CHAPTER – 5

5.0. METHOD

5.1. OVERVIEW OF ALL THE FIVE STUDIES

Study 1 aimed at understanding how implicit and explicit attitude towards engineering are related to career choice. Some of the psychological aspects that are related to career choice can also be influenced through yoga practices. Hence, study 2 explores the diference in psychological profile of yoga practicing and non-yoga practicing students pertinent to some of the important psychological variables. These two studies adopted survey study design. Study 3, 4, and 5 were pretest-posttest studies aimed at understanding how SKY practices influence EEG bands and other relevant psychological variables, in comparison to sports intervention. In our study the participants were college sudents who had the study interventions as part of their regular academic course curriculam. Hence, sample size was delimited to the available number of students studying in different branches of engineering in that college.

5.2. STUDY ONE

5.2.1. PARTICIPANTS

5.2.1.1. SAMPLE SIZE

For this study, 238 participants, were recruited from Dr. Mahalingam College of Engineering and Technology and their ages ranged from 18 to 19 years. They all belonged to the same academic year.

5.2.1.2. SOURCE OF PARTICIPANTS

Participants were recruited from Students of “Dr. Mahalingam College of Engineering and Technology, Pollachi, Tamil Nadu, India”.

5.2.1.3. INCLUSION CRITERIA

Inclusion criteria included participants who showed an interest in participating in the research and both genders were recruited.

5.2.1.4. EXCLUSION CRITERIA

Exclusion criteria include students pursuing other than the first semester, students having server psychological distress as evaluated from the general health questionnaire, and students scoring higher error rates in the implicit association test.

5.2.1.5. ETHICAL CONSIDERATION

This study was approved by the Institutional Ethics Committee before commencing the study and participants’ consent was obtained before beginning the study and after explaining in detail about the study.

5.2.2. DESIGN OF THE STUDY

We used a survey design for this study. Participants were assessed once in all the domains.

5.2.3. VARIABLES STUDIED

The selected psychological variables were assessed using inquisit software (Millisecond, 2014)**.** The recruited students were given a schedule to participate in the

psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

The Demographic Profile contains the roll number, date of birth, place of birth, time of birth, earlier experience of yoga practice having a response range from 0 (No experience) to 3 (above one year experience) and the reason for career selection having a response range from 1 (My own interest) to 4 (parents).

5.2.3.1. ENGINEERING IMPLICIT ATTITUDE

The "Engineering Implicit Association Test (EIAT)" was used to measure implicit engineering choice and the variable was validated for reliability in a previous study (Greenwald et al., 1998).

5.2.3.2. ATTACHMENT STYLE

The "Revised Adult Attachment Scale-Close Relationships Version" is divided into three subscales (CLOSE, DEPEND, ANXIETY), each of which consists of six items with a response range of 1 to 5, ranging from "Not at all characteristic of me" to "Very characteristic of me." The CLOSE scale determines how comfortable a person is with closeness and intimacy. The DEPEND scale assesses how much a person believes he or she can rely on others to be there when they are required. The ANXIETY subscale

determines how concerned a person is about being rejected or unloved. In a prior study, the variable was tested for reliability and Cronbach's alpha for the close, depend, and anxiety subscales were .77, .78, and .85, respectively (Collins, 1996). To items 2,7,8,13,16,17 and 18 reverse scoring was applied. The ratings for the six items that compose each subscale were averaged.

5.2.3.3. REASONS FOR LEARNING

The Reasons for Learning scale was used to measure explicit engineering choice. The Reasons for Learning Questionnaire contains 12 items and two subscales, like autonomous regulation and controlled regulation, which have a response range from 1 (not at all) to 7 (very true). In earlier studies, the alpha reliability for these two subscales was approximately 0.67 for controlled regulation and 0.75 for autonomous regulation (Black & Deci, 2000). The two subscale scores were calculated by averaging the items on that subscale.

5.2.3.4. PERCEIVED COMPETENCY FOR LEANING

The Perceived Competence Scale (PCS) is a four-item questionnaire that is one of the most reliable tools for assessing Self-Determination Theory constructs. For the perceived competence items, the alpha measure of internal consistency was greater than 0.80 (Williams & Deci, 1996). A person’s score on the PCS was calculated simply by averaging his or her responses on the four items.

5.2.3.5. SELF-ESTEEM

The subjects' level of self-esteem was assessed using the Rosenberg Self-Esteem Scale. It is a ten-item scale that measures both positive and negative feelings toward yourself in order to determine your overall sense of self-worth. It looks that the scale is one-dimensional. The four-point Likert scale, which ranges from strongly agreeing to strongly disapproving, is used to score each item. On the Rosenberg Self-Esteem measure, internal consistency was 0.77, and the minimal Coefficient of Reproducibility was at least 0.90, suggesting high reliability (Rosenberg, 1965). Items 2, 5, 6, 8, 9 were reverse scored. For the scoring, “Strongly Disagree” was given 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Scores of all ten items were summed. It was a continuous scale. Higher scores indicate higher self-esteem.

