PROJECT REPORT

How Thinking Styles and Stream of Education Affect Creativity in Undergraduate Students

Submitted by:

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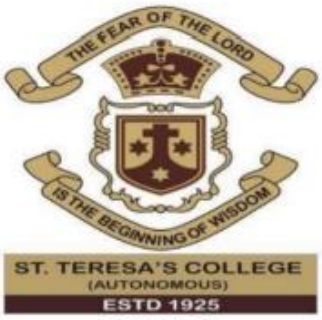

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Certificate

This is to certify that the project report entitled, "How Thinking Styles And Stream Of Education Affects Creativity In Undergraduate Students ", is a bonafide record submitted by MS. SANDRA MARIYA SUNNY, Reg.no. SB21PSY031, in partial fulfillment of the requirements for the award of the Degree of Bachelor of Science in Psychology during the academic year 2021-2024.

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Declaration

I, SANDRA MARIYA SUNNY, hereby declare that the study presented in the dissertation entitled, "How thinking styles and stream of education affects creativity in undergraduate students", which is submitted to the Department of Psychology, St. Teresa's College, Ernakulam is a bonafide record of the research work carried out by me, under the supervision and guidance of Ms. Lakshmi Nair , Assistant Professor of the Department of Psychology, St. Teresa's College, Ernakulam, in partial fulfillment of the requirements for the degree of Bachelor of Science in Psychology and has not previously formed the basis for the award of any degree, diploma, fellowship, title or recognition before.

Sandra Mariya Sunny

Place: Ernakulam

Date: 23/04/24

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Thanking you

Sandra Mariya Sunny

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Abstract

This study aims to investigate the relationship between thinking styles, creativity, and stream of education (Arts, Science, Commerce) among undergraduate students. A cross-sectional analysis was conducted with a sample of 300 undergraduate students from Kochi, India, using convenient sampling. The Short Scale of Creative Self Questionnaire (SSCS) and the Thinking Styles Inventory based on Sternberg's theory of mental self-government were administered to assess creativity and thinking styles, respectively. Spearman's correlation and Kruskal-Wallis test were employed for data analysis due to the non-parametric nature of the data. The study hypothesized a significant relationship between creativity and thinking styles across different streams, differences in thinking styles and creativity among streams, and the impact of thinking styles on creativity. The findings of this research contribute to understanding the interplay between cognitive factors (thinking styles) and creativity in the context of different educational backgrounds. Ethical considerations, such as informed consent, confidentiality, and avoidance of deception, were upheld throughout the study. The results may have implications for tailoring educational approaches to foster creativity and align with students' thinking styles across diverse academic domains.

Key words: *(Creativity, Thinking Styles, Stream of education, creative self-questionnaire, thinking styles inventory)*

CHAPTER 1

INTRODUCTION

Creativity is the ability to produce or develop original work, theories, techniques, or thoughts. A creative individual typically displays originality, imagination, and expressiveness. Creative thinking refers to the mental processes leading to a new invention or solution to a problem. Creativity is a topic of wide scope that is important at both the individual and societal levels for a wide range of task domains. At an individual level, creativity is relevant, for example, when one is solving problems on the job and in daily life. At societal level, creativity can lead to new scientific findings, new movements in art, new inventions, and new social programs. Creativity is often perceived as the intellectual power that keeps up and enriches individual and societal progress. Creativity can be described as the potential to create or a personality trait, as a sudden flash of idea or a long-lasting divergent thinking process, as a novel or original product or artistic expression (Sternberg & Lubart, 1999).

Thinking styles generally refer to individual differences in cognitive processes, preferences, and approaches to problem-solving or decision-making.Thinking styles are very relevant to creativity as they reflect people's preferred ways of using the abilities that they have. For example, a legislative style, a preference for thinking in novel ways of one's own choice, is

important for creativity (Sternberg, 1997). However, creative thinkers do not necessarily stick to

or possess only one thinking style, it is very helpful if one is able to use other thinking styles.

Lubart (1994) and Sternberg and Lubart (1995) stressed the importance of certain personality attributes such as a person's willingness to take sensible risks and willingness to overcome obstacles for creativity. Motivation is also important for creative work. Intrinsic, task-focused motivation is essential for people to focus truly on creative work in an area. Next to all these internal resources, the external environment can also play an important role

in which it can support and reward, or suppress creative ideas. In other words, the creativity of an individual can be identified from these six aspects. For example, people who are more creative are more likely to think divergently, exhibit higher levels of cognitive complexity and flexibility, and are better at coping with unstructured and ambiguous situations (Kaufman, 2002; Sternberg, 2006). However, few empirical studies have been conducted using these elements to understand the individual profiles of how they conceive creativity. Therefore thinking styles refers to the preference a person displays during cognitive processing, or as Sternberg puts it, “The process used to solve a problem or to devise an answer.” A style of thinking is therefore, a preferred way of thinking. It is not ability but rather a preferred way of expressing one or more abilities. How do people think about things?"

