

Metacognitive Thinking: A Study Of Relationship with Decision Making Styles and Emotional Intelligence

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Abstract

Objectives: Metacognitive exercises help students to become identify their pitfalls and potentials as learners, writers, readers, test-takers, group members, etc. The present paper is an effort to investigate the role of metacognitive thinking in emotional intelligence and decision making styles of young adults.

Method: A total of 300 young adults(150 males & 150 females) from different colleges of Agra region were selected for the study. Metacognitive thinking was measured by Metacognitive thinking scale. Myers- Briggs Type of Indicator were used to assess the decision making style and Emotional Intelligence Scale by Prasad were used to measure the emotional intelligence of participants.

Findings: The age range of the sample were 19 to 24 years. Results revealed that metacognitive thinking influenced significantly to decision making styles and emotional intelligence.

Key Words: Decision making styles; Emotional Intelligence; Metacognitive thinking; young adults; Conscientiousness; Trustworthiness.

Introduction

Young adults is the phase where an individual acquires principles and various methods for success and the better quality of life in the long term, in this context they have to avail opportunities and take several decisions regarding their career advancement. At sometimes due to excessive pressure and stress of personal and professional life person may feel difficulty to take decisions appropriately, such circumstances demands emotional competence to adapt. For being adaptation in challenging situation it is essential that person must have an adequate knowledge about himself or herself. Researchers recognized the role of metacognition in different frameworks and believed that metacognition is ongoing. It involved in the problem-solving process on different levels: through initial stage pre-assessments, regulating process of check-ins and feedback loops to final evaluations.

Development is incomplete till one is not having the ability to regulate emotions. Emotional intelligence maintain a state of harmony and makes more confident in dealing with the challenges of living and learning in educational institutions. Mostly emotional thoughts are accompanied by additional thoughts relevant for perceiving and regulating emotion and emotion-management processes. Such meta-cognitive thoughts plays vital role in understanding psychological processes relevant to Emotional Intelligence.

Metacognitive thinking allows a person to plan, monitor and control the process of their own cognitive activities (Schraw & Dennison, 1994).It includes both critical awareness of one's own thinking and learning, an individual play both the role as a thinker and observer. Metacognition is a higher level cognition and refers to thinking about the thought process itself which includes one's own perception, understanding, remembering etc. (Papaleontiou-Louca, 2003).

Thus metacognition includes both an understanding of cognition and knowledge of strategies to change cognitions.(Karpov, 2018) defines metacognition as the leading form of the reflexive regulation of

cognitive activity. Therefore metacognitive thinking is one of the key elements necessary for the development of student's autonomy and independence. An important attribute of metacognition is, that individual recognizing the limit of one's knowledge or efficiencies and then find out the techniques to extend metacognitive skills.

The notion of emotion illustrated in the discussion of emotional Intelligence suggests that the primary emotional experience can be escorted by a host of additional or secondary processes. Secondary processes consist of people's feelings and perceptions about their emotions as well as their emotion regulation techniques (Mayer & Gaschke, 1988). These characteristics links it with metacognition because it correlates with our ability to think about what we do, how we do and the way we think about our own thinking. Lyusin (2006, 2014) describe Emotional Intelligence, as cognitive ability.

Emotional intelligence is a key factor determining the success and career decision making processes. Brown et al.(2003) state that emotionally intelligent people have more confidence in their own capacity to confront the task related to career decision making. Emmerling and Cherness (2003) conclude that people who were better able to understand and manage their own emotions will probably also be better able to understand the emotional consequences of a potential career choice and avoid jobs that imply unpleasant responsibilities and tasks for them. On the basis of early literature, it can be revealed that emotion has become one of the major evaluation targets for an individual's workplace outcomes including successes and failures.

The secondary steps as explained by (Scheier & Carver, 1982) that people might have additional cognitions to monitor a mood, evaluate the relation between mood and judgment (Mayer & Volanth, 1985), strive to maintain good moods (Isen, 1984), or engage thoughts to cope with and repair bad moods (Folkman, Lazarus, Funkel-Schetter, DeLongis, & Gruen, 1986; Smith & Petty, 1995) can be understood as meta-cognitions.

Metacognitive practices enhance students' abilities to analyze their emotions on their own and regulates according to the demand of the circumstances it also helps them to manage in emotionally challenged situations (Bransford, Brown, & Cocking, Palincsar & Brown, 1984; Scardamalia et al., 1984; Schoenfeld, 1983, 1985, 1991).

