

SELF-EFFICACY AND METACOGNITIVE AWARENESS AMOUNG COLLEGE STUDENTS

SELF-EFFICACY AND METACOGNITIVE AWARENESS AMOUNG COLLEGE

STUDENTS

Dissertation submitted to Kerala University

In partial fulfilment of the requirements for the award of the Degree of

M. Sc. Counselling Psychology

By

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2021- 2023

CERTIFICATE

This is to certify that the Dissertation entitled “**Self-Efficacy And Metacognitive Awareness Among College Students**” is an authentic work carried out by Anagha B Murukan, Reg. No. 60421115002 under the guidance of Dr. Pramod S K during the fourth semester of M.Sc. Counselling Psychology programme in the academic year 2021- 2023.

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DECLARATION

I, Anjitha A, do hereby declare that the dissertation titled “**Self-Efficacy And Metacognitive Awareness Among College Students**”, submitted to the Department of Counselling Psychology, Loyola College of Social Sciences, Sreekariyam, under the supervision of Dr Pramod S K, Assistant professor of the Department of Counselling Psychology, for the award of the degree of Master’s in Science of Counselling Psychology, is a bonafide work carried out by me and no part thereof has been submitted for the award of any other degree in any University.

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With Regards,

Anjitha A.

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ABSTRACT

Self-efficacy awareness of present events and experiences is referred to as an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). Metacognition awareness refers to one's own cognitive processes, often involving a conscious attempt to control them. Both self- efficacy and metacognitive awareness have beneficial implications in daily life. This quantitative study aimed to examine self- efficacy and metacognitive awareness among college students. For the purpose of the study, a total sample of 135 college students is selected from the Thiruvananthapuram, Kerala. The age of the sample ranged from 18-30+ years. Participants completed the 30- Item Metacognitive Inventory Scale by Sindhu P.G (2011) and General/Generalized Self-Efficacy Scale (GSE) by Schwarzer and Jerusalem (1995). Descriptive statistics were computed followed by tests of normality, Kruskal- Wallis test, Mann- Whitney test and non-parametric correlations method. Major findings concluded that self- efficacy and metacognitive awareness among college students vary. A correlation was found in the relationship between self- efficacy and metacognitive awareness among college students.

Keywords: self-efficacy, metacognitive awareness, college student

CHAPTER 1

INTRODUCTION

Dr. David Conley, in a 2014 Education Week article, argued for the use of the term “metacognitive” rather than “non-cognitive.” Metacognitive awareness is all learning processes and behaviours involving any degree of reflection, learning strategy selection, and intentional mental processing that can result in a student’s improved ability to learn.

Metacognitive awareness involves self-reflecting on these learning processes in order to understand and improve them. This focus on metacognition is in contrast to an emphasis on cognitive content knowledge which until recently has dominated educational theory, policies and practice. Recent research demonstrates that both cognitive and metacognitive abilities are critical to student learning and achievement.

Hacker, et al (2009) defines metacognition as consisting of “two complementary processes: 1) the knowledge of cognition and 2) the regulation of cognition.”

Awareness (knowledge of cognition) focuses on our knowing the metacognitive factors that influence our learning and performance, knowing various appropriate strategies to improve our learning processes, and knowing which strategies to select to increase our ability to control and manage our mental processes. Regulation focuses on applying what we know and taking action to improve our learning processes and hence improve our learning outcomes. This involves goal-setting, planning, implementing the plan and monitoring progress, and evaluating the results of our efforts to improve our learning.

Our metacognitive abilities enable us to reflect on what controls our learning processes and take action to improve them. Development of our metacognition is a pathway to improved

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learner outcomes and as such needs to be a strong focus in the work of school counsellors.

Even a cursory look at the CBA's four constructs and associated sub-constructs shows that metacognition is inextricably related to a CBA's foundational components.

There is also a strong relationship between CBA constructs and sub-constructs, metacognitive abilities and social-emotional learning. The CASEL (Collaborative for Academic, Social and Emotional Learning) website states: "The short-term goals of SEL programs are to (1) promote students' self-awareness, social awareness, relationship, and responsible-decision-making skills and (2) improve student attitudes and beliefs about self, others, and college."

Staying informed about what works and does not work to help students achieve and succeed is one of the defining characteristics of a professional college counsellor. Internet search engines can be used to develop a deeper understanding of the topics discussed on the CBA Website. To get you started, there are some additional resources you may find helpful. These resources, however, only scratch the surface of what is available on the Internet or in published books and articles. We encourage you to use search engines to find more resources that will increase your understanding and build your capacity to apply these ideas in your work as college counsellors.

Self-efficacy refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). Self-efficacy reflects confidence in the ability to exert control over one's own motivation, behavior, and social environment. These cognitive self-evaluations influence all manner of human experience, including the goals for which people strive, the amount of energy expended toward goal achievement, and likelihood of attaining particular levels of behavioural performance. Unlike traditional psychological constructs, self-efficacy beliefs are

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hypothesized to vary depending on the domain of functioning and circumstances surrounding the occurrence of behaviour.

Self-Efficacy Theory (SET) has had considerable influence on research, education, and clinical practice. In the field of health psychology, for example, the construct of self-efficacy has been applied to behaviours as diverse as:

- Self-management of chronic disease
- Smoking cessation
- Alcohol use
- Eating
- Pain control
- Exercise

A search of [PsycINFO®](#) for the last five years lists more investigations of self-efficacy than of locus of control, sense of coherence, learned helplessness, and other popular constructs.

The intuitive appeal of self-efficacy theory in these health-related domains have encouraged its use in research addressing the prevention of HIV.

Lessons Learned From HIV/AIDS

Self-efficacy is assessed frequently in HIV prevention research but there has been mixed evidence for the relationship between self-efficacy (for safer sex) and sexual risk behaviour (Forsyth & Carey, 1998). This pattern of findings might be interpreted to mean that self-efficacy is irrelevant to the study of HIV-related risk behaviour, and perhaps other health-related behaviours. However, it is likely that such a conclusion would be premature.

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What HIV research has taught us, however, is that reliable and valid measurement of self-efficacy is very challenging. Instruments intended to assess self-efficacy for safer behaviour often measure constructs other than self-efficacy. For example, investigators have used measures with content reflecting HIV-related knowledge, behavioural intentions, attitudes toward safer sex behaviours, perceptions of the difficulty of enacting risk reducing behaviours, perceived helplessness, perceived vulnerability to HIV infection, acceptance of sexuality, and other unique operationalizations (Forsyth & Carey, 1998). Imprecise operationalizations of self-efficacy beliefs obscure what is being measured, and attenuate bivariate relationships.

HIV research has also called attention to the limited evidence for the validity of the self-efficacy measures. Brafford and Beck (1991) reported discriminative evidence for the validity of the Condom Use Self-Efficacy Scale (CUSES) by demonstrating that scores distinguish:

- (a) consistent, inconsistent, and non-condom users;
- (b) sexually experienced and inexperienced participants; and,
- (c) participants who did or did not report a history of sexually transmitted disease infection.

In a series of subsequent studies, investigations have corroborated the discriminative validity of CUSES scores (Brien et al., 1994; Mahoney et al., 1995). In each of these studies, self-efficacy ratings distinguished college students on the basis of self-reported consistency of condom use. Considerably less attention has been paid to predictive and construct evidence. A related problem is that attempts to evaluate self-efficacy measures have been limited by validation methods that employ single assessment strategy. Such investigations are unable to demonstrate that observed correlations do not result primarily from shared method variance. This research reminds us that Campbell and Fiske's (1959) recommendations for using

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multitrait-multimethod matrices for evaluation of convergent and discriminant evidence are needed.

HIV research also reminds us that conceptual clarity about the nature of efficacy beliefs is critical to the development of measures that are consistent with SET. Items intended to assess efficacy beliefs should be operationalized so that they:

- (a) assess beliefs in the capacity to
- (b) enact domain-specific behaviours in
- (c) circumstances that present gradations of challenge.

Studies of HIV prevention frequently do not achieve this level of precision but noteworthy exceptions exist. For example, Basen-Engquist's (1992) multi-item measure of self-efficacy for negotiating safer sex and condom use meets each criterion. The measure assesses students' beliefs in their capacities to enact risk reducing behaviour (e.g., initiating a discussion of condom use) across a number of circumstances (e.g., discussing safer sex with a new partner prior to intercourse). This measure also used elicitation-based scenarios to provide details about situational demands that could influence the level and strength of efficacy beliefs. [Use of such elicitation (qualitative) research in advance of quantitative investigations reflects another contribution of HIV research to health-behaviour research, in general.]

In addition to these fundamental measurement concerns regarding self-efficacy, HIV research has also demonstrated that methodological issues may attenuate observed efficacy—behaviour relationships. Self-efficacy risk reduction associations may be influenced by ceiling effects, response bias, and measurement error associated with self-report measures of risk behaviour (Weinhardt et al., 1998). A consistent finding in HIV prevention research is that self-efficacy scores tend to be negatively skewed. In response to inquiries about perceived capabilities, respondents often report being highly efficacious to enact risk-

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reducing behaviours. This response tendency may lead to censored distributions wherein a considerable proportion of the sample yields maximum self-efficacy scores. One explanation for these ceiling effects is that efficacy measures do not contain sufficient levels of challenge relevant to the target sample (Bandura, 1997). In the absence of contextual cues, responses may reflect performances in "best case" scenarios that yield maximum self-efficacy scores. These responses will obscure real differences between respondents. In addition, scoring protocols that restrict the range of possible responses may also produce truncated data. The resulting lack of sensitivity to differences in self-efficacy limit predictions of behavioural performance. Thus, incorporating sufficient gradations of challenge in items and sufficiently wide response intervals is critical to the development of sensitive self-efficacy measures.

An additional explanation for ceiling effects is that efficacy scores may be influenced by response bias. That is, research participants may respond in ways that reflect well of them. Traditional psychological assessment, which advances a trait conceptualization of social desirability responding, has been adopted in HIV prevention research. Not surprisingly, this approach has revealed no relationship between socially desirability bias and efficacy beliefs (e.g., Forsyth et al., 1997). One limitation of these findings is that investigators attempted to predict dynamic efficacy beliefs from items reflecting stable personality traits, with the latter having no clear relevance to the HIV domain. These traditional measures of socially desirable responding treat assessment items as signs of a larger construct, ignoring the reality that behaviours conferring risk for HIV infection are uniquely stigmatizing. Failure to find significant correlations among social desirability, self-efficacy, and HIV risk behaviour may be attributed to incongruencies inherent in the assessment. Participants may present in socially acceptable ways when asked about HIV-risk behaviours, but do so in ways that are not detected by trait measures of presentation bias. Just as risky sexual behaviours may be under-reported, beliefs like self-efficacy for risk reducing behaviours may be over-reported.

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The assessment of response bias in the context of self-efficacy research warrants increased attention.