The development and changes of the times, creativity has received more and more attention. Research creativity has become an important issue in higher education. A Research was conducted by Jinyu Lu on Dominance Differences in Creativity Thinking between Art and Science Students, A Mix Method Study of Chinese Students of Baise University The Art and science students show great differences in creativity in different professional fields. Therefore, it is necessary to conduct a comparative study on the creativity of Arts and Science students. This research uses the adapted scale of the Torrance Creative Thinking Test (TTCT) to investigate the creativity of arts and science students of Baise University from the perspective of real performance in fluency, originality, abstractness of titles, elaboration and resistance to premature closure. This article will carry out research from three aspects: First, review the previous research results on the creativity research of Arts and Science students. Second, through the TTCT scale and interviews Baise University students’ creativity on the fluency, originality, abstractness of the title， elaboration and resistance to premature closure are investigated and analyzed. Third, the impact of Arts and Science students' creativity

characteristics on business activities and professional development is explored. The following conclusions are finally drawn: (1) The creativity performance of Science students and Arts students of Baise University is inconsistent. (2) Arts students are significantly higher in fluency of creative thinking than Science students, while Science students are significantly higher in exquisiteness and resistance to premature closure, but not in originality and abstractness of titles, significant differences. (3) Arts students tend to interact with people in terms of occupational adaptation, and science students tend to engage in precise and meticulous work types. Business activities Arts students adapt to the role of business marketers, while Science students are more suited to the roles of entrepreneurs and senior management

Creativity

According to the American Association Association (APA), Creativity is the ability to produce or develop original work, theories, techniques, or thoughts. A creative individual typically displays originality, imagination, and expressiveness. Creative thinking refers to the mental processes leading to a new invention or solution to a problem. Psychologists usually define creativity as the capacity to produce ideas that are both original and adaptive. In other words, the ideas must be both new and workable or functional which enables a person to adjust to novel circumstances and to solve problems that unexpectedly arise. Obviously, such a capacity

is often very valuable in everyday life. Yet creativity can also result in major contributions to human civilization

Theories of Creativity

Componential Model of Creativity. In the original model (1986,1996), Amabile proposed that three interconnected variables were the key to individual creativity (and

organizational creativity; Amabile, 1988). The first was domain-relevant skills, which are technical skills and talents and specific knowledge. Creativity-relevant processes are broader, such as being tolerant of ambiguity and willing to take appropriate risks. Finally, she included intrinsic motivation, taking part in an activity because it is enjoyable or meaningful. Extrinsic motivation, in contrast, is when someone is driven by an external reason, such as money, grades, or praise. A creative writer, for example, might have domain-relevant skills such as being able to construct a narrative and use beautiful language, creativity-relevant processes such as being curious about the world and wanting to understand other people, and intrinsic motivation in that they enjoy telling stories and find the act of creative writing fun and valuable. Four additional pieces have been added for the revised model (Amabile & Pratt, 2016). Intrinsic motivation is now paired with synergistic extrinsic motivation, which occurs when external motivators are present yet either add to or are consistent with a person's knowledge, competence, values, and engagement (Deci & Ryan, 1985). Finding meaning in one's work can increase both motivation and affect

Evolving Systems Approach. Gruber's (1988; Gruber & Wallace, 1999) theory conceptualized creativity as a need to answer questions that triggered the creator's curiosity. This approach looks at creative work over time and considers the dynamic between knowledge, affect, and purpose in creativity. It aims to understand what exactly makes creators passionate about what they do.

Mednick's associative theory. This Theory (1962), emphasizes the ability to make connections between remote concepts or ideas. When presented with a word, according to this theory, a more creative person could generate related words that would be less commonly associated. For example, the word "milk" might inspire most people to say "cow" or "white," but more remote associations might include "mustache" (as in a milk mustache) or "Jersey" (a breed of cow). Notice, however, that this ability is heavily reliant on knowledge,

intelligence, and culture (Kaufman,2016).The models of the creative process presented in this section call our attention to a wide range of phases and processes within and across them. Despite this variety, they nonetheless all focus exclusively on the individual creator. However, in real life (particularly as
technology continues to advance), we are more likely to create in implicit and explicit collaboration with other people. Such scenarios mean that modern creators are likely to also consider and integrate other people's ideas and perspectives (Barron, 1999)

Perspectival Model. In this theory creativity is conceptualized in terms of dialogues between different perspectives and the capacity to reflect on one's view from the standpoint of another person.These processes – perspective-taking and reflexivity – are cultivated within social interactions and, when fostered within groups, they can make the difference between low and high productivity. There are other factors that play a crucial role when creating together with other people. The Motivated Information Processing in Groups Model (De Dreu, Nijstad, Bechtoldt& Baas, 2011) sees group creativity and innovation as a function of both epistemic motivation (the degree to which group members seek to systematically process and disseminate information) and prosocial motivation (whether group members seek a collective gain rather than a personal one). Different conditions are considered to play a part in this dynamic, including time constraints, openness to experience, and the existence of a shared identity. Another important work-related factor is climate. Karwowski (2011, Karwowski &Lebuda, 2013) proposes three primary factors that contribute to a creative climate: How well the group coheres on the approach to the task; how well the group interacts interpersonally; and some dynamic elements that balance group members' need for stability and desire to take risks. Finally, there are elements of the context that go beyond team or organizational climate and relate to the general culture within which people create. There are marked differences, for example, between Western forms of creativity, which emphasize

individuality, risk taking, and the separation between the new and the old, and Eastern conceptions, highlighting the need for continuity, adaptation, and renewal of traditions (Niu& Kaufman, 2013).

Types of Creativity

Deliberate and cognitive. Creativity that is deliberate and cognitive comes from hard work in a particular area. The key aspect of deliberate, cognitive creativity is having an already formed body of knowledge to combine existing information in new and innovative ways. Gaining this high degree of knowledge obviously takes time. So, for these types of creative thinkers, it's essential to provide lots of opportunities for research and learning. Then, they must be provided with enough time to develop a creative solution.

Deliberate and emotional. Creativity comes from sitting quietly and reflecting on their situation.These types of creatives likely have "a-ha" moments where they seem to pull a solution out of thin air. But, most don't see that the idea isn't actually out of nowhere, but from time spent pondering and asking questions, as opposed to research and time spent studying.

Spontaneous and cognitive. For spontaneous and cognitive people, it's essential to develop stages of creativity over time.For example, on day one, they may want to set up the problem but then come back sometime later to solve it. These types of creatives experience powerful and emotional creative moments that seem like an epiphany or even a religious experience. It's more

challenging to design these moments into our regular lives, but a high level of skill is often required of the person.