The fact that decision making itself is an emotional process can be evidence through the importance of emotions in decision making Khan, et al.(2016). Decision-making is a necessary aspect and a crucial ability of university students as well, it allows them to lead their life successfully. Especially in this challenging and fast paced world, where students of higher education have to formulate several decisions. Diggins (2004) the excellent administrators' necessity in compliance with possessing emotional intelligence to make appropriate decisions. Decision making is an art, emotional intelligence and practice can enable individual to become better decision makers

Effective decision making is the key for the success of university students. Decision style is a preference style of a person uses information to formulate a decision (Rowe and Mason, 1987). Harren (1979) revealed that decision making style is a pattern of an individual's way of responding towards a situation.

Ecological approach focuses on decisions that people make in their actual professional life and to test to what extent they are aware of the emotions experienced and of the processes and strategies applied during decision making. Some metacognition researchers propose that metacognitive experience play an important role in determining whether we change our intuitive responses for more deliberate, reflective reasoning and decision making.

Metacognitive monitoring, and meta-knowledge are important in guiding decision making. It helps in understanding psychological processes relevant to Emotional Intelligence. Emotional thoughts are often accompanied by a host of additional thoughts which create effective decisions in day to day life and at the workplace. By carefully considering decisions and tackling problems in idiosyncratic ways, students can better learn new skills, assess performance during a task, accepting personal weak spots as well as enhancing strengths that assured the growth and success of students to makes them competent to move forward.

Thus this fact stimulate the researcher to find out the impact of metacognitive thinking on Emotional Intelligence and decision making styles.

Kalia and Saini (2020). Noted in their study, The relationship between Emotional Intelligence and its components with Metacognitive Skillfulness in College students, that females were better in emotional management and in regulation of their learning styles. Secondly emotional thoughts associated with second order thoughts are relevant for perceiving and channelizing emotions. Nurse Managers Emotional Intelligence and its relation with decision making styles by Mohamed and Ahmed (2019) found higher the level of nurse managers' emotional intelligence respectively, indicates higher the mean scores were in a participative style of decision-making in all nurse managers. Ekterina and Valentina (2019) identified under the study Emotional Intelligence and Metacognitive Awareness among college students that Metacognitive knowledge and regulation is influenced by the emotional intelligence. The correlation indicates that generally high level of metacognitive awareness is related to a high level of emotional intelligence. Another study Metacognitive Thinking Skills of University Students by Coskun (2018) revealed that students have higher levels of metacognitive thinking skill, reflective thinking skill, intended for problem solving, decision making skill, alternative evaluation' sub dimensions. Noordiana, Hanafi, Daud and Baharin (2017). found Application of emotional intelligence, could help to enhance leader strategic decisions and outcomes. Under the study Emotional Intelligence and Strategic Decision Making. Bhardwaj and Kumar (2017). Revealed under their study The empirical impact of Emotional Intelligence on Decision Making Styles among Adolescents that boys were high on dimensions of emotional stability, personality integration and independent as compare to girl. Girls were higher on the attenuations of emotional progression and social adjustment. Dua (2016). found a significant positive relationship between Emotional Intelligence and decision making under his study Emotional Intelligence of Entrepreneurs and their Decision-making style: Role of Vision. Walker (2016). revealed that teaching students about the concept of metacognition along with developing skills in the application of metacognitive strategies have the potential to enhance decision-making capacity, under the study, The application of metacognition to business decision making. Iannello, Perucca, Rivabc, Antonietti, & Pravettoni (2015) What Do Physicians Believe About the Way Decisions Are Made? A Pilot Study on Metacognitive Knowledge in medical context. revealed significant differences in metacognitive knowledge emerged among three medical areas. Strle (2012) Metacognition and Decision Making: between First and Third person perspective. First and third person perspective on metacognition and decision making should mutually constrain and inform each other about insights and contradictions that arise between them. Hadizadeh, Moghadam, Tehrani and Amin (2011). In a study the relationship between Emotional Intelligence (EI) and decision making styles (rational, intuitive, dependent, spontaneous and avoidant) of managers in Iranian oil industry. Emotional intelligence and each of rational and avoidant decision making styles are negatively related and there was a positive relationship between emotional intelligence and intuitive decision making style of managers. Colombo, Iannello, and Antonietti (2010). Metacognitive Knowledge of Decision-Making: An Explorative Study. Awareness and metacognitive knowledge about decision making are linked to professions and expertise; also that individual decision-making style modulates metacognitive knowledge. Brinol Petty & Rucker (2006). The role of meta-cognitive processes in emotional intelligence. Metacognitive confidence can affect primary emotional thoughts, first level cognition are influenced by emotional thoughts at metacognition, primary and secondary level of emotional thoughts can affect one another. Depending on the situation mood and emotional thoughts can play different roles in cognition and metacognition. Study A metacognitive analysis of decision making in adolescence by Cherylomond and Luszczleon (1991) found that each scenario of decision making adolescents scored significantly higher performance though early adolescents showed low metacognitive knowledge and incompetent decision making style than middle adolescents. Decision scenario task were significantly associated with metacognitive knowledge.