Lending Help Strategies

Help students to understand the differences among constructs from related social-cognitive theories (e.g., self-efficacy, outcome expectancies, behavioural intentions, behavioural difficulty, self-esteem, optimism, etc.).

Encourage students to develop a measure of self-efficacy for any health-related behaviour that avoids the confounding of self-efficacy with these other constructs. If the health behaviour is socially stigmatized (e.g., sexual behaviour, illegal drug use) or if social norms suggest that one should engage frequently in a behaviour (e.g., exercise), discuss how social desirability response biases might inflate self-efficacy scores.

- Discuss measurement (e.g., scale construction) and statistical (e.g., transformation of data) solutions to such problems.
- Encourage students to develop methods to assemble evidence for the validity of their self-efficacy measure.
- Help students to design an intervention program that will enhance self-efficacy, and a research design to measure changes in self-efficacy and whether these changes alter risky behaviours.

Need and significance of the study

The present study is aimed to explore the metacognitive awareness and self-efficacy of college students. Research indicates that students who are involved in metacognitive awareness training score higher on school tests than students who do not participate in such training. Developing metacognitive awareness is an important part of helping learners

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become more effective and, importantly, more autonomous. If learners are conscious of how they learn then they can identify the most effective ways of doing so. Researches indicates that self-efficacy appears to be an important variable because it impacts students' motivation and learning.

Although there are many studies concerned with metacognition and self-efficacy skills, the findings are unsettled. Niemivirta (1997) reported that male students use more superficial learning strategies than females and Bidjerano (2005) indicated that girls use much more often than boy's self-monitoring, goal setting and planning. Nonetheless, Zimmermann and Martinez-Pons (1990), and recently Zhu (2007) reported that there are no significant differences between boys and girls regarding self-efficacy. Considering the inconsistent findings in metacognitive awareness and self-efficacy of college students, the present study aims to identify the links between metacognitive awareness, and self-efficacy in a sample of college students.

Statement of the problem

Metacognitive awareness is an important topic to study because it is having an influence in the academic output, self-esteem, personal growth, etc. of a student. Developing metacognitive awareness is an important part of helping learners become more effective and, importantly, more independent. Self-efficacy is also an important part in the student's life. But much studies are not done based on this variable. There are not much research findings made on metacognitive awareness and self-efficacy of school students, the present study aims to identify the links between metacognitive awareness, and also self-efficacy in a sample of college students.

Operational definitions of key terms

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Metacognition means “thinking about one’s own thinking”. Metacognitive awareness means being aware of how you think. Metacognition is the awareness of one’s thinking and the strategies one is using.

Self-efficacy is defined as one's belief in one's ability to succeed in specific situations or accomplish a task.

The purpose of this investigation is to understand the metacognitive awareness and self-efficacy of college students. The findings indicate that generally both girls and boys use differently their metacognitive awareness and self-efficacy in learning.

In addition, the results indicate that there are significant differences between boys and girls solely on the following dimensions: the perception of performance as a result of one's will and effort, the perceptions regarding teachers expectations about learning, the use of self-efficacy in educational as well as co-curricular activities, the use of prior knowledge in problem-solving, planning, knowledge about one's own intellectual strengths and weaknesses, the use of various learning strategies and monitoring the learning process.

The first variable metacognitive awareness has positive influences upon pupils’ learning and college performance since research indicates that metacognition increase academic motivation and learning (Shunk & Ertmer, 2000). Hence, metacognition skills in a specific domain could be used as an indirect assessment of performance.

The second variable self-efficacy are essential as they are designed to develop college students’ self-efficacy beliefs and improve learning which include the following: encourage students to set clear, specific, and challenging proximal goals; provide students with honest and explicit feedback; facilitate accurate calibration of self-efficacy; and use peer modelling.

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Objectives of the study

- To find out the metacognitive awareness and self-efficacy among college students.
- To find out whether there exists any significant difference in the metacognitive awareness and self-efficacy among college students based on their locality.
- To find out whether there exists any significant difference in the metacognitive awareness and self-efficacy among college students based on their gender.
- To find out whether there exists any significant difference in the metacognitive awareness and self-efficacy among college students based on their stream of study.

Hypotheses of the study

- There will be significant difference in metacognitive awareness and self-efficacy among college students.
- There will be significant difference in metacognitive awareness and self-efficacy among college students based on their locality.
- There will be significant difference in metacognitive awareness and self-efficacy among college students based on their gender.
- There will be significant difference in metacognitive awareness and self-efficacy among college students based on their stream of study.

CHAPTER 2

REVIEW OF LITERATURE

Self-efficacy is described as an assumption in one's ability to cope or develop in order to achieve one's aims and outcomes as it makes it possible to evaluate conceptual statements on the link between the constructs (Bandura, 1993). The improvement of a student's self-efficacy in their own skills is closely related to academic achievement (Mahasneh & Alwan, 2018). Students established a clear contrast in their sense of self-efficacy in completing activities such as examinations or assignments (Drysdale & McBeath, 2018). Additionally, one issue with the efficacy of learning is that some students revealed that the learning difficulties were done in such a way that they could include their classroom assessment grade and still get a good mark. Students were worried about their assignments since they believed they had the tools to do them all. Students who feel they have mastered skills and accomplished complex tasks, on the other hand, have higher efficacy beliefs (Gurefe & Bakalim, 2018). Students seemed to believe that their learning would ready them for whatever faced their path. Students felt a significant deal of pressure to maintain their academic excellence throughout their university years in order to fulfil graduation requirements and be eligible for upcoming courses offered. Students' anxiousness over grades is sometimes justified by their fear of losing eligibility for academic scholarships.

Metacognitive awareness is described as a phenomenon that presents itself in a variety of ways that occur when individuals interact with circumstances and occurrences in their real-life experiences (Adinda et al., 2021). Metacognitive information will assist individuals in organizing, monitoring, and sequencing their learning so that productivity gains may be achieved efficiently (Asy'ari et al., 2022). Furthermore, Moxon (2022) mentioned that "critical reflection is a process of in-depth analysis that reveals implausible concepts,

assumptions, expectations and makes our own reflection apparent”. Flavell (1979) introduced the concept of “metacognition”. Flavell (1979) defined metacognitive knowledge as “knowledge and cognition about cognitive phenomena” and considered it to be the learner’s comprehension of their own cognition. As a result of Flavell’s (1979) research, other researchers decided to understand metacognitive and describe it as a concept of varying dimensions. This instance demonstrated that the idea may have several metacognitive components. Many connotations have emerged in this circumstance. Asy’ari et al. (2022) did considerable research on the metacognition, which was defined by Flavell (1979) as being used by learners in the case of planned learning and problem-solving, awareness and regulation of cognitive processes. Metacognitive knowledge, as described by Karaoglan Yilmaz (2022) is “knowledge about distinct components of an individual’s thinking processes” and “modifying capabilities of individuals about cognitive operations in order to understand more effectively.” Brown (1978) defines metacognitive knowledge as “knowledge about diverse qualities of an individual’s thinking processes and applying people skills regarding cognitive activities to grasp more effectively”. Individual’s knowledge of their own cognitive processes and techniques, as well as their aptitude to monitor and regulate these processes, is referred to as metacognitive knowledge. Individuals must monitor, evaluate, and reflect on their own learning and cognitive processes under this strategy. The reflective thinking qualities required for this procedure too must be considered (Khodaei et al., 2022). Furthermore, Robillos and Bustos (2022) assert that the reflective process is a dialectic between thinking and action at the foundation of the evolutionary change in approach, which necessitates fundamental transformations in ideas, attitudes, and norms about teaching and learning if change is to be achieved through reflection.

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Self-efficacy research in academic contexts have generally focused on two main aspects.

Another research explored the correlation between efficacy beliefs, fields of study, and career paths, especially in science and mathematics (Blotnicky et al., 2018; Drysdale & McBeath, 2018; May, 2009; Tak et al., 2021). The second field of research has looked at the link between efficacy beliefs, related psychological dimensions, and academic accomplishment (Aprisal & Abadi, 2018; Celik & Kocak, 2018; Mahasneh & Alwan, 2018). The current research found high variability across metacognitive awareness research, which is consistent with earlier research (Mohammadi et al., 2022; Moxon, 2022; Robillos & Bustos, 2022; Tak et al., 2021; Wafubwa & Csikos, 2022). All reported Cronbach's alpha are liability coefficients for metacognitive awareness measures were >0.70 , with all except one reaching $=0.94$ (Karaoglan Yilmaz, 2022). Nonetheless, using the same meta-regression method as with the moderators, metacognitive awareness reliability was investigated as a possible continuous moderator of the six pooled correlations (Adinda et al., 2021; Karaoglan Yilmaz, 2022; Moxon, 2022; Robillos & Bustos, 2022; Wafubwa & Csikos, 2022).

The current research found high variability across metacognitive awareness research, which is consistent with earlier research (Mohammadi et al., 2022; Moxon, 2022; Robillos & Bustos, 2022; Tak et al., 2021; Wafubwa & Csikos, 2022). However, the Cronbach's alpha value which were >0.70 for the self-efficacy toward mathematics research (the path equivalent to prior unidirectional meta-analyses) compares well to the values of 0.72-0.93 found in the sole review that included comparable data (Aprisal & Abadi, 2018; Blotnicky et al., 2018; Liu et al., 2020). Meanwhile, all reported Cronbach's alpha are liability coefficients for metacognitive awareness measures were >0.70 , with all except one reaching $=0.94$ (Karaoglan Yilmaz, 2022). Nonetheless, using the same meta-regression method as with the moderators, metacognitive awareness reliability was investigated as a possible continuous

moderator of the six pooled correlations (Adinda et al., 2021; Karaoglan Yilmaz, 2022; Moxon, 2022; Robillos & Bustos, 2022; Wafubwa & Csíkos, 2022).

RESEARCH GAP

The present study is aimed to explore the metacognitive awareness and self-efficacy of college students. Research indicates that students who are involved in metacognitive awareness training score higher on school tests than students who do not participate in such training. Developing metacognitive awareness is an important part of helping learners become more effective and, importantly, more autonomous. If learners are conscious of how they learn then they can identify the most effective ways of doing so. Researches indicates that self-efficacy appears to be an important variable because it impacts students' motivation and learning.

Although there are many studies concerned with metacognition and self-efficacy skills, the findings are unsettled. Niemivirta (1997) reported that male students use more superficial learning strategies than females and Bidjerano (2005) indicated that girls use much more often than boy's self-monitoring, goal setting and planning. Nonetheless, Zimmermann and Martinez-Pons (1990), and recently Zhu (2007) reported that there are no significant differences between boys and girls regarding self-efficacy. Considering the inconsistent findings in metacognitive awareness and self-efficacy of college students, the present study aims to identify the links between metacognitive awareness, and self-efficacy in a sample of college students.