Factors affecting creativity

Creativity is a complex phenomenon influenced by a combination of internal and external factors. These factors can vary across individuals and situations. Here are some key factors

that can affect creativity:

Personality Traits.

Openness to Experience. Individuals with higher levels of openness tend to be more creative. This trait is associated with curiosity, imagination, and a willingness to explore new ideas.

Tolerance for Ambiguity. Creativity often involves dealing with uncertainty and ambiguity. People who are comfortable with ambiguity may be more adept at navigating creative processes.

Cognitive Abilities.

Divergent Thinking. The ability to generate a variety of solutions to a problem is a key component of creativity. Divergent thinking involves thinking outside the box and exploring multiple perspectives.

Flexible Thinking. Creativity is enhanced by the ability to shift between different modes of thought and consider unconventional ideas.

Motivation.

Intrinsic Motivation. People are more creative when they are motivated by internal factors such as interest,enjoyment, and a sense of personal challenge. Intrinsic motivation fosters a deeper engagement in creative tasks.

Passion. Having a genuine passion for a particular domain or topic can drive sustained creative efforts.

Environmental Factors.

Cultural Influences. Cultural background can shape creative expression. Exposure to diverse cultures and ideas can broaden creative perspectives.

Social Support. Positive social interactions and support can create an environment that encourages creative thinking. Collaboration and constructive feedback from others can enhance
creativity.

Educational and Work Environment.

Freedom and Autonomy. Environments that allow for autonomy and flexibility tend to foster creativity. Individuals need the freedom to explore and experiment with ideas.

Challenge and Variety. A challenging and dynamic environment can stimulate creativity by providing novel problems to solve and encouraging exploration.

Knowledge and Expertise.

Domain Knowledge. A solid foundation of knowledge in a specific domain is crucial for creative output. Expertise allows individuals to make meaningful connections and contributions within a
particular field.

Cross-Disciplinary Knowledge. The ability to draw from knowledge in diverse domains can lead to innovative solutions and ideas.

Emotional State.

Positive Emotions. Positive emotions, such as joy and enthusiasm, are associated with increased creativity. A positive emotional state can enhance cognitive flexibility and open-mindedness.

Tolerating Failure:

A willingness to take risks and learn from failure is essential for creative endeavors.
Fear of failure can inhibit creative expression.

Time Pressure.

Balanced Time Pressure. While some time pressure can stimulate creativity by encouraging quick decision-making, excessive time constraints may hinder the creative process. Finding a balance is crucial.

Sensory Input.

Sensory Stimulation. Exposure to diverse sensory experiences, such as art, music, and nature, can inspire creative thinking and novel ideas.

Mental Health.

Well-being. Mental well-being and a balanced lifestyle contribute to a positive creative environment. Stress and mental health challenges can impede creative thinking. These factors interact in unique ways for each individual, and the creative process is highly subjective. Understanding the interplay of these elements can provide insights into fostering and enhancing creativity in various contexts.

Thinking Styles

Thinking style is the way of processing information. It involves organizing thoughts, forming views and opinions and applying personal values to solve problems and make decisions to express oneself to others.

Types Of Thinking Styles.

While all learners are different and have unique minds, our tendencies are summed up into five recognised thinking styles: synthesists, idealists, pragmatists, analysts or problem solvers.

Synthesists. Creative thinkers who tend to be challenging and sceptical. They are able to juggle arguments and form new ideas from conflicts. Synthesists are largely defined by their creative and curious nature, they love to explore more ideas and consider a range of views and possibilities.

Idealists. This may be a thinking style for you if you respond to others attentively, avoid conflict and focus on the whole. Idealists are goal-setters. Idealists always work hard toward life goals. And others might look at them as perfectionists but in their way, they simply put their best foot forward. These individuals are future-oriented and value teamwork. While they have their way of working with certain expectations and standards to maintain, others might not match up with their standards.

Pragmatists. These are logical thinkers who look for immediate results. Pragmatists like to experiment and brainstorm. They are also good at convincing others and have a willingness to agree with others' ideas. They value creativity and innovation hence don't like to waste time. Their approach to problem-solving is logical and step-by-step. But they are not interested in the big picture, unlike idealists. While pragmatists get the work done, they can benefit more from reflecting on big ideas.

Analysts. Known to gather facts and figures; they like being accurate and rational. If someone values accuracy, attention to detail and thrive on data while maintaining lists, valuing rules and breaking problems into parts; this may be your thinking style. These individuals let go of others' ideas but they should open their minds and look for options.

Realists. They like to get the job done and are perfect problem-solvers. Realists do whatever it takes to solve the problem at hand and get bored if life doesn't offer challenges. They like to go get right at tasks and get them done with more reliance on your senses to know about the world and concepts. They need to take a little more time to gather information and find the best possible solution.

Factor Affecting Thinking Styles

Thinking styles are influenced by a combination of intrinsic and extrinsic factors, and they can vary among individuals based on various aspects of their personal

characteristics and environments. Some key factors that can affect thinking styles:

Cultural Background. Cultural influences play a significant role in shaping thinking styles. Cultural norms, values, and communication patterns can impact how individuals approach problems, make decisions, and express creativity.

Educational Background. The type of education an individual receives can influence thinking styles. Different educational systems may emphasize analytical, creative, or practical thinking, shaping individuals' cognitive approaches.

Family Environment.

Family upbringing and dynamics contribute to the development of thinking styles. The values, expectations, and problem-solving approaches learned within the family environment can influence cognitive patterns.

Socialization. Interactions with peers, colleagues, and social groups can shape thinking styles. Exposure to diverse perspectives and collaborative problem-solving experiences can broaden an individual's cognitive repertoire.

Personal Experiences. Life experiences, both positive and negative, can impact thinking styles. Successes and failures, challenges faced, and lessons learned contribute to the development of cognitive approaches and problem-solving strategies.