Methods

Objectives

To study the factor affecting of metacognitive thinking and its components in determining decision making styles.

To determine the impact of metacognitive thinking on emotional intelligence among young adults.
To determine the impact of metacognitive thinking on decision making styles among young adults.

Hypotheses

H₀ 1. There is no impact of metacognitive thinking on decision making styles among young adults.

H₀ 2 There is no significant impact of metacognitive thinking on emotional intelligence among young adults.

Variables

Independent Variable: Metacognitive thinking

Dependent Variable: Decision making styles

Emotional Intelligence

Operational Definitions of the terms used

Metacognitive thinking: An activity of monitoring and controlling one's cognition.

Emotional Intelligence: EI is one's ability to perceive, appraise, express and identify his or her own emotions and the emotions of others.

Decision Making Style: Habitual patterns individuals use to make decisions (Bavol'ár & Orosová, 2015).

Sample: The sample comprised of 300 young adults (150 males and 150 females) of age range between 19 to 24 years. Sample employed conveniently from different courses in the degree colleges of NCR region. Mentally unhealthy students were excluded from the sample.

Material:-

Metacognitive thinking Scale by Goel and Sandhu (2010) was used. It (MTS) sub-divided into 8 sections, each contain 10 items. .87 split-half reliability shows high consistency of the scale. Factor analysis indicates that the content validity and face validity of the scale were high. Factorial validity was also computed.

Emotional Intelligence Scale constructed by Prasad in (2009) consisted of total 40 items which were further subdivided in five areas. Test-retest and Split half reliability ranges from .79 to .86. Scale have good predictive, face and content validity.

Myers-Briggs Type of Indicator (MBTI) by Myers Briggs (1998) is a psychometric questionnaire. There were 93 test items further divided in four parts in the type indicator such as sensation, intuition, feeling and thinking. Internal consistency based on split-half reliability range from .92 to .89.

Research Design:

Statistical Technique: Stepwise Regression analysis were used to analyzed the data.

Result

Table- 1

Table showing results of Linear Regression Analysis predicting scores of Metacognitive thinking and decision making styles.

Metacognitive Decision Making styles Thinking	R	R ²	B	T	Sig
M. Thinking → Sensing-Thinking	0.423	.178	.423	4.002	0.000*
M. Thinking → Sensing- Feeling	0.342	.116	.416	3.305	0.004*
M. Thinking → Intuitive- Thinking	0.520	.270	.221	5.256	0.000*
M. Thinking → Intuitive- Feeling	.025	.0006	.432	2.857	0.007*

Regression analysis was conducted, taking the metacognitive thinking as independent variable and styles of decision making, emotional intelligence as dependent variables.

H_{01.1}: There is no significant impact of metacognitive thinking in determining sensing- thinking styles of decision making.

Table 1 depicts that Metacognitive thinking explained about around 18% variance in young adults' sensing- thinking style of decision making (R² = .178). Strength of relationship is significant (R = .423). Therefore we fail to reject corresponding null hypothesis that is, there is no significant impact of metacognitive thinking on sensing-thinking style of decision making.

H_{01.2}: There is no significant impact of Metacognitive thinking in determining sensing-feeling style of decision making.

Results indicated that metacognitive thinking accounted about 12% variance in students' sensing-feeling style of decision making (R² = .116). The relationship was positive with a moderate strength (R = .342). Significant at .05 level, thus we reject the null hypothesis. Therefore metacognitive thinking determine sensing-feeling style of decision making.

H_{01.3}: There is no significant impact of metacognitive thinking in determining decision making intuitive-thinking style of decision making.

Metacognitive thinking explained 27% contribution in intuitive-thinking style of decision making (R² = .270). Strength of the relationship is significant (R = .520). Metacognitive thinking contributed significantly in the intuitive-thinking style of decision making of young adults. Therefore we reject the null hypothesis, that is there is no significant impact of metacognitive thinking in determining intuitive-thinking style of decision making.

H_{01.4}: There is no significant impact of metacognitive thinking in determining intuitive-feeling style of decision making.