CHAPTER 3

METHOD

Research methodology entails the systematic, theoretical analysis of procedural steps applied to a field of study. An essential part is that it involves describing, explaining, and predicting phenomena in order to solve a problem. The research methodology comprises aspects such as research designs, target population, sample size and sampling procedure, data collection instruments and data analysis procedure. Rather than offering solutions, methodologies provide the theoretical basis for understanding which procedure, or set of procedures, can be applied to a particular case (Kothari, 2004).

Research design

According to Kothari (2004), “a research design is a plan, a roadmap and a blueprint strategy of investigation conceived so as to obtain answers to research questions, it is the heart of any study”. Accordingly, considering the purpose of this study descriptive research design was found appropriate for meeting the objectives. The survey method using questionnaires was adopted for collecting data regarding the variables of the study. Calderon & Gonzales (2018), define descriptive research as “a purposive process of gathering, analysing, classifying, and tabulating data about prevailing conditions, practices, processes, trends, and cause-effect relationships and then making an adequate and accurate interpretation of such data with or without or sometimes minimal aid of statistical methods”.

Participants

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A total sample of 135 college students was collected by using the convenience sampling method. The sample consists of 60 male and 60 female participants. In the respective sample, the age of students ranged from 18 to 30+ years. The sample consisted of participants belonging to various engineering, arts and science colleges in Thiruvananthapuram.

Tools used for data collection

Variables: The variables in the current study are self-efficacy and metacognitive awareness.

In the present study existing standardized research questionnaires were used to assess self-efficacy and metacognitive awareness. A number of studies have statistically analysed and tested the questionnaires in order to corroborate the reliability and validity.

The following scale was used to measure self-efficacy:

General Self-Efficacy Scale.

The General Self-Efficacy Scale (GSE) consists of 10 items that assess optimistic self-beliefs to cope with a variety of difficult demands in life with statements such as “I can usually handle whatever comes my way” (Schwarzer and Jerusalem, 1995; Weber et al., 2013).

Participants’ responses were rated using a four-point scale ranging from 1 (does not describe me at all) to 4 (describes me to a great extent). In the present study, the Cronbach’s alpha coefficient for the GSE was 0.86.

Reliability

Internal reliability for GSE = Cronbach’s alphas between .76 and .90

Validity

The General Self-Efficacy Scale is correlated to emotion, optimism, work satisfaction. Negative coefficients were found for depression, stress, health

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complaints, burnout, and anxiety.

Scoring

	Not at all true	Hardly true	Moderately true	Exactly true
All questions	1	2	3	4

The total score is calculated by finding the sum of the all items. For the GSE, the total score ranges between 10 and 40, with a higher score indicating more self-efficacy.

The following scale was used to measure metacognitive awareness:

Metacognitive Awareness Inventory

The tool used was metacognitive awareness inventory prepared and standardized by Sindhu P.G (2011). It consists of thirty items following 5-point scale. The scale was standardized with reliability coefficient 0.742 which shows high reliability. Reliability is ensured using test-retest method. Validity is ensured as content validity.

Reliability

The scale was standardized with reliability coefficient 0.742 which shows high reliability.

Reliability is ensured using test-retest method

Validity

Validity is ensured as content validity.

Scoring

It consists of thirty items following 5-point scale from 1 ('strongly agree') to 5 ('strongly agree').

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Procedure for Data Collection

For the purpose of data collection, responses were collected from college students by providing questionnaires directly and also by sharing online forms. Permission from the authority of the respected colleges was taken for collecting responses directly and the participants were selected according to convenience. Consent from participants was taken and built a healthy rapport with them. In both forms of data collection, individuals' voluntary participation was ensured. The consent form and the personal data sheet used for data collection have been enclosed in the appendix. After establishing rapport, the questionnaires were provided and participants were informed about all the required details for filling up the questionnaires and were asked to carefully read the instructions given in the questionnaires. The participants were also requested to give honest responses and to give responses to every item of the questionnaires. 10-20 minutes were given for completing the questionnaires. Then after the questionnaires were taken back from them and gratitude was expressed for their valuable time and cooperative attitude. After data collection, scoring was done and subjected to statistical analysis.

Statistical Techniques used for Data Analysis

The following were the statistical techniques used for analysing the data. Statistical analysis for the data was done using the SPSS-22 (Statistical Package for Social Sciences) version.

Tests of normality

An assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing. There are two main methods of assessing normality: graphically and numerically.

This will help you to determine whether your data is normal, and therefore, that this assumption is met in your data for statistical tests. The approaches can be divided into two

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main themes: relying on statistical tests or visual inspection. Statistical tests have the advantage of making an objective judgement of normality, but are disadvantaged by sometimes not being sensitive enough at low sample sizes or overly sensitive to large sample sizes. As such, some statisticians prefer to use their experience to make a subjective judgement about the data from plots/graphs. Graphical interpretation has the advantage of allowing good judgement to assess normality in situations when numerical tests might be over or under sensitive, but graphical methods do lack objectivity. If you do not have a great deal of experience interpreting normality graphically, it is probably best to rely on the numerical methods.

Kruskal-Wallis test

The Kruskal-Wallis test is one of the non-parametric tests that is used as a generalized form of the Mann Whitney U test. It is used to test the null hypothesis which states that 'k' number of samples has been drawn from the same population or the identical population with the same or identical median. If S_j is the population median for the jth group or sample in the Kruskal-Wallis test, then the null hypothesis in mathematical form can be written as $S_1 = S_2 = \dots = S_k$. Obviously, the alternative hypothesis would be that S_i is not equal to S_j . This means that at least one pair of groups or samples has different pairs.

In order to apply the Kruskal-Wallis test, one has to write the data in a two-way format in such a manner that each column represents each successive sample. In the computation each of the 'N' observations is replaced in the form of ranks. This means that all the values from the 'k' number of samples are combined together and are ranked in a single series.

Mann-Whitney U Test

Mann-Whitney U test is the non-parametric alternative test to the independent sample t-test. It is a non-parametric test that is used to compare two sample means that come from the same

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population, and used to test whether two sample means are equal or not. Usually, the Mann-Whitney U test is used when the data is ordinal or when the assumptions of the t-test are not met.

Sometimes understanding the Mann-Whitney U is difficult interpret because the results are presented in group rank differences rather than group mean differences.

Assumptions of the Mann-Whitney:

Mann-Whitney U test is a non-parametric test, so it does not assume any assumptions related to the distribution of scores. There are, however, some assumptions that are assumed

1. The sample drawn from the population is random.
2. Independence within the samples and mutual independence is assumed. That means that an observation is in one group or the other (it cannot be in both).
3. Ordinal measurement scale is assumed.

Non-Parametric correlations

Non-parametric statistical procedures are less powerful because they use less information in their calculation. For example, a parametric correlation uses information about the mean and deviation from the mean while a non-parametric correlation will use only the ordinal position of pairs of scores. If your measurement scale is nominal or ordinal then you use non-parametric statistics

CHAPTER 4

RESULTS AND DISCUSSIONS

The present study aims to explore self-efficacy and metacognitive awareness among college students. A total sample of 135 college students was collected from Thiruvananthapuram district of Kerala. The sample consisted of male and female young adults aged between 18 to 30+ years. Self-efficacy and metacognitive awareness, which are the variables of interest were measured by using standardized questionnaires; General self-efficacy Scale and Metacognitive Awareness Inventory.

The study analyses the effect of self-efficacy and metacognitive awareness among college students and it also investigates the relationship between self-efficacy and metacognitive awareness college students and the effect of mindfulness and authenticity based on gender differences, education, etc. The obtained results for the variables of interest have been presented in the tables and the results are discussed with respect to objectives and hypotheses.

4.1 NORMALITY OF DATA

The data collected in the study is tested for normality, and it was found that the data is not normally distributed.

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4.1.1 Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Metacognition	.123	135	.000	.952	135	.000
Self-efficacy	.139	135	.000	.945	135	.000

a. Lilliefors Significance Correction

The table 4.1.1 presents the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests for the variables "Metacognition" and "Self-efficacy." These tests are used to assess the normality of the distribution of the data.

For the Kolmogorov-Smirnov test, the statistic value is presented in the first column. The "df" column refers to the degrees of freedom, which is the sample size minus one. The "Sig." column represents the significance level or p-value associated with the test. In this case, the p-value for both Metacognition and Self-efficacy is reported as 0.000, which means that the distribution of the data significantly deviates from a normal distribution.

Similarly, the Shapiro-Wilk test results are displayed in the second set of columns. Again, the statistic value is presented in the "Statistic" column, the degrees of freedom in the "df" column, and the significance level or p-value in the "Sig." column. The p-value for both Metacognition and Self-efficacy is reported as 0.000, indicating a significant departure from normality.

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Lastly, the "Lilliefors Significance Correction" note suggests that a correction for significance levels using the Lilliefors method has been applied. This correction is often used when the sample size is small. However, regardless of the correction, the p-values remain extremely low, indicating a significant departure from normality.

In summary, the table indicates that the data for both Metacognition and Self-efficacy variables do not follow a normal distribution based on the results of both the Kolmogorov-Smirnov and Shapiro-Wilk tests.

4.2 FREQUENCY ANALYSIS

Frequency extent shows the degree and range of general self-efficacy and metacognition among college students.

4.2.1 Self Efficacy Extent

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	1	.7	.7	.7
Valid	Moderate	86	63.7	63.7	64.4
	High	48	35.6	35.6	100.0

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Total	135	100.0	100.0
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Variable	Level	Frequency	Percent
Self-Efficacy	Low	1	0.7
	Average	86	63.7
	High	48	35.6

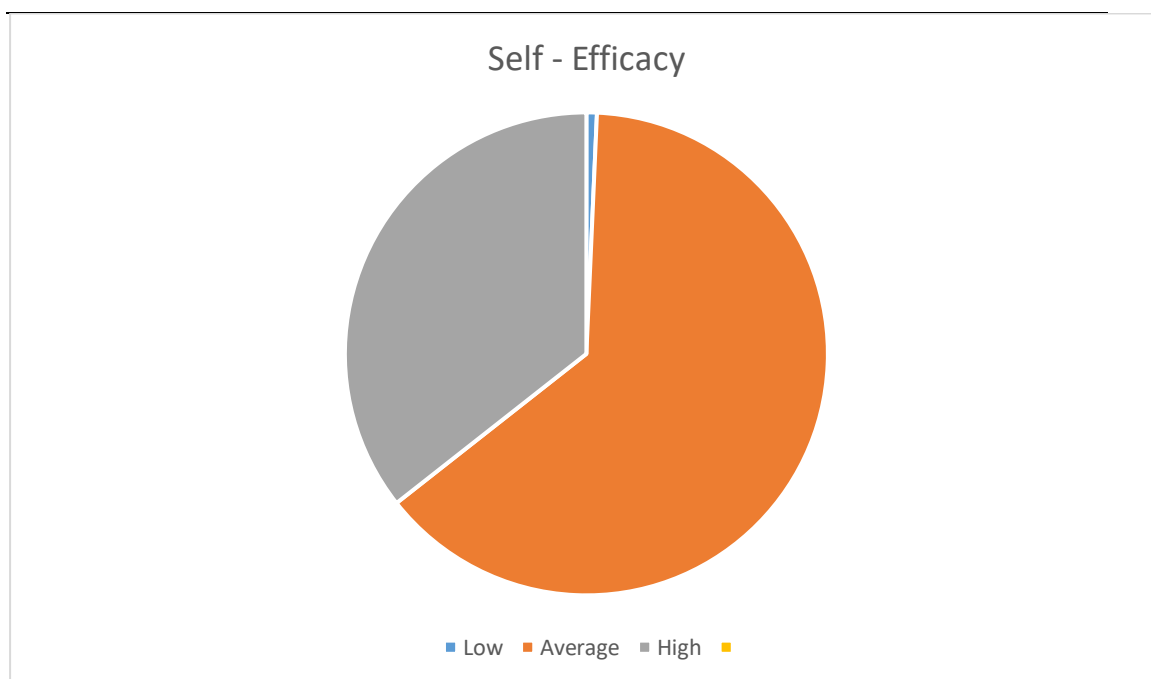


Figure 1 Frequency Distribution of Self-efficacy among college students.