Educational Methods. The methods and approaches used in educational settings can influence thinking styles. Environments that encourage critical thinking, creativity, and practical application of knowledge contribute to the development of corresponding thinking styles.

Media and Technology. Exposure to various forms of media, including digital platforms and technology, can shape thinking styles. The way information is consumed, processed, and synthesized can be influenced by media consumption habits.

Personality Traits. Individual differences in personality traits, such as openness to experience, extraversion, and conscientiousness, can impact thinking styles. For example, individuals with high openness may be more inclined toward creative thinking.

Cognitive Abilities. Cognitive abilities, such as analytical skills, memory, and problem-solving aptitude, contribute to thinking styles. Individuals with strong analytical abilities may exhibit a preference for analytical thinking.

Cognitive Development. The stage of cognitive development, as proposed by theorists like Jean Piaget, can influence thinking styles. Different developmental stages may emphasize particular cognitive processes.

Work Environment. Th nature of the work environment, including the demands of the job and the organizational culture, can shape thinking styles. Environments that encourage innovation or require practical problem-solving may influence cognitive approaches.

Crisis or Stressful Situations. High-stress situations or crises can impact thinking styles. Individuals may adapt their cognitive processes in response to the urgency and complexity of the situation.

Values and Beliefs. Personal values and belief systems play a crucial role in shaping thinking styles. Individuals may approach problems and decisions in ways that align with their core values.

Statement of the Problem

Do thinking styles and the field of education play a role in creativity in undergraduate students?

Rationale of the study

This study will try to establish whether creativity would grow during the period of young

adulthood and whether university education in general and the field of study in particular along with thinking styles would foster creative development.

CHAPTER 2

REVIEW OF LITERATURE

People are not born creative or uncreative. Rather, they develop a set of attitudes toward life that characterize those who are willing to go their own way. Creativity is the ability to produce or develop original work, theories, techniques, or thoughts. (Karwowski, M. 2011). A creative individual typically displays originality, imagination, and expressiveness. The mental processes leading to a new invention or solution to a problem refers to creative thinking. Products of creative thinking include new machines, social ideas, scientific theories, artistic works, and more. Creative self-efficacy is defined as belief in one's ability to generate creative results.

Creativity is the key to resolving or managing problems effectively. Many educators agree that the idea works very well. Creativity is the most important factor of all. Such new discoveries will benefit people's livelihoods (Torrance, 1994) . A consortium led by psychologist Anderson (1996) shows that this leads to a new type of behaviour. This is reflected in the 21st century with new verbs associated with Bloom's Taxonomy with which we are now all familiar. For example, changing verbs to describe different levels of behaviour, and putting together different ideas or elements can lead to original ideas and more creative thinking. Santrak (2004) believes Creativity is an ability to think about things in new ways to achieve unusual and unique solutions to problems (Saif, 2008).

Guilford (1950) Father of creativity research stated that what makes creativity is people's effort to solve problems (Fazeli, 2008). Torrance (1998), assumes that four elements of creativity as a fluid structure, flexibility, originality and skills to incorporate.

In studying the nature of creativity, many scholars have argued for the importance of intellectual styles in creativity (Noppe, 1996; Selby, Shaw, & Houtz, 2005). The studies of Zhang (2002) and Zhang and Sternberg (2005, 2006) have proposed that some thinking styles are more creativity-generating, while some thinking styles are more norm-favoring. Available

research indicates that there is a need to understand how creativity is conceived and how thinking styles are related to conceptions of creativity. Although literature suggests some link between thinking styles and creativity (Farrell, 2001; John-Steiner, 2000), empirical evidence is needed for this conceptual link. The research aimed at examining university students' thinking styles, their conceptions of creativity and the relationship between the two constructs. Scott and Bruce (1994) mentioned that creativity is associated with the generation of useful new ideas. Florida (2002) mentioned that creativity is the product of intelligence, motivation, and a suitable environment.

In one research conducted by Guilford (1991), the first period of the cognitive approach to creativity started with the work of Guilford (1991) , who stated that specifically divergent thinking is related to factors of fluency, flexibility, originality and elaboration. The three kinds of fluency are concerned with the products of units, relations, and systems. There are two kinds of flexibility which are concerned with classes and transformations, into which the category of originality also fits. Elaboration has to do with implications. In 1977, Guilford defined creativity as creative problem solving.

Thinking styles exist at the interface between cognition and personality traits. Thinking styles are preferred ways of applying one's intellectual abilities and knowledge to a problem. In this research, we can see how thinking style and levels of education affect creativity in undergraduate students. Thinking styles are preferred ways of using one's skills. In essence, they are decisions about how to deploy the skills available to a person. With regard to thinking styles, a legislative style is particularly important for creativity (Sternberg, 1988, 1997a), that is, a preference for thinking and a decision to think in new ways. This preference needs to be distinguished from the ability to think creatively: Someone may like to think along new lines, but not think well, or vice versa. It also helps to become a major creative thinker, if one is able to think globally as well as locally, distinguishing the forest

from the trees and thereby recognizing which questions are important and which ones are not.

Research by Jung, Chow, and Wu (2003) suggests how transformational leadership might affect creativity. First, transformational leaders increase followers' intrinsic motivation (as opposed to the transactional leaders' emphasis on extrinsic motivation), which stimulates creativity (see also Shin & Zhou, 2003). Second, the intellectually stimulating transformational leader encourages followers to think "outside of the box" (see also Elkins & Keller, 2003). These results show that transformational leaders primarily encourage follower creativity and innovation by providing a climate that supports followers' innovative efforts.