5.2.3.6. PARENTING STYLE

To assess autonomy support and control parenting, the Perceived Parental Autonomy Support Scale (PPASS) was employed. Offering choices, providing reasons, being alert, threatening to punish, generating guilt, and encouraging performance were six subscales and each subscale had 4 items among the 24 items in the P-PASS. Participants assessed how well each statement about their mother and father describes them using a seven-point Likert-type answer scale that ranges from 1 (do not agree at all) to 7 (very strongly agree). With a Cronbach's alpha of 89, the P-PASS was confirmed to be trustworthy in a recent study (Mageau et al., 2015). All scores in each subscale were summed up.

5.2.3.7. SOCIAL DESIRABILITY SCALE

The “Marlowe-Crowne Social Desirability Scale, 13-Item Short Form”, concerns personal attitudes and traits. Participants must decide whether or not the statement is true.

Out of 13 items, 5 items were keyed in the true direction (attribution of desirable behavior) and 8 items were keyed in the reverse direction (denial of undesirable behavior). Responses in the keyed direction were coded as one and responses in the opposite direction as zero. The maximum score on the MCSDS was therefore 13 and the minimum zero, with higher scores indicating more social desirability in responses. In a prior study, the variable was tested for consistency and the test-retest correlation was.89 (Crowne & Marlowe, 1960).

5.2.3.8. GENERAL HEALTH

The General Health Questionnaire was used to measure the general health of the participants. It has twelve questions, each of which can be answered on a 4-point Likert scale from 0 to 3 going from left to right. Scoring range was 0 to 36 and scores about 11 to 12 was typical. Scores from zero to forteen was normal, from 15 to 19 was distress and above 20 was severe distress. In a prior study, the variable's dependability was confirmed, and Cronbach's alpha was 0.94 (Lesage et al., 2011).

5.2.4. DATA COLLECTION

The selected psychological variables were assessed in the beginning of the semester using inquisit software (Millisecond, 2014**).** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the

test. The test consists of a demographic profile and other psychological variables.

5.2.5. DATA ANALYSIS

Psychological assessments were conducted on 65 systems in the central computer lab. All raw data from the server computer were collected after completing the tests. Data were extracted to excel sheet. The Implicit Associate Test data were scored and extracted using standard algorithms (Greenwald et al., 2003). In addition, all variables' data were consolidated into a single excel file, and duplicate data were deleted. Then, for the variables that required reverse scores, reverse scores were applied, and descriptive statistics were generated for all variables. For each variable, the internal consistency metric Cronbach's alpha was calculated. We performed first-order Pearson's correlation, keeping social desirability as the controlling variable. The statistical computer software R 4.1.0 was used to analyse the data (R Core Team, 2021).

5.3. STUDY TWO

5.3.1. PARTICIPANTS

5.3.1.1. SAMPLE SIZE

314 volunteers, ages 18 to 19, were recruited for this study from "Dr. Mahalingam College of Engineering and Technology". They were all from the same academic year.

5.3.1.2. SOURCE OF PARTICIPANTS

Participants were recruited from Students of "Dr. Mahalingam College of Engineering and Technology, Pollachi, Tamil Nadu, India".

5.3.1.3. INCLUSION CRITERIA

Inclusion criteria included participants who showed an interest in participating in the research and both genders were recruited.

5.3.1.4. EXCLUSION CRITERIA

Exclusion criteria include students pursuing other than the first semester and students having server psychological distress as evaluated from the general health questionnaire,

5.3.1.5. ETHICAL CONSIDERATION

This study was approved by the Institutional Ethics Committee before commencing the study and participants' consent was obtained before beginning the study and after explaining in detail about the study.

5.3.2. DESIGN OF THE STUDY

We used a survey design for this study. Participants were assessed once in all the domains.

5.3.3. VARIABLES STUDIED

The selected psychological variables were assessed using inquisit software (Millisecond, 2014)**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify

their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

The Demographic Profile contains the roll number, date of birth, place of birth, time of birth, earlier experience of yoga practice having a response range from 0 (No experience) to 3 (above one year experience) and the reason for career selection having a response range from 1 (My own interest) to 4 (parents).

5.3.3.1. FREEWILL AND DETERMINISM

Freewill and determination scale was used to measure deterministic and libertarian characters. The 8 Likert-type items on this scale use a five-point range from “not true at all” to “almost always true”. Item 4 and item 7 were reverse scored and all scores were added. The internal consistency for entire scale was .72 (Rakos et al., 2008).

5.3.3.2. DIMENSIONS OF EMERGING ADULTHOOD

“Inventory of the Dimensions of Emerging Adulthood (The IDEA)” instrument was used to assess psychological states of emerging adulthood in six subscales which contain “Identity exploration, Experimentation/possibilities, Negativity/instability, Other-focused, Self focused and Feeling in-between”. The IDEA instrument contains 31 items with 4 points answer scale ranging from 1= “strongly disagree” to 4= “strongly agree”. Each subscale scores were summed. The subscales' internal consistency (alpha) reliability coefficients were generally high, ranging from.70 to.85. The test-retest reliability correlations (across a one-month interval) varied from .64 to .76, with the exception of the “feeling in-between” subscale (.37) (Reifman et al., 2007b).