The table 4.2.1 presents the frequency and percentage distribution for a Self-efficacy with three categories: "Low," "Moderate," and "High."

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In the "Valid" column, the frequencies represent the number of cases that fall into each category. For example, there is 1 case (0.7%) in the "Low" category, 86 cases (63.7%) in the "Moderate" category, and 48 cases (35.6%) in the "High" category.

The "Percent" column represents the percentage of cases in each category out of the total sample size. In this case, the total sample size is 135. So, for example, the "Low" category represents 0.7% of the total sample, the "Moderate" category represents 63.7%, and the "High" category represents 35.6%.

The "Valid Percent" column provides the percentage distribution of cases after excluding any missing or invalid data. Since there are no missing or invalid cases in this table, the "Valid Percent" column is the same as the "Percent" column.

The "Cumulative Percent" column shows the cumulative percentage distribution up to each category. For example, the cumulative percentage for the "Low" category is 0.7%, for the "Moderate" category it is 64.4% (which includes the percentage from the "Low" category as well), and for the "High" category, it is 100% (which includes the percentages from both the "Low" and "Moderate" categories).

In summary, the table provides the frequency and percentage distribution of cases across the "Low," "Moderate," and "High" categories of a variable. It shows that the majority of cases

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(63.7%) fall into the "Moderate" category, followed by 35.6% in the "High" category and a small percentage (0.7%) in the "Low" category.

4.2.2 Metacognition extent

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Low	1	.7	.7	.7
Moderate	55	40.7	40.7	41.5
High	79	58.5	58.5	100.0
Total	135	100.0	100.0	

Variable	Level	Frequency	Percent
Metacognition	Low	1	0.7
	Average	55	40.7
	High	79	58.5

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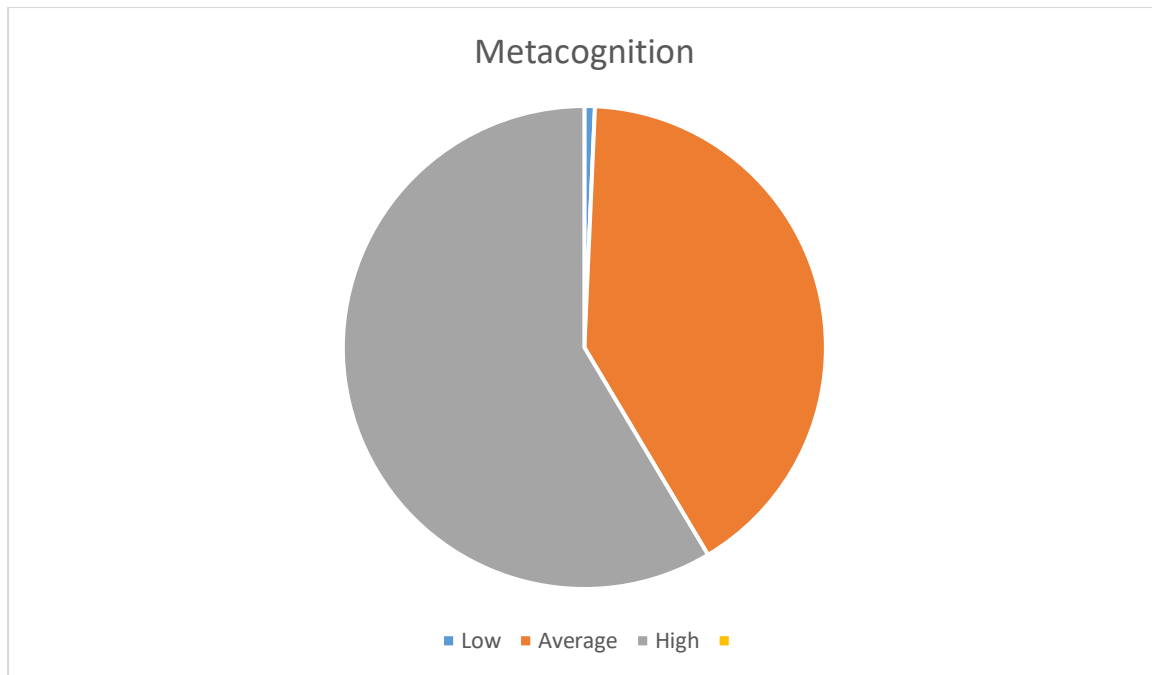


Figure 2 Frequency Distribution of Metacognition among college students.

Here the extent tables and pie chart show that the metacognition extent is lower than the metacognition extent. There could be several reasons why metacognition extent may be lower than self-efficacy extent.

Firstly, metacognition refers to the ability to think about and monitor one's own thinking processes. It involves being aware of one's cognitive strengths and weaknesses, as well as having strategies to regulate and improve one's thinking. This level of self-awareness and reflection can be more challenging for individuals compared to simply believing in their own abilities (self-efficacy). Self-efficacy, on the other hand, refers to one's belief in their own capabilities to successfully perform specific tasks or achieve certain goals.

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Secondly, self-efficacy can be influenced by past experiences of success or failure, as well as external feedback and social comparisons. If an individual has consistently achieved positive outcomes in the past or has received positive feedback and encouragement from others, their self-efficacy may be higher. In contrast, metacognition requires a deeper level of self-reflection and introspection, which may not come as naturally or easily to some individuals.

Lastly, self-efficacy can be more situation-specific, meaning that individuals may have high self-efficacy in certain areas or tasks but lower self-efficacy in others. On the other hand, metacognition is a more generalized cognitive process that applies to all areas of thinking and learning. Therefore, individuals may have higher self-efficacy in specific domains but lower metacognitive skills overall.

Overall, while self-efficacy and metacognition are related constructs, they involve different cognitive processes and can be influenced by different factors, leading to differences in their extent.

The table 4.2.2 presents the frequency and percentage distribution for a Metacognition with three categories: "Low," "Moderate," and "High."

In the "Valid" column, the frequencies represent the number of cases that fall into each category. For example, there is 1 case (0.7%) in the "Low" category, 86 cases (63.7%) in the "Moderate" category, and 48 cases (35.6%) in the "High" category.

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The "Percent" column represents the percentage of cases in each category out of the total sample size. In this case, the total sample size is 135. So, for example, the "Low" category represents 0.7% of the total sample, the "Moderate" category represents 63.7%, and the "High" category represents 35.6%.

The "Valid Percent" column provides the percentage distribution of cases after excluding any missing or invalid data. Since there are no missing or invalid cases in this table, the "Valid Percent" column is the same as the "Percent" column.

The "Cumulative Percent" column shows the cumulative percentage distribution up to each category. For example, the cumulative percentage for the "Low" category is 0.7%, for the "Moderate" category it is 64.4% (which includes the percentage from the "Low" category as well), and for the "High" category, it is 100% (which includes the percentages from both the "Low" and "Moderate" categories).

In summary, the table provides the frequency and percentage distribution of cases across the "Low," "Moderate," and "High" categories of a variable. It shows that the majority of cases (63.7%) fall into the "Moderate" category, followed by 35.6% in the "High" category and a small percentage (0.7%) in the "Low" category.

4.3 Kruskal-Wallis Test

4.3.1 Location of Residence - Kruskal-Wallis Test

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In order to understand whether there exists any significant difference in metacognition and self-efficacy, on the basis of location of residence, Kruskal-Wallis test was done, and the results are given below. Based on location of residence, there is significant difference between the variables; metacognition and self- efficacy. Here in the mean rank, between metacognition and self-efficacy, metacognition seems higher in rural and urban areas. Also, in the mean rank between metacognition and self-efficacy, self-efficacy seems higher in semi-urban areas.

Metacognition seems to have higher ranks in both rural and urban areas compared to self-efficacy. On the other hand, self-efficacy seems to have a higher rank in semi-urban areas compared to metacognition.

These findings suggest that there may be variations in the levels of metacognition and self-efficacy based on the location of residence. The higher mean rank for metacognition in rural and urban areas indicates that individuals in these areas may have higher levels of metacognitive abilities or awareness compared to self-efficacy. Conversely, the higher mean rank for self-efficacy in semi-urban areas suggests that individuals in these areas may have higher levels of self-belief or confidence in their abilities compared to metacognition.

It is important to note that these interpretations are based on the mean ranks provided and do not provide information about the magnitude or direction of the differences. Additionally, it is

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recommended to further analyze the data and conduct statistical tests to confirm the significance of these differences and determine the practical implications of the findings.

4.3.1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Metacognition	135	112.78	12.981	86	152
Self-efficacy	135	29.94	4.391	12	40
4. Location of Residence	135	1.79	.651	1	3

The table 4.3.1 presents descriptive statistics for three variables: "Metacognition," "Self-efficacy," and "Location of Residence."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean: The average score for Metacognition is 112.78.
- Std. Deviation: The standard deviation is 12.981, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Metacognition is 86.
- Maximum: The highest score recorded for Metacognition is 152.

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For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Self-efficacy is 29.94.
- Std. Deviation: The standard deviation is 4.391, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Self-efficacy is 12.
- Maximum: The highest score recorded for Self-efficacy is 40.

For the variable "Location of Residence," the table provides the following information:

- N: The number of cases analyzed is again 135.
- Mean: The average score for Location of Residence is 1.79.
- Std. Deviation: The standard deviation is 0.651, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Location of Residence is 1.
- Maximum: The highest score recorded for Location of Residence is 3.