Metacognitive thinking accounted a negligible variance .06% in intuitive-feeling style of decision making (R² = .0006). Although the relationship was significant but with low strength (R = .025). So we fail to reject the null hypothesis that is, there is no significant impact of metacognitive thinking on intuitive-feeling style of decision making.

Table- 2
Table showing results of Linear Regression Analysis predicting scores of Metacognitive thinking Emotional Intelligence.

Metacognitive Emotional Intelligence Thinking	R	R ²	B	T	Sig
M. Thinking → Self control	.052	.0027	.256	-3.712	0.000*
M. Thinking → Trustworthy	0.287	.0823	.306	-5.472	0.036*
M. Thinking → Conscientiousness	.253	.064	.520	2.156	0.000*
M. Thinking → Adoptability	.452	.204	.439	-5.420	0.016*
M. Thinking → Innovation	0.662	.438	.402	3.784	0.000

H_{02.1}: There is no significant impact of metacognitive thinking in determining self-control.

Table 2 explained Self-monitoring explained negligible contribution .027% in decision making styles ($R^2=.0027$). Similarly the relationship was significant ($R=.052$) but with low strength. Therefore we reject the corresponding null hypothesis.

H_{02.2}: There is no significant impact of metacognitive thinking in determining trustworthiness.

Metacognitive thinking explained .82% variance in trustworthiness ($R^2=.082$). But the strength of the relationship is significant ($R=.287$). Thus we reject the null hypothesis that there is no significant impact of metacognitive thinking in determining trustworthiness.

H_{02.3}: There is no significant impact of metacognitive thinking in determining conscientiousness.

Metacognitive thinking accounted .64% variance in conscientiousness ($R^2=.064$). The strength of relationship was significant ($R=.25$). Therefore the corresponding null hypothesis has been accepted.

H_{02.4}: There is no significant impact of metacognitive thinking in determining adoptability.

Metacognitive thinking accounted 20% variance in adoptability ($R^2=.20$). The strength of relationship was significant ($R=.45$). Thus we accept the null hypothesis that there is no significant impact of metacognitive thinking in determining adoptability.

H_{02.5}: There is no significant impact of metacognitive thinking in determining innovation.

Metacognitive thinking accounted around 44% variance in innovation ($R^2 = .44$). The strength of relationship was significant ($R=.66$). Thus we accept the null hypothesis that there is no significant impact of metacognitive thinking in determining innovation.

Discussion

Metacognitive knowledge about decision making are associated to professions and expertise similarly knowledge about one's own emotions are associated with self-control and adoptability.

The findings of the study suggested that metacognitive thinking have significant role in decision making style and emotional intelligence of young adults. Metacognitive thinking significantly affect sensing-thinking style of decision making because the young adults who prefer sensing-thinking style of decision making are extremely practical and focus on the facts while taking their decision. Another finding was metacognitive thinking influence intuition-thinking style of decision making, the reason may be that intuited-thinker are more rational and analytic while taking their decisions, where metacognitive thinking also helps them to analyze the future outcomes of their decision. Similarly sensing-feeling style of decision making also influenced by metacognitive thinking because young adults who prefer such style of decision making focuses on factual information and grasp tangible things based on values.

In the context of dual process theories of cognition it is sometimes suggested that people usually do not deliberate or reflect on their judgments and decisions, but rather follow their intuitions. Some metacognition researchers also proposed that metacognitive experiences (such as feeling of rightness or difficulty) play an important role in determining whether we change our intuitive responses for more deliberate, reflective reasoning and decision making. Those who prefer intuition-feeling style of decision making are also influenced by metacognitive thinking although the strength of impact is negligible. The reason may be that such style of decision makers are emotionally-social and concern for humanistic values rather than cognitive aspects because at this phase of development individual becomes more society oriented.

Nuhfer (2017) described how affect controls thinking-feeling and regulates how one filter the world and operate thus controlling our success and failure. Some other studies are showing that guiding college students in evolving emotional intelligence leads to increases in retention and persistence of college students Mendez, Aronold, Erjavec, & Lopez (2019). Findings of the study revealed that metacognitive thinking influence self-control, the component of emotional intelligence in different emotional situations. Self-control explained that individual is able to manage their impulsive feelings and distressing emotions well, they can even think clearly and stay focused under pressure. Our findings indicate that metacognitive thinking affects another component of emotional intelligence i.e. trustworthiness. The reason may be that trustworthiness is the competency of young adults where they admit their own mistakes, confront unethical actions in others and they are able to do so because of metacognitive thinking. Conscientiousness also influenced by metacognitive thinking as indicated by results. It holds young adults

to be organized and careful in meeting their commitments and keep promises. Metacognitive thinking influenced adoptability, adoptability is the efficiency of an individual in handling challenges and the capability to adapt with responses and tactics to fit in the circumstances. Metacognitive thinking have a significant role in innovation also. Due to metacognitive thinking individual is able to open novel ideas and take fresh perspective in their thinking.

