. R. and Totham, L.R. (2006). Multivariate Data Analysis. Pearson Printice Hall, Sixth Edition, New Jersey.

Kumar, Sandeep and Sharma, Medha, (2012): Convergence of Artificial Intelligence, Emotional Intelligence, Neural Network And Evolutionary Computing, International Journal of Advanced Research in Computer Science and Software Engineering.

Kumar Arvind, (2020), Study of Emotional Intelligence Among the University Students: Personal and Social Competence, communicated.

Kumar Arvind and R. Singh (2018a): Emotionally Motivated Artificial Intelligence (EMAI) Model, International Journal of Advanced Research in Computer Science and Software Engineering, Vol. 8, Issue 7.

Kumar Arvind and R. Singh (2018b): Influence of Emotional Perception in Artificial Intelligence, International Journal of Advanced Research in Computer Science and Software Engineering, Vol. 8, Issue 7.

Kumar Arvind, Singh Rajiv and Ram Chandra (2018c): Emotional Intelligence for Artificial Intelligence: A Review, International Journal of Science and Research, Vol 7, Issue 8, pp. 479-487.

Kumar Arvind, Singh Rajiv and Ram Chandra (2018d): A Study of Emotional Intelligence Issues among the Students of Different Background, International Journal of Science and Research, Vol 7, Issue 8, pp. 870-874.

Mehta, S and Singh, N (2013), Development of Emotional Intelligence Scale, International J. Management & Informational Technology, Vol. 8, No.1, pp. 1252-1264.

Mirjana Ivanovic et al (2014): Emotional Intelligence and Agents: Survey and Possible Applications, Proc. WIMS 14.

Mirjana Ivanović, Zoran Budimac, Miloš Radovanović, Vladimir Kurbalija, Weihui Dai, CostinBădică, Mihaela Colhon, Srđan Ninković, and Dejan Mitrović (2015): Emotional Agents – State of the Art and Applications, Computer Science and Information Systems 12(4):1121–1148.

Panboli, S., Gopu, J. (2011). The level of emotional intelligence of university students in Chennai, India, Proceedings for 2011 international research conference and Colloquium,144-159.

Ravi Kant (2019), Emotional intelligence: A study on university students, Journal of Education and Learning (EduLearn), Vol. 13, No. 4, November 2019, pp. 441~446

Sharma, S. (2014), A Study of Environmental Awareness of Student Teachers and Teachers in Relation of Their Emotional Intelligence. *Open Journal of Social Sciences*, 2, 146-151.

Singhal P, R. Mandhanya and S Verma, Emotional Manipulation with the help of Emotional Recognition-A Survey (2016), Int. J. Engn Science & Research Tech, Vol. 5(10), pp. 160-164.

Tariq, S., Majoka, M.I. and Hussain S. (2011). A Study to Investigate Emotional Intelligence of Male and Female Students at University Level in Pakistani Context. *Interdisciplinary Journal Of Contemporary Research In Business*, 2, 10, 209-218.

Vernon, P.A., Petrides, K.V., Bratko. D., & Schermer, J.A. (2008). A behavioral genetic study of trait emotional intelligence. *Emotion* , 8 ,635-642.