In summary, the descriptive statistics provide information about the central tendency (mean), variability (standard deviation), and range (minimum and maximum) of scores for the variables "Metacognition," "Self-efficacy," and "Location of Residence" in the given sample. These statistics allow us to understand the average scores, spread, and the range of values for each variable.

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4.3.2 Ranks

	4. Location of Residence	N	Mean Rank
Metacognition	Rural	46	58.20
	Urban	72	77.13
	Semi Urban	17	55.88
	Total	135	
Self-efficacy	Rural	46	57.43
	Urban	72	75.69
	Semi Urban	17	64.00
	Total	135	

The table 4.3.2 presents the ranks for the variable "Location of Residence" in relation to the variables "Metacognition" and "Self-efficacy."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean Rank: The average rank for the different categories of "Location of Residence" is presented.
- Rural: The average rank for the "Rural" category is 58.20.
- Urban: The average rank for the "Urban" category is 77.13.

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- Semi Urban: The average rank for the "Semi Urban" category is 55.88.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean Rank: The average rank for the different categories of "Location of Residence" is presented.
 - Rural: The average rank for the "Rural" category is 57.43.
 - Urban: The average rank for the "Urban" category is 75.69.
 - Semi Urban: The average rank for the "Semi Urban" category is 64.00.

These ranks indicate the relative positions of the different categories of "Location of Residence" in terms of their average scores for "Metacognition" and "Self-efficacy." A higher rank indicates a higher average score compared to other categories.

In summary, the table provides the mean ranks for the variable "Location of Residence" in relation to the variables "Metacognition" and "Self-efficacy." These ranks allow for comparisons between the different categories and provide insights into the relative standing of each category in terms of their average scores.

4.3.3 Test Statistics

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	Metacognition	Self-efficacy
Chi-Square	8.473	6.415
df	2	2
Asymp. Sig.	.014	.040

a. Kruskal Wallis Test

b. Grouping Variable: 4. Location of Residence

The table 4.3.3 presents the test statistics for the Kruskal-Wallis test conducted on the variables "Metacognition" and "Self-efficacy" in relation to the grouping variable "Location of Residence."

For the variable "Metacognition," the table provides the following information:

- Chi-Square: The chi-square test statistic is 8.473.
- df (degrees of freedom): The degrees of freedom for the test is 2.
- Asymp. Sig. (asymptotic significance): The p-value associated with the test is 0.014.

For the variable "Self-efficacy," the table provides the following information:

- Chi-Square: The chi-square test statistic is 6.415.
- df (degrees of freedom): The degrees of freedom for the test is 2.
- Asymp. Sig. (asymptotic significance): The p-value associated with the test is 0.040.

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These test statistics and p-values are used to determine if there are significant differences in the distribution of scores for "Metacognition" and "Self-efficacy" across the different categories of "Location of Residence."

In both cases, the p-values (0.014 for Metacognition and 0.040 for Self-efficacy) are less than the conventional significance level of 0.05. This suggests that there is evidence to reject the null hypothesis, indicating that there are significant differences in the distribution of scores for both "Metacognition" and "Self-efficacy" across the different categories of "Location of Residence."

In summary, the Kruskal-Wallis test results indicate that there are significant differences in the distribution of scores for both "Metacognition" and "Self-efficacy" across the different categories of "Location of Residence."

4.4 Mann-Whitney Test – Gender

Based on gender, there is no significant difference between the variables; metacognition and self-efficacy. Based on the Mann-Whitney test, it confirms that there is no significant difference between the variables "Metacognition" and "Self-efficacy" based on gender.

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The Mann-Whitney test is a non-parametric test used to compare two independent groups, in this case, males and females, when the data does not meet the assumptions of parametric tests. The fact that the test yielded a non-significant result suggests that there are no significant variations in the levels of metacognition and self-efficacy between different genders.

This finding indicates that both males and females have similar levels of metacognition and self-efficacy. It supports the conclusion that there are no gender-related differences in these cognitive processes and beliefs.

However, as with any statistical test, it is important to consider the limitations of the study, such as sample size, representativeness, and the specific measures used for assessing metacognition and self-efficacy. These factors can affect the generalizability of the findings.

Overall, based on the results of the Mann-Whitney test, it can be concluded that there is no significant difference between the variables "Metacognition" and "Self-efficacy" based on gender.

4.4.1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Metacognition	135	112.78	12.981	86	152

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Self-efficacy	135	29.94	4.391	12	40
3. Gender	135	1.94	.237	1	2

The table 4.4.1 presents descriptive statistics for three variables: "Metacognition," "Self-efficacy," and "Gender."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean: The average score for Metacognition is 112.78.
- Std. Deviation: The standard deviation is 12.981, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Metacognition is 86.
- Maximum: The highest score recorded for Metacognition is 152.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Self-efficacy is 29.94.
- Std. Deviation: The standard deviation is 4.391, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Self-efficacy is 12.

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- Maximum: The highest score recorded for Self-efficacy is 40.

For the variable "Gender," the table provides the following information:

- N: The number of cases analyzed is again 135.

- Mean: The average score for Gender is 1.94.

- Std. Deviation: The standard deviation is 0.237, indicating the variability or dispersion of scores around the mean.

- Minimum: The lowest score recorded for Gender is 1.

- Maximum: The highest score recorded for Gender is 2.

In summary, the descriptive statistics provide information about the central tendency (mean), variability (standard deviation), and range (minimum and maximum) of scores for the variables "Metacognition," "Self-efficacy," and "Gender" in the given sample. These statistics allow us to understand the average scores, spread, and the range of values for each variable.

4.4.2 Ranks

	3. Gender	N	Mean Rank	Sum of Ranks
	Male	8	77.19	617.50
Metacognition	Female	127	67.42	8562.50
	Total	135		

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	Male	8	70.56	564.50
Self-efficacy	Female	127	67.84	8615.50
	Total	135		

The table 4.4.2 presents the ranks for the variable "Gender" in relation to the variables "Metacognition" and "Self-efficacy."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean Rank: The average rank for the different categories of "Gender" is presented.
 - Male: The average rank for the "Male" category is 77.19.
 - Female: The average rank for the "Female" category is 67.42.
- Sum of Ranks: The total sum of ranks for each category of "Gender" is presented.
 - Male: The sum of ranks for the "Male" category is 617.50.
 - Female: The sum of ranks for the "Female" category is 8562.50.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean Rank: The average rank for the different categories of "Gender" is presented.
 - Male: The average rank for the "Male" category is 70.56.

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- Female: The average rank for the "Female" category is 67.84.
- Sum of Ranks: The total sum of ranks for each category of "Gender" is presented.
- Male: The sum of ranks for the "Male" category is 564.50.
- Female: The sum of ranks for the "Female" category is 8615.50.

These ranks indicate the relative positions of the different categories of "Gender" in terms of their average ranks for "Metacognition" and "Self-efficacy." A higher rank indicates a higher average rank compared to other categories.

In summary, the table provides the mean ranks and sum of ranks for the variable "Gender" in relation to the variables "Metacognition" and "Self-efficacy." These ranks allow for comparisons between the different categories and provide insights into the relative standing of each category in terms of their average ranks.

4.4.3 Test Statistics

	Metacognition	Self-efficacy
Mann-Whitney U	434.500	487.500
Wilcoxon W	8562.500	8615.500
Z	-.686	-.192
Asymp. Sig. (2-tailed)	.493	.847

a. Grouping Variable: 3. Gender

The table 4.4.3 presents the results of the Mann-Whitney U test conducted on the variables "Metacognition" and "Self-efficacy" in relation to the grouping variable "Gender."

For the variable "Metacognition," the table provides the following information:

- Mann-Whitney U: The U statistic for the Mann-Whitney U test is 434.500.
- Wilcoxon W: The Wilcoxon W statistic is 8562.500.
- Z: The Z statistic is -0.686.
- Asymp. Sig. (2-tailed): The p-value associated with the test is 0.493.

For the variable "Self-efficacy," the table provides the following information:

- Mann-Whitney U: The U statistic for the Mann-Whitney U test is 487.500.
- Wilcoxon W: The Wilcoxon W statistic is 8615.500.
- Z: The Z statistic is -0.192.
- Asymp. Sig. (2-tailed): The p-value associated with the test is 0.847.

These test statistics and p-values are used to determine if there are significant differences in the distribution of scores for "Metacognition" and "Self-efficacy" between the different categories of "Gender."

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In both cases, the p-values (0.493 for Metacognition and 0.847 for Self-efficacy) are greater than the conventional significance level of 0.05. This suggests that there is not enough evidence to reject the null hypothesis, indicating that there are no significant differences in the distribution of scores for both "Metacognition" and "Self-efficacy" between the different categories of "Gender."

In summary, the Mann-Whitney U test results indicate that there are no significant differences in the distribution of scores for both "Metacognition" and "Self-efficacy" between the different categories of "Gender."

4.5 Kruskal-Wallis Test - Stream of study

Based on Stream of study, there is no significant difference between the variables; metacognition and self- efficacy. Based on the Kruskal-Wallis Test, it confirms that there is no significant difference between the variables "Metacognition" and "Self-efficacy" based on the stream of study.

The Kruskal-Wallis test is a non-parametric test used to compare more than two independent groups, in this case, different streams of study. The fact that the test yielded a non-significant result suggests that there are no significant variations in the levels of metacognition and self-efficacy across the different streams of study.

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This finding indicates that students from different streams of study have similar levels of metacognition and self-efficacy. It supports the conclusion that the stream of study does not have a significant impact on these cognitive processes and beliefs.

However, as with any statistical test, it is important to consider the limitations of the study, such as sample size, representativeness, and the specific measures used for assessing metacognition and self-efficacy. These factors can affect the generalizability of the findings.

Overall, based on the results of the Kruskal-Wallis test, it can be concluded that there is no significant difference between the variables "Metacognition" and "Self-efficacy" based on the stream of study.

4.5.1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Metacognition	135	112.78	12.981	86	152
Self-efficacy	135	29.94	4.391	12	40
7. Stream of study	135	1.83	.450	1	3

The table 4.5.1 presents descriptive statistics for three variables: "Metacognition," "Self-efficacy," and "Stream of study."

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For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean: The average score for Metacognition is 112.78.
- Std. Deviation: The standard deviation is 12.981, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Metacognition is 86.
- Maximum: The highest score recorded for Metacognition is 152.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Self-efficacy is 29.94.
- Std. Deviation: The standard deviation is 4.391, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Self-efficacy is 12.
- Maximum: The highest score recorded for Self-efficacy is 40.

For the variable "Stream of study," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean: The average score for Stream of study is 1.83.

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- Std. Deviation: The standard deviation is 0.450, indicating the variability or dispersion of scores around the mean.

- Minimum: The lowest score recorded for Stream of study is 1.

- Maximum: The highest score recorded for Stream of study is 3.