In the research (Sternberg, 1997b; Sternberg & Grigorenko, 1995), it was found that legislative people tend to be better students than less legislative people, if the schools in which they study value creativity. If the schools do not value or devalue creativity, they tend to be worse students. Students also were found to receive higher grades from teachers whose own styles of thinking matched their own. Grigorenko and Sternberg (1995) contended that existing models and theories related to style labels can be classified into three traditions of studying styles: cognition centred, personality centred, and activity centred. Styles in the cognition-centred tradition most closely resemble abilities. These styles have often been measured by tests of maximal performance with right and wrong answers. Sternberg used the metaphor 'mental self-government' to portray the way the human mind works. Just as there are many ways of governing our society, there are many ways of governing or managing our daily activities. These different ways of governing or managing our activities are what Sternberg (1988, 1997) called 'thinking styles'. This theory postulated 13 thinking styles that fall along have dimensions. These are functions (including the legislative, executive, and judicial thinking styles), forms (including the hierarchical, oligarchic, monarchic, and anarchic thinking styles), levels (including the global and local thinking styles), scopes

(including the internal and external thinking styles) and leanings (including the liberal and conservative thinking styles) of the mental self-government.

Zhang and Sternberg (2009) stressed the conceptual link between thinking styles and creativity. However, they pointed out that empirical research on the relationship between intellectual styles and creativity is far from sufficient. Several scholars have argued for the importance of thinking styles in creativity (e.g. Farrell, 2001; John Steiner, 2000; Noppe, 1996; Selby et al., 2005). Other studies have also proposed the conceptual link between creativity and individual thinking styles. For example, Kaufman (2002) suggested that individuals with a holistic mode of thinking are critical for creativity; other scholars argued that other modes of thinking are also needed for creativity (Sinatra, 1984). Kirton (1976) developed an adaptive innovative theory in order to explain cognitive tendencies and problem-solving styles. He described adaptors as individuals who prefer to ‘do things better’ and innovators as people who prefer to ‘do things differently’. Kirton’s theory linked cognitive styles directly to an individual's creativity orientation. According to Kirton (1976), people with innovative cognitive styles tend
to produce more original ideas and the adapters tend to improve things within the existing framework. Both cognitive styles can be valuable for organizational creativity.

CHAPTER 3

METHODS

Aim

The aim of the study is to understand how thinking styles and different streams of study (Arts, Science, Commerce) affects creativity in undergraduate students.

Objective

To find correlation between thinking styles, creativity and stream of education among undergraduate students.

Hypothesis

H1:There is a significant relationship between creativity and thinking styles of students in different field of stream.

H2:Thinking styles are different in students from different streams with affects creativity.

H3: There is a difference in creativity in students from different stream.

H4:Thinking styles does not make an impact on the creativity of students.

Research Design

A cross sectional analysis was carried out to identify the association between Creativity, Thinking style and Stream of education. Spearman correlation was conducted because of the non-parametric data achieved. Additionally the Mann- Whitney U test is used to find differences between the levels of creativity and thinking styles in each stream (Arts, Commerce, Science).

Sample And Sample Design

This study seeks to understand how creativity and thinking styles along with streams of education interrelate among undergraduate students. The sample consists of 300 individuals, selected from Kochi. By focusing on undergraduate students, the research aims to uncover

the relationship between creativity, thinking styles and the stream of education. Convenient sampling is employed for its practicality in accessing data from the participants.

Inclusion

- Age Range: Participants should be within a specific age range relevant to the educational context you're studying (e.g., high school, college, adult learners).
- Educational Background: Participants should be currently enrolled in educational programs, including various streams such as science, arts, humanities, or vocational training.
- Consent: Participants must provide informed consent to participate in the study.

Exclusion criteria

- Age: Participants outside the specified age range.
- Educational Status: Participants who are not currently enrolled in an educational program or who have recently completed their education.
- Limited Thinking Styles: Participants with extremely homogeneous thinking styles (e.g., exclusively analytical thinkers or exclusively intuitive thinkers).
- Cognitive Impairment: Participants with cognitive impairments that may affect their ability to engage meaningfully in the study tasks or provide accurate responses.
- Language Barrier: Participants who do not have sufficient proficiency in the languages of the study materials or assessments.
- Unwillingness to Participate: Individuals who decline to participate in the study or withdraw consent during the course of the study.
- Prior Exposure: Individuals who have prior exposure to the specific tasks or materials used in the study, as this could bias their responses.

Tools

1. **Short Scale of Creative Self Questionnaire (SSCS):** The Short Scale of Creative Self was developed by Maciej Karwowski in 2011 is a self-report measure designed to assess an individual's perception of their own creativity.

   It aims to capture key aspects of creative self-concept in a concise format, making it suitable for research studies or surveys where brevity is essential. The SSCS typically consists of a small number of items of 11 statements, which respondents rate based on their level of agreement or disagreement. These items are designed to measure various dimensions of creative self-perception, such as belief in one's creative abilities, willingness to take creative risks, and confidence in generating novel ideas.

2. **The Thinking Styles Inventory :**The Thinking Style Inventory is prepared based on the theory of mental self-government put forward by Robert J. Sternberg in 1997.It assess each of the five dimensions viz., Functions, Form, Scope, Level and Leanings of the Mental self-government and get a score for each of the thirteen thinking style separately.

Procedure

The study's aim is to investigate how Thinking styles and stream of education affect Creativity in undergraduate students. 300 samples were collected from college's students, having been briefed about the study beforehand. Only those who provided voluntary consent proceeded to complete the short scale for creativity self (SSCS), Thinking Styles Inventory Both questionnaires were chosen due to their established reliability and validity. Data from the questionnaires were analyzed using SPSS software, employing Pearson's correlation to explore the relationship between Creativity, Thinking styles and Stream of

education. Furthermore, a T-test was used to compare commitment levels between different streams of education (Arts, Commerce, Science) considering the variables' parametric nature. The results were interpreted in the context of existing literature.