5.3.3.3. PARENTING STYLE

As explained in seriol number 5.2.3.6

5.3.3.4. ATTACHMENT STYLE

As explained in seriol number 5.2.3.2

5.3.3.5. SOCIAL DESIRABILITY SCALE

As explained in seriol number 5.2.3.7

5.3.3.6. GENERAL HEALTH

As explained in seriol number 5.2.3.8

5.3.4. DATA COLLECTION

The selected psychological variables were assessed in the beginning of the semester using inquisit software (Millisecond, 2014)**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

5.3.5. DATA ANALYSIS

Psychological assessments were conducted on 65 systems in the central computer lab. All raw data from the server computer were collected after completing the tests. Data were extracted to excel sheet. In addition, all variables' data were consolidated into a single

excel file, and duplicate data were deleted. Then, for the variables that required reverse scores, reverse scores were applied, and descriptive statistics were generated for all variables. For each variable, the internal consistency metric Cronbach's alpha was calculated. We performed Pearson's Partial correlation, keeping social desirability as the controlling variable. The statistical computer software R 4.1.0 was used to analyse the data (R Core Team, 2021).

5.4. STUDY THREE

5.4.1. PARTICIPANTS

5.4.1.1. SAMPLE SIZE

For this study, 86 participants, were recruited from "Dr. Mahalingam College of Engineering and Technology" and their ages ranged from 18 to 19 years. They all belonged to the same academic year.

5.4.1.2. SOURCE OF PARTICIPANTS

Participants were recruited from Students of "Dr. Mahalingam College of Engineering and Technology, Pollachi, Tamil Nadu, India".

5.4.1.3. INCLUSION CRITERIA

Inclusion criteria included participants who showed an interest in participating in the research and both genders were recruited.

5.4.1.4. EXCLUSION CRITERIA

Exclusion criteria include students pursuing other than the first semester and students

having server psychological distress as evaluated from the general health questionnaire,

5.4.1.5. ETHICAL CONSIDERATION

This study was approved by the Institutional Ethics Committee before commencing the study and participants' consent was obtained before beginning the study and after explaining in detail about the study.

5.4.2. DESIGN OF THE STUDY

We used pre-post design for this study. Students were assessed in the beginning of the semester and after intervention at the end of the semester in all the domains.

5.4.3. VARIABLES STUDIED

The selected psychological variables were assessed using inquisit software (Millisecond, 2014)**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

The Demographic Profile contains the roll number, date of birth, place of birth, time of birth, earlier experience of yoga practice having a response range from 0 (No experience) to 3 (above one year experience) and the reason for career selection having a response

range from 1 (My own interest) to 4 (parents).

5.4.3.1. MINDFULNESS

To assess dispositional mindfulness, the Mindful Attention Awareness Scale (MAAS) was employed. This tool has 15 items that all reflect a lack of mindfulness. The total score can vary from 15 to 90, with higher numbers indicating more awareness. These items are assessed on a 6-point Likert scale ranging from 1 (almost always) to 6 (almost never). Individuals' attention and awareness in their daily lives are assessed using these metrics. The MAAS is written in a negative tone throughout. The overall score is calculated by adding the participants' replies to each item and computing mean value. A high score suggests that the person has a high level of dispositional mindfulness. It was designed to be applicable to the general public, regardless of prior meditation experience. It has been found to be psychometrically sound, to distinguish between mindfulness practitioners and non-mindfulness practitioners, and to be related to wellbeing. The MAAS has excellent convergent and discriminant validity, as well as excellent psychometric qualities. For the MAAS, the Cronbach's alpha coefficient was found to be.81 (Brown & Ryan, 2003).

5.4.3.2. ELECTROENCEPHALOGRAM (EEG)

The Mindwave Mobile Wireless Headset was used to measure Electroencephalaogram. It can detect brainwaves in their natural state, as well as EEG power spectra (Alpha, Beta, etc.), and eSense metres for attention and meditation (Neurosky, 2015). In the left forehead region, 2 cm above the left brow, the NeuroSky Mindset headset has a dry electrode system with a single active pea-sized electrode (10 mm in diameter). This roughly correlates to area Fp1 when using the International 10-20

System for electrode insertion (DLPFC). The reference electrode senses electrical potential at two points on the left earlobe and is constructed inside the earpiece of the headset. The common ambient noise is subtracted using a process known as common mode rejection using the reference. There is less neural activity in the earlobe despite being exposed to the same background noise as the NeuroSky forehead sensor (Poltavski, 2015).