In summary, the descriptive statistics provide information about the central tendency (mean), variability (standard deviation), and range (minimum and maximum) of scores for the variables "Metacognition," "Self-efficacy," and "Stream of study" in the given sample. These statistics allow us to understand the average scores, spread, and the range of values for each variable.

4.5.2 Ranks

7. Stream of study		N	Mean Rank
Metacognition	Science	27	61.93
	Commerce	104	70.59
	Arts	4	41.75
	Total	135	
Self-efficacy	Science	27	60.81
	Commerce	104	70.80
	Arts	4	43.63

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Total 135

The table 4.5.2 presents the ranks for the variable "Stream of study" in relation to the variables "Metacognition" and "Self-efficacy."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean Rank: The average rank for each category of "Stream of study" is presented.
- Science: The average rank for the "Science" category is 61.93.
- Commerce: The average rank for the "Commerce" category is 70.59.
- Arts: The average rank for the "Arts" category is 41.75.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean Rank: The average rank for each category of "Stream of study" is presented.
- Science: The average rank for the "Science" category is 60.81.
- Commerce: The average rank for the "Commerce" category is 70.80.
- Arts: The average rank for the "Arts" category is 43.63.

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These ranks indicate the relative positions of the different categories of "Stream of study" in terms of their average ranks for "Metacognition" and "Self-efficacy." A higher rank indicates a higher average rank compared to other categories.

In summary, the table provides the mean ranks for the variable "Stream of study" in relation to the variables "Metacognition" and "Self-efficacy." These ranks allow for comparisons between the different categories and provide insights into the relative standing of each category in terms of their average ranks.

4.5.3. Test Statistics

	Metacognition	Self-efficacy
Chi-Square	2.919	3.043
df	2	2
Asymp. Sig.	.232	.218

a. Kruskal Wallis Test

b. Grouping Variable: 7. Stream of study

The table 4.5.3 presents the results of the Kruskal-Wallis test conducted on the variables "Metacognition" and "Self-efficacy" in relation to the grouping variable "Stream of study."

For the variable "Metacognition," the table provides the following information:

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- Chi-Square: The chi-square statistic for the Kruskal-Wallis test is 2.919.

- df: The degrees of freedom associated with the test is 2.

- Asymp. Sig.: The p-value associated with the test is 0.232.

For the variable "Self-efficacy," the table provides the following information:

- Chi-Square: The chi-square statistic for the Kruskal-Wallis test is 3.043.

- df: The degrees of freedom associated with the test is 2.

- Asymp. Sig.: The p-value associated with the test is 0.218.

These test statistics and p-values are used to determine if there are significant differences in the distributions of scores for "Metacognition" and "Self-efficacy" based on the different categories of "Stream of study."

In both cases, the p-values (0.232 for Metacognition and 0.218 for Self-efficacy) are greater than the conventional significance level of 0.05. This suggests that there is not enough evidence to reject the null hypothesis, indicating that there are no significant differences in the distributions of scores for both "Metacognition" and "Self-efficacy" based on the different categories of "Stream of study."

In summary, the Kruskal-Wallis test results indicate that there are no significant differences in the distributions of scores for both "Metacognition" and "Self-efficacy" based on the different categories of "Stream of study."

4.6. Non-parametric Correlations

Based on non-parametric correlations, there is a low-level of positive correlation between self-efficacy and metacognition, ie, as metacognition increases self-efficacy increases and as metacognition decreases self-efficacy decreases.

Based on the information about the non-parametric correlations between self-efficacy and metacognition there is a low-level positive correlation between these two variables.

A positive correlation indicates that as the levels of metacognition increase, the levels of self-efficacy also tend to increase. Similarly, when the levels of metacognition decrease, the levels of self-efficacy tend to decrease as well.

The fact that the correlation is described as "low-level" suggests that the relationship between self-efficacy and metacognition is not very strong. While there is a positive association between these variables, it is not a strong or highly influential relationship.

It is important to note that non-parametric correlations, such as Spearman's rank correlation coefficient or Kendall's tau, are used when the data does not meet the assumptions of parametric correlation tests. Non-parametric correlations are robust measures that can capture relationships between variables even when the data is not normally distributed or when outliers are present.

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However, it is always recommended to consider the limitations of the study, such as sample size, representativeness, and the specific measures used for assessing self-efficacy and metacognition. These factors can influence the generalizability of the correlation findings.

Overall, based on the non-parametric correlations, it can be concluded that there is a low-level positive correlation between self-efficacy and metacognition, indicating that as metacognition increases, self-efficacy tends to increase, and as metacognition decreases, self-efficacy tends to decrease.

4.6.1 Correlations

		Metacognition	Self-efficacy
		1.000	.257**
	Correlation Coefficient	1.000	.257**
Metacognition	Sig. (2-tailed)	.	.003
	N	135	135
Spearman's rho	Correlation Coefficient	.257**	1.000
Self-efficacy	Sig. (2-tailed)	.003	.
	N	135	135

** . Correlation is significant at the 0.01 level (2-tailed).

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The table 4.6.1 presents the results of the Spearman's rho correlation analysis conducted on the variables "Metacognition" and "Self-efficacy."

For the variable "Metacognition," the table provides the following information:

- Correlation Coefficient: The correlation coefficient between "Metacognition" and itself is 1.000, indicating a perfect positive correlation.
- Sig. (2-tailed): The p-value associated with the correlation is 0, which is less than 0.01, indicating a significant correlation.
- N: The number of cases analyzed for "Metacognition" is 135.

For the variable "Self-efficacy," the table provides the following information:

- Correlation Coefficient: The correlation coefficient between "Self-efficacy" and itself is 1.000, indicating a perfect positive correlation.
- Sig. (2-tailed): The p-value associated with the correlation is 0, which is less than 0.01, indicating a significant correlation.
- N: The number of cases analyzed for "Self-efficacy" is 135.

Additionally, the table indicates that the correlation coefficient between "Metacognition" and "Self-efficacy" is 0.257, and this correlation is significant at the 0.01 level (2-tailed). This means that there is a positive correlation between "Metacognition" and "Self-efficacy," and this relationship is statistically significant.

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In summary, the Spearman's rho correlation analysis reveals a significant positive correlation between "Metacognition" and "Self-efficacy." This suggests that individuals with higher levels of metacognitive abilities tend to have higher levels of self-efficacy, and vice versa.

4.7 Mann-Whitney Test – Personality

Based on Personality, there is no significant difference between the variables; metacognition and self- efficacy. Based on the Mann-Whitney Test, it confirms that there is no significant difference between the variables "Metacognition" and "Self-efficacy" based on personality.

The Mann-Whitney test is a non-parametric test used to compare two independent groups, in this case, different personality types. The fact that the test yielded a non-significant result suggests that there are no significant variations in the levels of metacognition and self-efficacy across different personality types.

This finding indicates that individuals with different personality types have similar levels of metacognition and self-efficacy. It supports the conclusion that personality does not have a significant impact on these cognitive processes and beliefs.

However, as with any statistical test, it is important to consider the limitations of the study, such as sample size, representativeness, and the specific measures used for assessing metacognition and self-efficacy. These factors can affect the generalizability of the findings.

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Overall, based on the results of the Mann-Whitney test, it can be concluded that there is no significant difference between the variables "Metacognition" and "Self-efficacy" based on personality.

4.7.1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Metacognition	135	112.78	12.981	86	152
Self-efficacy	135	29.94	4.391	12	40
Personality	135	1.67	.473	1	2

The table 4.7.1 presents descriptive statistics for three variables: "Metacognition," "Self-efficacy," and "Personality."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean: The average score for Metacognition is 112.78.
- Std. Deviation: The standard deviation is 12.981, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Metacognition is 86.

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- Maximum: The highest score recorded for Metacognition is 152.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Self-efficacy is 29.94.
- Std. Deviation: The standard deviation is 4.391, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Self-efficacy is 12.
- Maximum: The highest score recorded for Self-efficacy is 40.

For the variable "Personality," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Personality is 1.67.
- Std. Deviation: The standard deviation is 0.473, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Personality is 1.
- Maximum: The highest score recorded for Personality is 2.

In summary, the descriptive statistics provide information about the central tendency (mean), variability (standard deviation), and range (minimum and maximum) of scores for the variables "Metacognition," "Self-efficacy," and "Personality" in the given sample. These

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statistics allow us to understand the average scores, spread, and the range of values for each variable.

4.7.2 Ranks

	Personality	N	Mean Rank	Sum of Ranks
	Introvert	45	68.67	3090.00
Metacognition	Extrovert	90	67.67	6090.00
	Total	135		
	Introvert	45	73.21	3294.50
Self-efficacy	Extrovert	90	65.39	5885.50
	Total	135		

The table 4.7.2 presents the ranks for the variable "Personality" in relation to the variables "Metacognition" and "Self-efficacy."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean Rank: The average rank for each category of "Personality" is presented.
- Introvert: The average rank for the "Introvert" category is 68.67.
- Extrovert: The average rank for the "Extrovert" category is 67.67.

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- Sum of Ranks: The total sum of ranks for each category is presented.

- Introvert: The sum of ranks for the "Introvert" category is 3090.00.

- Extrovert: The sum of ranks for the "Extrovert" category is 6090.00.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.

- Mean Rank: The average rank for each category of "Personality" is presented.

- Introvert: The average rank for the "Introvert" category is 73.21.

- Extrovert: The average rank for the "Extrovert" category is 65.39.

- Sum of Ranks: The total sum of ranks for each category is presented.

- Introvert: The sum of ranks for the "Introvert" category is 3294.50.

- Extrovert: The sum of ranks for the "Extrovert" category is 5885.50.

These ranks indicate the relative positions of the different categories of "Personality" in terms of their average ranks and the sum of ranks for "Metacognition" and "Self-efficacy." A higher rank indicates a higher average rank compared to other categories.

In summary, the table provides the mean ranks and sum of ranks for the variable "Personality" in relation to the variables "Metacognition" and "Self-efficacy." These ranks allow for comparisons between the different categories and provide insights into the relative standing of each category in terms of their average ranks and total ranks.

4.7.3 Test Statistics

	Metacognition	Self-efficacy
Mann-Whitney U	1995.000	1790.500
Wilcoxon W	6090.000	5885.500
Z	-.140	-1.103
Asymp. Sig. (2-tailed)	.888	.270

a. Grouping Variable: Personality

The table 4.7.3 presents the results of the Mann-Whitney U test conducted on the variables "Metacognition" and "Self-efficacy" in relation to the grouping variable "Personality."

For the variable "Metacognition," the table provides the following information:

- Mann-Whitney U: The U statistic for the Mann-Whitney U test is 1995.000.
- Wilcoxon W: The W statistic for the test is 6090.000.
- Z: The Z statistic for the test is -0.140.
- Asymp. Sig. (2-tailed): The p-value associated with the test is 0.888.