Ethical Consideration

1. Research participants were not subjected to harm in any ways whatsoever.
2. Respect for the dignity of research participants was prioritized.
3. Full consent was obtained from the participants prior to the study.
4. The protection of the privacy of research participants was ensured.
5. Adequate level of confidentiality of the research data was ensured.
6. Anonymity of individuals and organizations participating in the research was ensured.
7. Any deception or exaggeration about the aims and objectives of the research was avoided.
8. Any type of communication in relation to the research was done with honesty and transparency.
9. Any type of misleading information, as well as representation of primary data findings in a biased way were avoided

Operational definition

Creativity : Creativity is defined as the sum of of total scores assessed in 11 items of Short Scale of Creative Self Questionnaire developed by Maciej Karwowski (2011).

Thinking Styles: Thinking styles is defined as the sum of the total of each subtest in which PART A ,functions of thinking styles, has 10 questions. PART B, forms of thinking styles has 10 questions. PART C, Levels of thinking styles which has 8 questions. PART D, Scopes of thinking styles has 10 questions. PART E, Leanings of thinking styles which contains 10

questions. The Thinking Style Inventory is prepared based on the theory of mental self-government put forward by Robert J. Sternberg in (1997).

Statistical Analysis

For data analysis in the research, Statistical Package for the Social Sciences (version 29), commonly known as SPSS, was utilized. Parametric tests were conducted as the normality test indicated normal distribution (>0.005). Pearson's correlation test was used to evaluate the relationship between subtests of each variable

Normality Testing

Table 1

Test for Normality - Kolmogorov Smirnov test

Tests of Normality			
	Kolmogorov-Smirnova		
W	Statistic	df	Sig.
TS MEAN ALL	0.047	300	.200*
CREAT MEAN	0.078	300	<.001
*** This is a lower bound of the true significance.**			
a Lilliefors Significance Correction			

CHAPTER 4

RESULTS AND DISCUSSION

The main objectives of the study were to explore significant relationships between thinking styles, creativity and stream of education and Spearman's Correlation was used to find the relationship between the variables. To also observe whether any of the different constructs of purchase intent correlate with each other. Since we are observing the difference between 3 different streams (Arts,Commerce,Science), Kruskal wallis test is used understand the different levels of creativity and thinking styles in different streams of education.

Table 2

Shows correlation between judicial thinking style and creativity

			Judicial Thinking Style	Creativity
Spearman's Rho	Judicial Mean	Corelation Coefficient	1.000	-.009
		Sig.(2-tailed)		.877
	Creativity Mean	Corelation Coefficient	-.009	1.000
		Sig.(2- tailed)	.877	

This table represents a non-parametric correlation analysis between two variables: judicial creativity. The correlation coefficient used is Spearman's rho. The correlation coefficient between Judicial mean and Creativity mean is -0.009. This value indicates a very weak negative correlation between the two variables. The significance level (p-value) is not explicitly provided in the table, but it states that there is no significant correlation between

"judicial" and "creativity." In other words, variations in judicial performance (Judicial mean) do not consistently correspond to changes of creativity. The correlation coefficient of -0.009 suggests an extremely weak negative association, but is not statistically significant.

In summary, based on this analysis, there is little to no meaningful relationship between judicial performance and creativity.

Table 3

Shows correlation between Hierarchical thinking style and creativity.

			Creativity Mean	Hierarchical Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	.036
		Sig.(2-tailed)		.536
	Hierarchical Mean	Corelation Coefficient	.036	1.000
		Sig.(2- tailed)	.536	

This table examines the correlation between Hierarchical thinking style and creativity. Correlation Coefficient, The correlation coefficient between creativity and Hierarchical is 0.036. This value indicates a very weak positive correlation between creativity and hierarchical thinking style. The significance value associated with this correlation is 0.536. Since this value is greater than the common alpha levels (such as 0.05), the correlation is not statistically significant.

In summary, while there is a slight positive correlation between creativity and hierarchical thinking style, it is not statistically significant.

Table 4

Shows correlation between legislative thinking style and creativity.

			Creativity Mean	Legislative Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	.100
		Sig.(2-tailed)		.085
	Legislative mean	Corelation Coefficient	.100	1.000
		Sig.(2- tailed)	.085	

This table shows correlation coefficients between two variables related to legislative thinking style and creativity. In Spearman's rho Correlation Coefficient, This coefficient measures the strength and direction of the relationship between two ordinal variables. In this case, the Spearman's rho coefficient is 0.100, which indicates a very weak positive correlation between creativity and legislative thinking style. However, the p-value (Sig.(2-tailed)) is 0.085, which is greater than the typical significance level of 0.05. This suggests that the correlation is not statistically significant at the conventional alpha level.

In Goodman & Kruskal's gamma Correlation Coefficient, Similar to Spearman's rho, Goodman & Kruskal's gamma also assesses the association between two ordinal variables.

The coefficient value here is also 0.100, indicating the same weak positive correlation. Again, the p-value is 0.085, reinforcing that this correlation is not statistically significant.

In summary, both correlation coefficients suggest a weak positive relationship between legislative thinking style and creativity.

Table 5

Shows correlation between Executive thinking style and creativity.

			Creativity Mean	Executive Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	-.073
		Sig.(2-tailed)		.210
	Executive Mean	Corelation Coefficient	-.073	1.000
		Sig.(2- tailed)	.210	

The table displays Spearman's rho correlations between two variables creativity and executive mean. The correlation coefficient between creativity and executive mean is -0.73. This value indicates a moderate negative correlation between the two variables.
The significance level (two-tailed) associated with this correlation is 0.210. Since this p-value is greater than the common alpha levels (e.g., 0.05), the correlation is not statistically significant.

In summary, there is a moderate negative correlation between executive thinking style and creativity, but this correlation is not statistically significant at conventional significance levels

Table 6

Shows correlation between Monarchic thinking style and creativity.