5.4.3.3. ATTACHMENT STYLE

As explained in seriol number 5.2.3.2

5.4.3.4. SOCIAL DESIRABILITY SCALE

As explained in seriol number 5.2.3.7

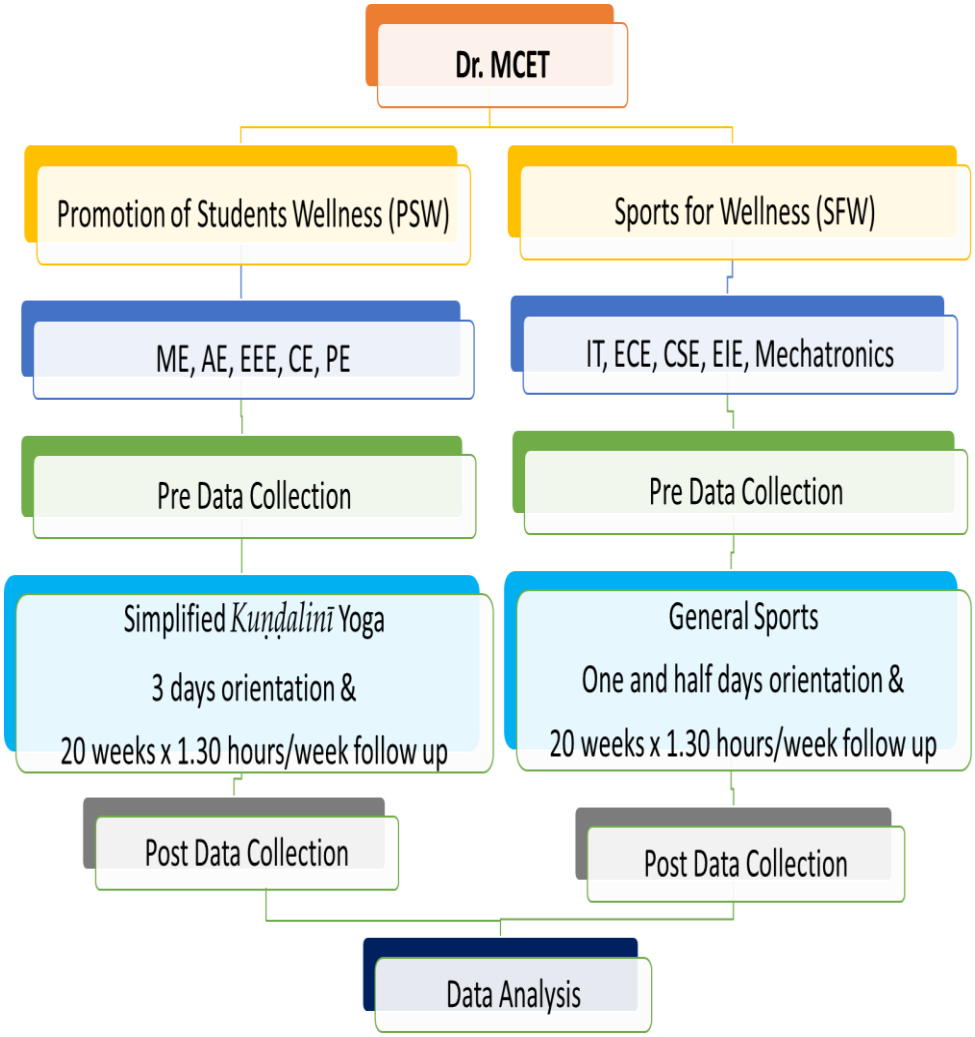
5.4.3.5. GENERAL HEALTH

As explained in seriol number 5.2.3.8

5.4.4. INTERVENTION

Figure 5.1

Study Design Overview



MCET has introduced various programmes in the curriculum of Bachelor of engineering course to improve skills of the students. In the programme series, Promotion of Students Wellness (PSW) and Sports for Wellness (SFW) programmes are introduced in first year. “Mechanical Engineering, Automobile Engineering, Electrical and Electronics Engineering, Civil Engineering, and Production Engineering” students will attend PSW programme and “Information Technology, Electronics and Communication Engineering, Computer Science Engineering, Electronics and Instrumentation Engineering and Mechatronics” students will attend SFW programme in the first semester and vice versa in

the second semester. PSW students will undergo three days (21 hours) orientation programme in the beginning of the semester in which they will learn Simplified *Kuṇḍalinī* Yoga and SFW students will undergo one and half a day (12 hours) orientation program in the beginning of the semester in which they will learn general sports. Both PSW and SFW students will have 30 hours (20 weeks x 1.30 hours/week) of follow-up classes after the orientation programme.

5.4.4.1. SIMPLIFIED *KUṆḌALINĪ* YOGA

Simplified *Kuṇḍalinī* Yoga was divised by Yogiraj Vethathiri Maharish which gains its popularity by the name SKY. It includes SKY meditation techniques, simplified physical exercises, Kāyakalpa Yoga and Introspection techniques. Nine types of meditations are there in Simplified *Kuṇḍalinī* Yoga. For this study, we have used *Ājnā* meditation, *śanti* meditation and *Turiyā* meditation.

5.4.4.2. *ĀJNĀ* MEDITATION

It is the first step of practice in Simplified *Kuṇḍalinī* Yoga. In this meditation students sat in a comfortable position with their back straight, their eyes closed and clasped their hands and placed them on thier lap. They started meditation after saluting their mother, father and Guru followed by a prayer song. During meditation they focused their attention in between eyebrows for ten minutes. After the meditation they completed the process by making affirmations and doing blessings.