For the variable "Self-efficacy," the table provides the following information:

- Mann-Whitney U: The U statistic for the Mann-Whitney U test is 1790.500.

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- Wilcoxon W: The W statistic for the test is 5885.500.

- Z: The Z statistic for the test is -1.103.

- Asymp. Sig. (2-tailed): The p-value associated with the test is 0.270.

These test statistics and p-values are used to determine if there are significant differences in the distributions of scores for "Metacognition" and "Self-efficacy" based on the different categories of "Personality."

In both cases, the p-values (0.888 for Metacognition and 0.270 for Self-efficacy) are greater than the conventional significance level of 0.05. This suggests that there is not enough evidence to reject the null hypothesis, indicating that there are no significant differences in the distributions of scores for both "Metacognition" and "Self-efficacy" based on the different categories of "Personality."

In summary, the Mann-Whitney U test results indicate that there are no significant differences in the distributions of scores for both "Metacognition" and "Self-efficacy" based on the different categories of "Personality."

4.8 Mann-Whitney Test - education

Based on education, there is no significant difference in metacognition, but there is significant difference in self-efficacy. This difference is higher in those in UG than PG. Based on the Mann-Whitney Test, it indicates that there is no significant difference in metacognition

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based on education level. However, there is a significant difference in self-efficacy, and this difference is higher among undergraduate (UG) students compared to postgraduate (PG) students.

The Mann-Whitney test is a non-parametric test used to compare two independent groups, in this case, undergraduate and postgraduate students. The fact that the test yielded a non-significant result for metacognition suggests that there are no significant variations in metacognition levels between undergraduate and postgraduate students.

However, the test did find a significant difference in self-efficacy between these two groups. This implies that undergraduate students have significantly higher levels of self-efficacy compared to postgraduate students.

It is important to note that the difference in self-efficacy between undergraduate and postgraduate students may be influenced by various factors such as experience, confidence, and perceived competence in their respective educational levels. These factors may contribute to the observed difference in self-efficacy.

Nevertheless, as with any statistical test, it is essential to consider the limitations of the study, such as sample size, representativeness, and the specific measures used for assessing metacognition and self-efficacy. These factors can impact the generalizability and interpretation of the findings.

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Overall, based on the results of the Mann-Whitney test, it can be concluded that there is no significant difference in metacognition based on education level. However, there is a significant difference in self-efficacy, with undergraduate students demonstrating higher levels of self-efficacy compared to postgraduate students.

4.8.1 Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Metacognition	135	112.78	12.981	86	152
Self-efficacy	135	29.94	4.391	12	40
6. Education	135	1.77	.422	1	2

The table 4.8.1 presents descriptive statistics for three variables: "Metacognition," "Self-efficacy," and "Education."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean: The average score for Metacognition is 112.78.
- Std. Deviation: The standard deviation is 12.981, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Metacognition is 86.
- Maximum: The highest score recorded for Metacognition is 152.

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For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Self-efficacy is 29.94.
- Std. Deviation: The standard deviation is 4.391, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Self-efficacy is 12.
- Maximum: The highest score recorded for Self-efficacy is 40.

For the variable "Education," the table provides the following information:

- N: The number of cases analyzed is also 135.
- Mean: The average score for Education is 1.77.
- Std. Deviation: The standard deviation is 0.422, indicating the variability or dispersion of scores around the mean.
- Minimum: The lowest score recorded for Education is 1.
- Maximum: The highest score recorded for Education is 2.

In summary, the descriptive statistics provide information about the central tendency (mean), variability (standard deviation), and range (minimum and maximum) of scores for the variables "Metacognition," "Self-efficacy," and "Education" in the given sample. These

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statistics allow us to understand the average scores, spread, and the range of values for each variable.

4.8.2 Ranks

	6. Education	N	Mean Rank	Sum of Ranks
	PG	31	59.45	1843.00
Metacognition	UG	104	70.55	7337.00
	Total	135		
	PG	31	55.27	1713.50
Self-efficacy	UG	104	71.79	7466.50
	Total	135		

The table 4.8.2 presents the ranks for the variable "Education" in relation to the variables "Metacognition" and "Self-efficacy."

For the variable "Metacognition," the table provides the following information:

- N: The number of cases analyzed is 135.
- Mean Rank: The average rank for each category of "Education" is presented.
- PG (Postgraduate): The average rank for the "PG" category is 59.45.
- UG (Undergraduate): The average rank for the "UG" category is 70.55.

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- Sum of Ranks: The total sum of ranks for each category is presented.

- PG (Postgraduate): The sum of ranks for the "PG" category is 1843.00.

- UG (Undergraduate): The sum of ranks for the "UG" category is 7337.00.

For the variable "Self-efficacy," the table provides the following information:

- N: The number of cases analyzed is also 135.

- Mean Rank: The average rank for each category of "Education" is presented.

- PG (Postgraduate): The average rank for the "PG" category is 55.27.

- UG (Undergraduate): The average rank for the "UG" category is 71.79.

- Sum of Ranks: The total sum of ranks for each category is presented.

- PG (Postgraduate): The sum of ranks for the "PG" category is 1713.50.

- UG (Undergraduate): The sum of ranks for the "UG" category is 7466.50.

These ranks indicate the relative positions of the different categories of "Education" in terms of their average ranks and the sum of ranks for "Metacognition" and "Self-efficacy." A higher rank indicates a higher average rank compared to other categories.

In summary, the table provides the mean ranks and sum of ranks for the variable "Education" in relation to the variables "Metacognition" and "Self-efficacy." These ranks allow for comparisons between the different categories and provide insights into the relative standing of each category in terms of their average ranks and total ranks.

4.8.3 Test Statistics

	Metacognition	Self-efficacy
Mann-Whitney U	1347.000	1217.500
Wilcoxon W	1843.000	1713.500
Z	-1.389	-2.079
Asymp. Sig. (2-tailed)	.165	.038

a. Grouping Variable: 6. Education

The table 4.8.3 presents the results of the Mann-Whitney U test conducted on the variables "Metacognition" and "Self-efficacy" in relation to the grouping variable "Education."

For the variable "Metacognition," the table provides the following information:

- Mann-Whitney U: The U statistic for the Mann-Whitney U test is 1347.000.
- Wilcoxon W: The W statistic for the test is 1843.000.
- Z: The Z statistic for the test is -1.389.
- Asymp. Sig. (2-tailed): The p-value associated with the test is 0.165.

For the variable "Self-efficacy," the table provides the following information:

- Mann-Whitney U: The U statistic for the Mann-Whitney U test is 1217.500.

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- Wilcoxon W: The W statistic for the test is 1713.500.

- Z: The Z statistic for the test is -2.079.

- Asymp. Sig. (2-tailed): The p-value associated with the test is 0.038.

These test statistics and p-values are used to determine if there are significant differences in the distributions of scores for "Metacognition" and "Self-efficacy" based on the different categories of "Education."

For "Metacognition," the p-value (0.165) is greater than the conventional significance level of 0.05. This suggests that there is not enough evidence to reject the null hypothesis, indicating that there are no significant differences in the distributions of scores for "Metacognition" based on the different categories of "Education."

For "Self-efficacy," the p-value (0.038) is less than the conventional significance level of 0.05. This suggests that there is enough evidence to reject the null hypothesis, indicating that there are significant differences in the distributions of scores for "Self-efficacy" based on the different categories of "Education."

In summary, the Mann-Whitney U test results indicate that there are no significant differences in the distributions of scores for "Metacognition" based on the different categories of "Education." However, there are significant differences in the distributions of scores for "Self-efficacy" based on the different categories of "Education."

DISCUSSION

The main aim of the present study was to identify the extent and awareness of self-efficacy and metacognition among college students. The study revealed that there is significant variation in extent of frequency of self-efficacy and metacognition among college students. Self-efficacy and metacognitive awareness play crucial roles in shaping the experiences and outcomes of college students. Both constructs are closely related but involve different cognitive processes and have distinct implications for learning and academic performance.

Self-efficacy refers to an individual's belief in their own capabilities to successfully perform tasks or achieve goals. College students with high self-efficacy are more likely to approach challenges with confidence, set ambitious goals, and persist in the face of difficulties. They believe in their ability to exert control over their own learning and are motivated to put in the necessary effort to succeed.

Metacognitive awareness, on the other hand, involves the ability to think about and monitor one's own thinking processes. It includes being aware of one's cognitive strengths and weaknesses, understanding how to regulate and improve one's thinking, and utilizing effective learning strategies. College students with strong metacognitive skills are able to plan their learning, monitor their progress, and make adjustments as needed, leading to more effective learning and better academic performance.

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The relationship between self-efficacy and metacognitive awareness is reciprocal and mutually reinforcing. Higher self-efficacy can enhance metacognitive awareness by providing students with the belief that they can learn and improve their skills through strategic thinking and effort. In turn, metacognitive awareness can boost self-efficacy by helping students recognize their abilities and understand how to leverage their strengths to overcome challenges.

College students with high levels of self-efficacy and metacognitive awareness are more likely to engage in self-regulated learning. They set goals, manage their time effectively, seek out resources and support, and employ effective learning strategies. They are also more likely to persist in the face of setbacks and view failures as opportunities for growth.

Conversely, students with low self-efficacy and limited metacognitive awareness may struggle academically. They may doubt their abilities, feel overwhelmed by challenges, and lack effective strategies for learning and problem-solving. This can lead to decreased motivation, increased stress, and lower academic performance.

It is important for educators and institutions to support the development of self-efficacy and metacognitive awareness among college students. Providing opportunities for students to reflect on their learning, set realistic goals, and receive constructive feedback can help foster self-efficacy. Teaching students' metacognitive strategies, such as goal-setting, self-monitoring, and reflection, can enhance their metacognitive awareness and improve their learning outcomes.

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In conclusion, self-efficacy and metacognitive awareness are essential factors in the academic success and personal development of college students. By cultivating these skills, students can become active and self-regulated learners, capable of navigating challenges, adapting to new situations, and achieving their goals.

SUMMARY AND CONCLUSION

The main aim of the present study was to identify the extent and awareness of self-efficacy and metacognition among college students. The research design adopted for the present study is descriptive research design. The variables selected for the present study are

- Self-efficacy
- Metacognitive Awareness

The main objectives of the study were:

1. To find out the metacognitive awareness and self-efficacy among college students.
2. To find out whether there exists any significant difference in the metacognitive awareness and self-efficacy among college students based on their locality.
3. To find out whether there exists any significant difference in the metacognitive awareness and self-efficacy among college students based on their gender.
4. To find out whether there exists any significant difference in the metacognitive awareness and self-efficacy among college students based on their stream of study.

The hypotheses formulated for the present study are as follows:

1. There will be significant difference in metacognitive awareness and self-efficacy among college students.

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2. There will be significant difference in metacognitive awareness and self-efficacy among college students based on their locality.
3. There will be significant difference in metacognitive awareness and self-efficacy among college students based on their gender.
4. There will be significant difference in metacognitive awareness and self-efficacy among college students based on their stream of study.