			Creativity Mean	Monarchic Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	.114*
		Sig.(2-tailed)		.049
	Monarchic Mean	Corelation Coefficient	.114*	1.000
		Sig.(2- tailed)	.049	

*correlations significant the 0.05 level (2- tailed)

Creativity has a perfect positive correlation with itself (1.000), as expected. Monarchic thinking style mean also has a perfect positive correlation with itself (1.000).The correlation between both is -0.114, which is positive but weak. This indicates a slight association between Monarchic thinking style and creativity. However, the correlation is not statistically significant at the 0.05 level (two-tailed), as indicated by the p-value of 0.049.

In summary, while there is a slight positive association between Monarchic thinking style and creativity, it is not strong evidence of a significant relationship.

Table 7

Shows correlation between Oligarchic thinking style and creativity

			Creativity Mean	Oligarchic Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	-.104
		Sig.(2-tailed)		.071
	Oligarchic Mean	Corelation Coefficient	-.104	1.000
		Sig.(2- tailed)	.071	

Creativity mean has a perfect positive correlation of 1.000 with itself. The correlation between creativity mean and oligarchic mean is -0.104, indicating a weak negative correlation. This means that as one variable increases, the other tends to decrease slightly. The significance level for this correlation is 0.071, which means it is not statistically significant at the common alpha level of 0.05.

In summary, there is a weak negative correlation between creativity mean and oligarchic mean, but it is not statistically significant.

Table 8

Shows correlation between Anarchic thinking style and creativity.

			Creativity Mean	Anarchic Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	-.136*
		Sig.(2-tailed)		.018
	Anarchic Mean	Corelation Coefficient	-.136*	1.000
		Sig.(2- tailed)	.018	

*correlation is significant at the 0.05 level (2-tailed)

The table displays correlation coefficients between two variables, creativity mean and Anarchic mean. Spearman's rho was used to calculate these correlations, creativity mean has a perfect positive correlation of 1.000 with itself (as expected for any variable correlated with itself).The correlation between both is -0.136, indicating a weak negative correlation. The significance level for this correlation is 0.018, which means it is statistically significant at the 0.05 level (2-tailed). In summary, there is a weak negative correlation between creativity mean and anarchic mean and this relationship is statistically significant.

Table 9

Shows correlation between Level of thinking style and creativity.

			Level of thinking style Mean	Creativity Mean
Spearman's Rho	Level of thinking style Mean	Corelation Coefficient	1.000	.047
		Sig.(2-tailed)		.421
	Creativity Mean	Corelation Coefficient	0.47	1.000
		Sig.(2- tailed)	.421	

Level of Thinking Style and Creativity mean, in the Correlation Coefficient, level of thinking style mean has a perfect positive correlation with itself, which is expected (Correlation Coefficient = 1.000). The correlation between level of thinking style and creativity is very weak, with a coefficient of 0.047. The significance level (2-tailed) for the correlation between both is 0.421. Since this p-value is greater than the typical significance level of 0.05, we

conclude that the correlation is not statistically significant.

Table 10

Shows correlation between Scope of thinking style and creativity.

			Creativity Mean	Scope of thinking style Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	-.048
		Sig.(2-tailed)		.409
	Scope of thinking styles Mean	Corelation Coefficient	-.048	1.000
		Sig. (2-tailed)	.409	

Correlation Coefficient, creativity mean has a perfect positive correlation with itself (Correlation Coefficient = 1.000). The correlation between creativity mean and scope of thinking style mean is very weak and negative, with a coefficient of -0.048. The significance level (2-tailed) for the correlation between both is 0.409. Since this p-value is greater than the typical significance level of 0.05, we conclude that the correlation is not statistically significant. In summary, there is a slight negative correlation between creativity and the scope of thinking style, but it is not statistically significant.

Table 11

Shows correlation between Leanings of thinking style and creativity.

			Creativity Mean	Leanings of thinking styles Mean
Spearman's Rho	Creativity Mean	Corelation Coefficient	1.000	.297**
		Sig.(2-tailed)		<.001
	Leaning of thinking styles	Corelation Coefficient	.297**	1.000
		Sig.(2- tailed)	<.001	

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

thinking style and creativity using Spearman's rho correlation coefficient. Creativity mean ,Represents creativity scores (mean values).leanings of thinking styles mean Represents leanings of thinking style scores (mean values). The correlation coefficient between both is 0.297 (a weak positive correlation). Both correlations are significant at the 0.01 level (2-tailed).

In summary, this table suggests that there is a modest positive association between thinking style and creativity.

Table 12

This table shows Pairwise comparison of stream of education.

Sample1 – Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig a
Commerce- Science	-51.920	12.251	-4.238	<.001	.000
Commerce-Art	80.395	12.251	6.563	<.001	.000
Science-Art	28.475	12.251	2.324	.020	.060

Each row tests the null hypothesis that the sample 1 and sample 2 distributions are the same. Asymptotic significance (2-sided tests) are displayed. The significance level is .050.

a. Significance value have been adjusted by the Bonferroni correction for multiple tests.

Pairwise Comparisons of Stream of Education and Creativity, this table examines the different levels of creativity across various streams of education. Here, Sample 1-Sample 2 represents pairs of education streams being compared (e.g., commerce-science, commerce-art, science-art).

Test Statistic indicates the strength and direction of the association. Std. Error represents the standard error of the test statistic.

Now in Commerce-Science, the test statistic is -51.920 (negative value indicates lower creativity in commerce compared to science). Which is highly significant ($p < 0.001$).

In Commerce-Art, The test statistic: 80.395 (positive value indicates higher creativity in commerce compared to art). In which the significance is High ($p < 0.001$).

In Science-Art, The test statistic is 28.475. therefore, is it marginally significant ($p = 0.020$).