5.4.4.3. *ŚANTI* MEDITATION

It is the second step of practice in Simplified *Kuṇḍalinī* Yoga. In this meditation students sat in a comfortable position with their back straight, their eyes closed and clasped their hands and placed theim on thier lap. They started meditation after saluting their mother, father and Guru followed by a prayer song. During meditation they focused their attention at the fag end of the spinal cord for ten minutes. After the meditation they completed the process by making affirmations and doing blessings.

5.4.4.4. *TURIYĀ* MEDITATION

It is the third step of practice in Simplified *Kuṇḍalinī* Yoga. In this meditation students sat in a comfortable position with their back straight, their eyes closed and clasped their hands and placed theim on thier lap. They started meditation after saluting their mother, father and Guru followed by a prayer song. During meditation they focused their attention in between eyebrows for five minutes and then they focused their attention at the top of the head for five minutes. After the meditation they completed the process by making affirmations and doing blessings.

5.4.4.5. KĀYAKALPA YOGA

Kāyakalpā is the method to keep the body young and healthy throughout life. Kāyakalpā exercise consists of two parts. 1. *Asviṉi Mudrā.* 2. *Ōjas* breath. It was practiced in hree different postures in the morning and in the three different postures in the evening.

5.4.4.6. INTROSPECTION

Introspection is a method of self-analysis that helps one connect with one's inner self. Through introspection, one may distinguish the excellent from the bad. Good traits can be discovered and nurtured, while bad qualities that harm oneself or others can be eradicated. Thoughts can be purified by introspection, thereby improving their quality. Introspection is the process that removes unwanted weeds from the mind. It is more effective to combine introspection with meditation. It is possible to analyse one's thoughts, moralise desires, neutralise anger and eliminate worries. The energy levels of the body and mind can be retained at high levels. As a result, one can lead a healthy life.

5.4.4.7. ANALYSIS OF THOUGHTS

The manifestation of an experience with which the mind was previously associated is thought. When the life-force perceives pain in the body, the body seeks relief through action or material. When there is an action, there are four dimensions: time, distance, volume, and force. The dimensions of mind are used to judge the object or its movements. This is what we mean when we say "thought." The mind is always examining the actions and words of others. It is essential to examine our own thoughts, which are always reflected within us. The inquiries that occur in the mind are "why," "what," and "how." These inquiries can be applied to any situation.

Furthermore, paying attention to that thought becomes important. Thoughts are the architects of life, so one should be mindful of their own thoughts. This technique allows to assess the quality of the thoughts and eliminate unwanted ones from the mind. As a result, serenity and contentment are achieved.

5.4.4.8. MORALIZATION OF DESIRE

Desire is described as liking or experiencing something. Desire is defined as a strong attachment, love, or an urge to obtain something. Desire arises from a need. It is hard to be free of desires; they arise at random times and locations. It is essential to examine one's desires. Those desires that generate sadness should be avoided. It is possible to achieve good and wise goals that are useful to both the individual and society. As a result, being able to discriminate between important and unpleasant desires allows one to make a clear distinction between them, leading to the desired ones. The process of moralizing involves determining the impact of a desire on oneself and society. The desire must be moral. There is pleasure in acting on one's desire to be fulfilled. However, one should have a detached attachment involved in that experience. It should also be considered a responsibility.

5.4.4.9. NEUTRALIZATION OF ANGER

When there are objections and obstacles to expressing an undesired desire, a human becomes emotional and expresses it as anger. Anger is harmful to one's body and mind, as well as to others. Furthermore, anger's instant impact lasts for a long time. The emotional side of enmity is anger. Anger is synonymous with self-destruction. Getting angry on a regular basis might develop into an unpleasant habit. Anger, which is a result of a cause, can develop into an irrational behaviour pattern.

Anger is a very prevalent emotion among humans. Because of a lack of understanding and awareness of the harmful nature of anger, one holds on to it forever. Anger destroys the mental health of oneself, family, and society. The negative impacts of anger can be reduced further by introspection practice, leading to a harmonious life.

5.4.4.10. ERADICATION OF WORRIES

Physical blemishes are diseases, whereas mental blemishes are life issues. Both of these things manifest as worry, and overcoming them is challenging. When a person's body or mind is in distress, they become depressed and require strength to overcome obstacles. This mental condition is worrisome. Worry is the result of expectation minus reality. Worry arises when the expected outcome differs significantly from reality. Worries might make oneself feel restless and insecure. It's important to understand the causes of worry and how to overcome them. The majority of worries dissipate after identifying and attending to them. Some worries can wait, while others must be tackled right now. Some of the things that can assist in avoiding worry are: by not creating unnecessary issues, by avoiding meddling with other people's activities, and by not negleting responsibilities and duties for any reason, etc.