5.2 METHODOLOGY IN BRIEF

The main aim of the present study was to identify the extent and awareness of self-efficacy and metacognition among college students. The sample size for this study is about 135 college students. Convenient sampling technique is used. Tools used were Informed consent, General Self-Efficacy scale and Metacognitive awareness Inventory Scale. The analysis of the data was done using frequency analysis, Mann Whitney U test, Kruskal-Wallis Test and Non – parametric correlations. Descriptive Research design is used.

5.3 CONCLUSION

The main aim of the present study was to identify the extent and awareness of self-efficacy and metacognition among college students. The study revealed that there is significant variation in extent of frequency of self-efficacy and metacognition among college students.

5.4 IMPLICATIONS OF THE STUDY

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Self-efficacy and metacognitive awareness can have important implications for college students in various ways.

1. **Academic Performance:** Higher self-efficacy beliefs can positively influence academic performance. Students with a strong belief in their abilities are more likely to set challenging goals, persist in the face of difficulties, and engage in effective learning strategies.

Metacognitive awareness, on the other hand, helps students monitor their learning progress, identify areas of weakness, and implement appropriate strategies for improvement.

2. **Motivation and Engagement:** Self-efficacy beliefs can impact students' motivation and engagement in their academic pursuits. Students with higher self-efficacy are more likely to be motivated to take on challenging tasks, put in effort, and persevere when faced with obstacles. Metacognitive awareness can enhance students' motivation by helping them understand their learning processes and make adjustments to improve their performance.

3. **Self-regulation:** Both self-efficacy and metacognitive awareness contribute to self-regulated learning. Self-efficacy beliefs enable students to set realistic goals, manage their time effectively, and regulate their effort and resources. Metacognitive awareness helps students plan their learning, monitor their progress, and make adjustments as needed.

Together, these factors support students in taking control of their own learning and achieving academic success.

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4. **Stress and Resilience:** Self-efficacy beliefs can influence how students perceive and cope with stress. Students with higher self-efficacy may view challenges as opportunities for growth and are more likely to employ effective coping strategies. Metacognitive awareness can help students identify and manage sources of stress by recognizing their own learning strengths and weaknesses, seeking help when needed, and implementing effective study strategies.

5. **Lifelong Learning:** Developing self-efficacy and metacognitive awareness in college can have long-term benefits beyond the classroom. Students who cultivate these skills are more likely to become lifelong learners, capable of setting and achieving goals, adapting to new situations, and continuously improving their knowledge and skills.

In conclusion, self-efficacy and metacognitive awareness play crucial roles in college students' academic success, motivation, self-regulation, stress management, and long-term learning. Fostering these skills can help students excel academically and develop important attributes for their future endeavours.

5.5 LIMITATIONS OF THE STUDY

While self-efficacy and metacognitive awareness have numerous benefits for college students, there are also certain limitations to consider:

1. **Subjectivity and Bias:** Self-efficacy beliefs and metacognitive awareness are subjective and can be influenced by personal biases and perceptions. Students may overestimate or

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underestimate their abilities and may not accurately assess their metacognitive skills. This can lead to misjudgements and ineffective learning strategies.

2. Context Specificity: Self-efficacy beliefs and metacognitive awareness can be context-specific. Students may have high self-efficacy and metacognitive awareness in certain subjects or tasks but struggle in others. This means that their effectiveness in one area may not necessarily translate to success in other areas.

3. External Factors: Self-efficacy and metacognitive awareness can be influenced by external factors such as feedback from teachers, peers, and the learning environment. Negative feedback or a lack of support can undermine self-efficacy beliefs and hinder the development of metacognitive skills.

4. Limited Knowledge and Experience: College students may have limited knowledge and experience in certain subjects or academic tasks, which can affect their self-efficacy beliefs and metacognitive awareness. Lack of familiarity or exposure to specific tasks can make it difficult for students to accurately assess their abilities and use effective metacognitive strategies.

5. Developmental Factors: Self-efficacy beliefs and metacognitive awareness may vary based on students' developmental stage and prior educational experiences. Younger or less experienced college students may have lower self-efficacy and metacognitive skills compared to older or more experienced students.

6. Cultural and Social Factors: Cultural and social factors can influence self-efficacy beliefs and metacognitive awareness. Students from different cultural backgrounds may have different beliefs and expectations about their abilities and may approach learning tasks differently. Social influences, such as peer pressure or societal expectations, can also impact self-efficacy and metacognitive awareness.

It is important to consider these limitations when interpreting and applying self-efficacy and metacognitive awareness concepts among college students. Providing support, guidance, and tailored interventions can help address these limitations and enhance students' self-efficacy beliefs and metacognitive skills.

5.6 SUGGESTIONS FOR FURTHER RESEARCH

Here are a few suggestions for further research on self-efficacy and metacognitive awareness among college students:

1. Longitudinal Studies: Conduct longitudinal studies to examine the developmental trajectories of self-efficacy and metacognitive awareness throughout college. This would provide insights into how these constructs evolve over time and how they impact academic performance, motivation, and learning outcomes.

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2. **Intervention Studies:** Design and implement interventions aimed at enhancing self-efficacy and metacognitive awareness among college students. Evaluate the effectiveness of these interventions in improving academic performance, self-regulation, motivation, and other relevant outcomes.

3. **Cross-Cultural Studies:** Investigate the influence of cultural factors on self-efficacy and metacognitive awareness. Compare and contrast college students from different cultural backgrounds to explore how cultural values, beliefs, and educational systems shape self-efficacy beliefs and metacognitive skills.

4. **Domain-Specific Studies:** Examine self-efficacy and metacognitive awareness in specific academic domains or disciplines. Investigate how self-efficacy and metacognitive skills differ across different subjects and tasks, and how they relate to academic success and performance in those specific areas.

5. **Technology and Metacognition:** Explore the role of technology in promoting metacognitive awareness and self-efficacy among college students. Investigate how the use of digital tools, such as learning management systems, online resources, or educational apps, can support metacognitive processes and enhance self-efficacy beliefs.

6. **Self-Efficacy and Career Development:** Investigate the relationship between self-efficacy, metacognitive awareness, and career development among college students. Explore how self-

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efficacy beliefs and metacognitive skills influence career decision-making, job search strategies, and overall career success.

7. **Teacher/Instructor Influence:** Examine the influence of teachers or instructors on the development of self-efficacy and metacognitive awareness among college students.

Investigate instructional practices, teacher-student interactions, and feedback strategies that can promote self-efficacy beliefs and metacognitive skills.

8. **Measurement and Assessment:** Develop and validate reliable and valid measures for assessing self-efficacy and metacognitive awareness among college students. Explore different measurement approaches, such as self-report questionnaires, behavioural observations, or think-aloud protocols, to capture these constructs accurately.

These research suggestions can help deepen our understanding of self-efficacy and metacognitive awareness among college students and inform interventions and practices that support their academic success and personal development.

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APPENDICES

SELF-EFFICACY AND METACOGNITIVE AWARENESS AMONG COLLEGE STUDENTS

Informed Consent Form

Dear participant,

Hi, I'm conducting a research on the topic "Self-efficacy and Metacognitive awareness among college students". In this concern, your opinion is really valuable to proceed with my study. This study requires the completion of questionnaires, which will take roughly 10 to 15 minutes. You are requested to give your honest opinion. The information provided by you will be kept completely confidential and will be used for research purposes only. I am in sincere hope that you will participate in this study and I greatly appreciate your help in assisting me with this research. Thank you very much for sparing your precious time and cooperation.

Sincerely,

Your Friend.

I hereby endorse that I am willing to take part in this study:

Signature.....

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 METACOGNITIVE AWARENESS INVENTORY

Name of the

Student:.....

Name of the College

:.....

The following statements are related to your learning techniques and about your learning ability. Think for a minute and respond to the statements. The responses should be as precise as possible. There is no discrimination as right or wrong responses. If you are strongly agreeing with a statement, then put a tick (✓) mark corresponding to the column for strongly agree. Similarly put the tick marks in the columns for agree, not decided, disagree and strongly disagree according to your choice.

SL. NO.	Statement	Strongly agree	Agree	Not decided	Disagree	Strongly disagree
1.	When confronting with a problem, I often compare it with the problems which I have previously solved.					
2	When learning a new content, I compare it with the previously learned things.					

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3	I choose different learning methods according to the learning area.					
4	I usually follows a strict time table for the studies.					
5	Whenever taking a decision, I think at least twice about it.					
6	I often tries to complete my assignments and learning activities within the time schedule.					
7	After learning, I try to revise the central ideas in the content.					
8	I always try to discuss and solve the doubts related to the learning area with my teachers and friends.					
9	I start learning only after getting a clear picture					

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	about the content to be learned.					
10	When confronting with a problem situation, I always thinks about alternate ways for solving it.					
11	I always accept the innovative changes occurring in the society.					
12	As a student, I always critically analyze the ability of myself in learning activities.					
13	I always try to improve myself.					
14	I have the ability to completely concentrate on my learning activities in spite of all the disturbing situations.					
15	Before starting the study, I collect all the relevant					

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	and recent information about the content.					
16	After the successful completion of each learning task, my self-confidence increases.					
17	I always ask myself as whether I have gone for all other possibilities before selecting a final solution.					
18	I find happiness in collecting information about interesting learning areas.					
19	I am efficient in finding and rectifying my own weaknesses.					
20	I split the learning task into simple units.					
21	I evaluate the ability of myself as a student in solving the learning tasks.					

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22	I change the speed and time of learning according to the learning contents.					
23	Whenever doing a task, I completely engage in it.					
24	I regularly assess my learning efforts as whether I am going in the right way or not.					
25	I control my emotions and wishes as they will hinder me from reaching the learning goal.					
26	After completing a learning task, I always ask myself as is there any other ways for solving the same task.					
27	I try to do the allotted learning tasks as successful as possible by me.					

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28	I like to collect meaningful and important information.					
29	Before beginning a learning activity I always try to read the instructions carefully					
30	I consider my failures as mile stones towards success.					

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GENERAL SELF-EFFICACY SCALE

SL. NO.		Not at all true	Hardly true	Moderately true	Exactly true
1	I can always manage to solve difficult problems if I try hard enough				
2	If someone opposes me, I can find the means and ways to get what I want.				
3	It is easy for me to stick to my aims and accomplish my goals.				
4	I am confident that I could deal				

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	efficiently with unexpected events.				
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.				
6	I can solve most problems if I invest the necessary effort.				
7	I can remain calm when facing difficulties because I can rely on my coping abilities.				
8	When I am confronted with a problem, I can usually find several solutions.				

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9	If I am in trouble, I can usually think of a solution				
10	I can usually handle whatever comes my way.				