The results indicated that all emotional intelligence components are positively related to metacognitive thinking. Results of the study clearly indicated that a metacognitive thinking, are related to a higher level of emotional intelligence. The efficiency of an individual to manage his/her own emotions and the emotions of others is often accompanied by a host of additional or second order thoughts relevant for perceiving, metacognition and self-organization. Our findings matched up with other results (Alavinia & Mollahosseini, (2012) found a positive relationship between learners' Emotional Intelligence and their use of metacognitive strategies.

Metacognition thoughts play an important role in understanding psychological processes relevant to emotional intelligence. Sharei et.al (2012) revealed that metacognition and emotional intelligence contribute significantly to the prediction of problem-solving ability. Our results are comparable with Pluzhnikov's theoretical conception which describes emotional intelligence like a metacognitive ability: Understanding one's own goals and setting them in accordance with the available opportunities helps one to achieve results Perikova and Bysova (2018). Conclusion of our study mean that the regulation, monitoring, and control of cognitive activities can influences Emotional Intelligence and decision making styles of university students.

Conclusion: The study duly concludes that metacognitive thinking as an important determinant of decision making styles and emotional intelligence of college going students. The rapid development era which challenges the college going students to face the wave of globalization demands to have cognitive skills. Researcher report that Sensing-thinking and intuitive thinking decision making styles are significantly related to metacognitive thinking. All components of Emotional Intelligence are significantly related to metacognitive thinking. This study has implications for students as well as for the employees of organizations. It has opened up a number of pathways for future research to explore further aspects of metacognition in business practices and in classrooms.

Implications of the study the study focused on does metacognitive thinking influence the emotional intelligence and decision making styles of the college going students. Young adult is the state of revolutionary changes when a rapid cognitive development occurs. It is the phase where they have to analyze their cognitive processes and to think about solving a problem on their own. It includes categorization, organize objects in to a hierarchy and reversing process. This work has implications for teaching and learning, particularly in the classroom, there is still a need of exploration for a greater application of metacognition. Flavell (1979) explained metacognition as a knowledge that precedes its object or regulates different aspects of cognitive attempt.

Studies such as Kumar (1998), Enos and colleagues (2003) and Mitchell et al. (2011) have examined and proposed few particular metacognitive strategies for various decision-making situations. Decision making is that cognitive process, on which the success either related to their career or personal life depends. Life imposes social and emotional challenges at different level to the individual and demands to make decisions and adaptation according to the circumstances. The most important factor that influences the capability of decision making among individual is an Emotional Intelligence. Emotional Intelligence is a specific metacognitive ability, which consists of systematic abilities of perception, understanding, and regulation of emotions in different conditions. (Pluzhnikov, 2010). Present study offers greater insight into this as its findings indicate that metacognitive thinking can be used to enhance decision making because it facilitate knowledge and awareness of one's own potential.

The study emphasizes the need to become aware of their own thoughts and perceptions because researchers such as Bransford, Brown and Cocking (2000), found that students often do not naturally engage in metacognitive thinking unless they are given specific instruction to do so. While metacognition has been proven effective, these researchers recommend that students need more opportunities to help them develop and engage in metacognitive thinking. In particular, the findings from this study can be

used to facilitate metacognitive strategy use for students' decision makers. By doing so students can string effective strategies that have been reinforced by the literature and apply them to their decision-making practices. Students were used for this study as exemplars of future business decision makers. Teachers have identified the role of better decision making in study habits and classroom learning objectives. Similarly potential employers consider decision making skills as a key factor for success and self-enhancement. Study done by Clemen and Gregory (1999) also revealed the importance of decision making for students. Thus being able to teach students to analyze their own thoughts had wider implications for future business decision making practice.

Every organization shares the objectives concerning improving the decision-making quality and manipulation skills of emotional intelligence which can assist in the attainment of the goals Emotional intelligence is an extremely important factor in creating effective decision in our daily routine either at workplace or in our personal life. It has been evidenced that higher levels of emotional intelligence can lead to salary increases Rode, Arthaud-Day, Rmaswami, & Howes (2017).

College going students is also required to be an emotionally adaptable and stable because they have to face hardships, ups and down, and emotionally challenging circumstances. Thus, application of emotional intelligence, could help to channelize students' strategic decisions and its outcomes.

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