5.4.4.11. SIMPLIFIED PHYSICAL EXERCISES

Simplified Physical Exercise is a technique developed by Vethathiri Maharishi. This exercise is appropriate for people of all ages and weather conditions. It keeps both the body and the mind in good condition. Simplified Physical Exercises are simple enough for people of all ages to do without straining their bodies. It has many benefits. Regular practise of this exercise harmonizes body and mind, preventing and healing a number of physical ailments. Simplified Physical Exercise consists of nine types of exercise. They are:

1. Hand exercises
2. Leg exercises
3. Neuro-Muscular Breathing exercises

4. Eye exercises
5. *Kapālabhāti* exercises
6. *Makārāsaṉā* exercises Part 1 & 2
7. Body Massage
8. 14-point Acupressure
9. Relaxation

5.4.4.12. HAND EXERCISES

Hand exercises are done in seven potures with hand movements which include upward and downward, inward and outward, clockwise rotation and anti clockwise rotation and knee rotaion. Simplified physical exercise strengthens the muscles around the joints and gives better support.

5.4.4.13. LEG EXERCISES

Leg exercises are done in seven potures which includes turning the feet inward and outward, forward and backward, rotation and foot reflexology that involves the application of pressure to reflex areas of the feet to produce specific effects in other parts of the body (Botting, 1997) .

5.4.4.14. NEURO-MUSCULAR BREATHING EXERCISES

Neuromuscular breathing exercise are practicsed to improve the functions of the neuromuscular system that involves nervous system and muscles working together to control, direct and allow movement of the body (Department of Health, 2021). These

exercises are done in seven steps, 2 steps are carried out sitting in *vajrāsana* and 5 steps are carried out sitting in *sukāsana*. Through these exercises all parts of the lungs – front, back, lower and upper – are made to contract and expand. Intake of oxygen is increased thereby and this contributes to well-being.

5.4.4.15. EYE EXERCISES

Eye exercises are performed sitting in *vajrāsana* with hands and eyes movements. Movements should be done in seven different directions which include horizontal, vertical, diagonal, clockwise rotation, anti-clockwise rotation, to and fro, and eye relaxation. Eye exercises are essential for people of all ages.

5.4.4.16. *KAPĀLABHĀTI* EXERCISES

Breathing exercises help to manage the body's *prāna*, or life force, which boosts energy levels throughout the body. *Kapālabhāti* is one such exercise that improves brain functioning. *Kapālabhāti* exercise is done with eyes closed. Throughout the practise, it's important to keep the sphincter muscles tight (*mūlabandha*).

5.4.4.17. *MAKARĀSANA* EXERCISES PART 1 & 2

Makara refers to a crocodile and *Āsana* refers to posture. Hence, *Makarāsana* means Crocodile Posture. It has a lot to do with the spinal cord. *Makarāsana* exercise is a basic spine-twisting exercise with major benefits. Makarasana is divided into two parts.

Makarāsana part 1 is practiced in supine position with seven types of twistings. Throughout the workout, hands should be kept in a 45^0 position to the body with *chin mudrā*. *Makarāsana* part 2 is practiced in prone position with seven types of twistings. Throughout the practice except the seventh practice, hands should be kept in a 45^0 position to the body. After competion of all these *Makarāsana* practices, one or two minutes of relaxation is necessary with keeping hands and legs apart. As a result, the body as a whole becomes more energetic and flexible. The nerves that go along the spine are stimulated and strengthened

5.4.4.18. BODY MASSAGE

Massaging different parts of the body both relaxes and energises. Stomach massage, chest massage, and temple massage should be done both clockwise and counterclockwise. Ear massage should be done up to down. Face massage should be done up to down and down to up. Massage improves the function of the neck, chest, ears, temple points, both sides of the nose, and face.

5.4.4.19. 14-POINT ACUPRESSURE

There are fourteen major energy centres in the body. In supine position, all fourteen pressure points are activated by utilising the right-hand index and thumb fingers. Pressure is applied for 30 seconds from second points to fourteenth point.

- The location of the first point is located in the back of the neck. Left hand should be bent at the elbow joint diagonally so that index, middle and ring fingers of the left-

hand touch and press the back of the neck. The pressure on the first point should be retained throughout the Acu-Pressure Exercie.

- The second point is located one inch directly below the chest cavity and pressure should be applied lightly using the index finger of the right hand.
- The third point is located one inch directly below the second point and pressure should be applied lightly using the index finger of the right hand.
- The fourth point is located one inch directly below the third point and pressure should be applied lightly using the index finger of the right hand.
- The fifth point is located on the navel. Tip of the index finger of the right hand should be placed in the centre of the navel and to be pressed upwards.
- The sixth point is located on the navel. Tip of the thumb of the right hand should be placed in the centre of the navel and to be pressed downwards.
- The seventh point is located on the navel. Tip of the index finger of the right hand should be placed in the centre of the navel and to be pressed upwards diagonally at a 45^0 to the right.
- The eighth point is located on the navel. Tip of the index finger of the right hand should be placed in the centre of the navel and to be pressed upwards diagonally at an 45^0 to the left.
- The ninth point is located on the navel. Tip of the index finger of the right hand should be placed in the centre of the navel and to be pressed downwards diagonally at an 45^0 to the right.
- The tenth point is located on the navel. Tip of the thump of the right hand should be placed in the centre of the navel and to be pressed downwards diagonally at an 45^0

to the left.

- The eleventh point is located one inch below the centre of the lowest rib on the right side. Pressure should be applied using the index finger of the right hand.
- The twelth point is located one inch below the centre of the lowest rib on the left side. Pressure should be applied using the index finger of the right hand.
- The thirteenth point is located one inch below the right extremity of the lowest rib. Pressure should be applied using the thump of the right hand.
- The forteenth point is located in the mid-way between the navel and left thigh-joint. Pressure should be applied using the index finger of the right hand.

5.4.4.20. **RELAXATION**

Relaxation is a technique for minimising negative effects of stress on the mind and body. Daily stress, as well as tension associated to physical issues can be relieved with relaxation practices. In any sort of exercise, the final step is relaxation. After physical exercise, the body requires rest. Relaxation is very important to calm down the body and mind. It helps one to balance heat, blood and air circulations in the body.

To begin the relaxation exercise, one should lie down in a supine position with legs about one and a half feets apart and palms facing upwards and relax the entire body, beginning with feet. The Feet, Legs, Knees, Thighs, Hip, Stomach, Chest, Shoulders and Hands, Neck, and Head, should be relaxed (Maharishi, 2002).

5.4.4.21. WEEKLY TRAINING PROGRAMME

Table 5.1

WEEKLY TRAINING PROGRAMME – DAY 1

Sl.No.	Name of the practice	Duration in minute
1	*Turiyā* Meditation	15
2	Introspection	5
3	Morning *Kāyakalpa* Yoga	3
4	Simplified Physical Exercises (Part-1) Hand exercises Leg exercises Neuro-Muscular Breathing Eye Exercise *Kapālabhāti*	14
5	Evening *Kāyakalpa* Yoga	3
6	Relaxation	5
	Total duration	**45**

Table 5.2

WEEKLY TRAINING PROGRAMME – DAY 2

Sl.No.	Name of the practice	Duration in minute
1	*Turiyā* Meditation	15
2	Introspection	5
3	Morning *Kāyakalpa* Yoga	3
4	Simplified Physical Exercises (Part-2) *Makārācaṉā* 1 & 2	14

	Massage 14 Point Acu-Pressure	
5	Evening *Kāyakalpa* Yoga	3
6	Relaxation	5
	Total duration	**45**

5.4.5. DATA COLLECTION

The selected psychological variables were assessed using inquisit software (Millisecond, 2014)**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

Electroencephalogram was assessed for all the students individually at Vivekandanda hall in Dr. Mahalingam College of Engineering and Technology using Neurosky mindwave mobile headset. EEG measurements were done before and after the intervention. The EEG measurement protocol was: measurement in three different phases- Pre, During, and Post. During phase consisted of 10 minutes session of closed-eyes silent observation. Pre and Post were 5 minutes sessions just before and after the 10 minutes closed-eyes observation. Totally the whole EEG session lasted for 20 minutes. The same measurement protocol was used after the intervention also, at the end of the semester. However, instead of 10 minutes

of closed-eyes observation, SKY meditation was given. The questionnaires were collected after the EEG assessments, both before and after the intervention.

5.4.6. DATA ANALYSIS

Psychological assessments were conducted on 65 systems in the central computer lab. All raw data from the server computer were collected after completing the tests. EEG data were collected from Nexus 6 mobile and data were extracted to excel sheet. EEG raw values were converted to voltage using standard algorithm (SupportTeem, 2014). In addition, all variables' data were consolidated into a single excel file, and duplicate data were deleted. Then, for the variables that required reverse scores, reverse scores were applied, and descriptive statistics were generated for all variables. For each variable, the internal consistency metric Cronbach's alpha was calculated. We performed Repeated Measures Anova before and after the intervension on EEG variables. The statistical computer software R 4.1.0 was used to analyse the data (R Core Team, 2021).

5.5. STUDY FOUR

5.5.1. PARTICIPANTS

5.5.1.1. SAMPLE SIZE

Four hundred and seven students were recruited from "Dr. Mahalingam College of Engineering and Technology" for this study and their age ranged from 18 to 19 years. Among them, two hundred and ninety-eight are male, and one hundred and nine are female and they all are belonged to the same academic year.

5.5.1.2. SOURCE OF PARTICIPANTS

Participants were recruited from Students of “Dr. Mahalingam College of Engineering and Technology, Pollachi, Tamil Nadu, India”.

5.5.1.3. INCLUSION CRITERIA

Inclusion criteria included participants who showed an interest in participating in the research and both genders were recruited.

5.5.1.4. EXCLUSION CRITERIA

Exclusion criteria include students pursuing other than the first semester and students having server psychological distress as evaluated from the general health questionnaire,

5.5.1.5. ETHICAL CONSIDERATION

This study was approved by the Institutional Ethics Committee before commencing the study and participants’ consent was obtained before beginning the study and after explaining in detail about the study.

5.5.2. DESIGN OF THE STUDY

We used pre-post design for this study. Students were assessed in the beginning of the semester and after intervention at the end of the semester in all the domains.

5.5.3. VARIABLES STUDIED

The selected psychological variables were assessed using Google Form**.** The recruited students were given a schedule to participate in the psychological test. The students’ consent was taken to attend the psychological test and they insisted on visiting the Central

Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

The Demographic Profile contains the roll number, date of birth, place of birth, time of birth, earlier experience of yoga practice having a response range from 0 (No experience) to 3 (above one year experience) and the reason for career selection having a response range from 1 (My own interest) to 4 (parents).

5.5.3.1. PERCEIVED COMPETENCY FOR LEANING

As explained in seriol number 5.2.3.4

5.5.3.2. DIMENSIONS OF EMERGING ADULTHOOD

As explained in seriol number 5.3.3.2

5.5.3.3. SOCIAL DESIRABILITY SCALE

As explained in seriol number 5.2.3.7

5.5.3.4. GENERAL HEALTH

As explained in seriol number 5.2.3.8

5.5.3.5. 'G' INVENTORY OF PERSONALITY

Three *Guṇas* were assessed with the 'G' Inventory of Personality developed by Das

in 1991 and it has 10 questions with three possible responses. Test-retest reliability for this test, which has been validated, is 0.60 with a confidence level of 99 percent. This test is a reliable tool for determining personality type. An item representing Sattiva has a score value of 3, an item suggesting Rajas has a score value of 2, and an item indicating Tamas has a score value of 1. It divides people into three types based on their total score on the test: *Sattva*, *Rajas*, and *Tamas.* Total possible scores are 30, scores less than 24 is considered as *Tamas,* scores ranging from 24 to 28 is considered as *Rajas* and scores above 28 is considered as *Sattva* (Das, 1991).

5.5.4. INTERVENTION

As explained in seriol number 5.4.4

5.5.5. DATA COLLECTION

The selected psychological variables were assessed using Google Form**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

5.5.6. DATA ANALYSIS

Psychological assessments were conducted on 65 systems in the central computer lab. All raw data from the Google Drive were collected after completing the tests in excel sheet. Then, for the variables that required reverse scores, reverse scores were applied, and descriptive statistics were generated for all variables. For each variable, the internal consistency metric Cronbach's alpha was calculated. We performed Mann-Whitney U Test, keeping social desirability as the controlling variable. The statistical computer software R 4.1.0 was used to analyse the data (R Core Team, 2021).

5.6. STUDY FIVE

5.6.1. PARTICIPANTS

5.6.1.1. SAMPLE SIZE

For this study, 389 students, whose ages ranged from 18 to 19, were selected from the "Dr. Mahalingam College of Engineering and Technology." One hundred and sixteen of them are female and two hundred and seventy-three of them are male; they all studied the same academic year.

5.6.1.2. SOURCE OF PARTICIPANTS

Participants were recruited from Students of “Dr. Mahalingam College of Engineering and Technology, Pollachi, Tamil Nadu, India”.

5.6.1.3. INCLUSION CRITERIA

Inclusion criteria included participants who showed an interest in participating in the research and both genders were recruited.

5.6.1.4. EXCLUSION CRITERIA

Exclusion criteria include students pursuing other than the first semester and students having server psychological distress as evaluated from the general health questionnaire,

5.6.1.5. ETHICAL CONSIDERATION

Prior to starting, this study received approval from the institutional ethics committee. After thoroughly explaining the study to the participants, consent was then acquired.

5.6.2. DESIGN OF THE STUDY

We used pre-post design for this study. Students were assessed in the beginning of the semester and after intervention at the end of the semester in all the domains.

5.6.3. VARIABLES STUDIED

The selected psychological variables were assessed using Google form**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

The Demographic Profile contains the roll number, date of birth, place of birth, time of birth, earlier experience of yoga practice having a response range from 0 (No experience) to 3 (above one year experience) and the reason for career selection having a response

range from 1 (My own interest) to 4 (parents).

5.6.3.1. ATTACHMENT STYLE

As explained in seriol number 5.2.3.2

5.6.3.2. DIMENSIONS OF EMERGING ADULTHOOD

As explained in seriol number 5.3.3.2

5.6.3.3. SOCIAL DESIRABILITY SCALE

As explained in seriol number 5.2.3.7

5.6.3.4. GENERAL HEALTH

As explained in seriol number 5.2.3.8

5.5.6.3.5. 'G' INVENTORY OF PERSONALITY

As explained in seriol number 5.5.3.5

5.6.4. INTERVENTION

As explained in seriol number 5.4.4

5.6.5. DATA COLLECTION

The selected psychological variables were assessed using Google Form**.** The recruited students were given a schedule to participate in the psychological test. The students' consent was taken to attend the psychological test and they insisted on visiting the Central Computer Lab, where they were allotted a computer for each subject and explained the test. The researcher, a faculty member, and a lab technician were available in the lab for all the sessions to assist the participants and clarify their doubts. The subjects took around 45 minutes to complete the test. The test consists of a demographic profile and other psychological variables.

5.6.6. DATA ANALYSIS

Psychological assessments were conducted on 65 systems in the central computer lab. All raw data from the Google Drive were collected after completing the tests in excel sheet. Then, for the variables that required reverse scores, reverse scores were applied, and descriptive statistics were generated for all variables. For each variable, the internal consistency metric Cronbach's alpha was calculated. We performed Mann-Whitney U Test, keeping social desirability as the controlling variable. The statistical computer software R 4.1.0 was used to analyse the data (R Core Team, 2021).