Each row tests the null hypothesis that the distributions of Sample 1 and Sample 2 are the same. The significance level is set at 0.05. In summary, this table provides insights into the comparative creativity levels across different educational streams. The commerce-science pair shows a significant difference, while commerce-art demonstrates higher creativity in commerce.

CHAPTER 5

CONCLUSION

Conclusion

The aim of study was to understand how thinking styles and stream of education affects creativity in undergraduate students. There is little to no meaningful relationship between judicial performance and creativity. while there is a slight positive correlation between creativity and hierarchical thinking style, it is not statistically significant. correlation coefficients suggest a weak positive relationship between legislative thinking style and creativity. There is a moderate negative correlation between executive thinking style and creativity, but this correlation is not statistically significant at conventional significance levels and there is a slight positive association between Monarchic thinking style and creativity, it is not strong evidence of a significant relationship. there is a weak negative correlation between creativity mean and oligarchic mean, but it is not statistically significant just like that there is a weak negative correlation between creativity mean and anarchic mean but this relationship is statistically significant. In Level of Thinking Style and Creativity mean, the correlation between level of thinking style and creativity is very weak, with a coefficient of 0.047. The significance level (2-tailed) for the correlation between both is 0.421. The correlation between creativity mean and scope of thinking style mean is very weak and negative, with a coefficient of -0.048. The correlation coefficient between Thinking style and creativity is 0.297 (a weak positive correlation). Both correlations are significant at the 0.01 level (2-tailed).it suggests that there is a modest positive association between thinking style and creativity. Now in Commerce-Science, negative value indicates lower creativity in commerce compared to sciencce. Which is highly significant In Commerce-Art, The test statistic: positive value indicates higher creativity in commerce compared to art. In which the significance is High In Science-Art, , is it marginally significant

. In summary, this table provides insights into the comparative creativity levels across different educational streams. The commerce-science pair shows a significant difference,

while commerce-art demonstrates higher creativity in commerce. Therefore there is higher creativity in commerce among the streams of education.

Findings

The study aimed to understand how thinking styles and streams of education affected creativity in undergraduate students. The results of Spearman's correlation analysis indicates that there is a significant relationship between showing a weak positive correlation.

Limitations

- The study was conducted within a brief timeframe, focusing on Indian individuals aged between 18 to 22.
- Majority of the responses belong to the female population.

Implications

- Future studies in this domain could broaden their scope to include participants of 23 years old and above age as undergraduate can be taken up with above age 22 also, considering in this day and age that individuals will take up what they want to pursue at any moment they want.
- Future studies could take the initiative to conduct a more focused study of the same domain within smaller areas of India.
- Future studies could also try to keep in mind to obtain more Male participants, as to get a more weighted result.

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APPENDICES

APPENDIX A

Informed Consent

I’m Sandra M. Sunny, a final year student pursuing BSc. Psychology from St. Teresa’s college Ernakulam. As a part of my curriculum, I’m conducting a study among college students for which I would like to collect some data from your side. I'm really grateful for your time.

Sociodemographic details:

Name (Initials only):

Age:

Sex:

Level of education: Undergraduate/ Postgraduate/ Doctorate

I have read and understood the information provided above, I voluntarily agree to participate in this study.

Participant Name (initials only):

Sign:

APPENDIX B

THINKING STYLES
Part I

(Abdul Gafoor K., Lavanya. M.P)

Some situations in your daily life are given in each statements. The four options A, B, and C that could be adopted by you in each situations are given below. Choose one among them that fits you best and put 'X' mark on the letters A, B, or C.

1. **When you have to take a decision on some matter concerning you, you will,**

    a) Take own decision which seem right for yourself.

    b) Take a decision in accordance with the suggestion of elders or others.

    c) Take a decision after analyzing others opinions.

2. **Your opinion about the interference of elders on your matters,**

    a) One should try maximum to abide their advice.

    b) Elders must give more freedom to the young.

    c) One should act only after evaluating the opinion of elders.

3. **When you have to present a Seminar in your class, you would like,**

    a) To present a topic suggested by teacher.

    b) To present a topic selected by yourself

    c) To present a topic by evaluating its social dimension.

4. **Which among the following you would like?**

    a) drawing a picture as per your imagination

    b) drawing a picture on seeing a model

c) drawing a modified form of previously seen picture

5. If you have a chance to work in the media you would prefer to

a) Find new sources of news.

b) Explore the details of the disclosed news.

c) to prepare reports as per its news value

6. After reading a good story, usually you will,

a) Try to keep in mind the sum and substance of the story.

b) Evaluate the characters and incidents of the story.

c) Novel ideas come in mind.

7. When an experiment or project is given to you by your teacher, you will,

a) Complete it according to the suggestions of the teacher.

b) Do it by after watching others do it and improving upon their procedure.

c) Do it yourself using own methods which seems correct to you.

8. In your school arts festival, if your friends decided to present a play, which of the following may be your role?

a) direction

b) acting

c) screen play

9. If your are doing an experiment in school lab you will,

a) follow the method as it is described

b) Be eager to do some changes and to watch what will happen.

c) Follow the changes made by others only if it is acceptable to you.

10. In which of the following group would you like to join, in your school youth festival related works?

a) Planning the programme items and making rules for the programme execution.

b) To execute the programmes according to the rules and schedule.

c) To evaluate the programme and items.

Part II

Some situations in your daily life are given in each statements. The four options A, B, C, and D that could be adopted by you in each situations are given below. Choose one among them that fits you best and put 'X' mark on the letters A, B, C or D.

1. **Usually when you write examination, you will,**

A)Answer questions more or less on the given order.

B)Answer the questions as per order of own preference.

C) Not keep any particular order.

D) First answer the questions which carry more marks

2. **If class exams, seminars and art festivals come during the same period of time, you will,**

A) prepare for the most interested one

B) The time after the study time will be set apart for others based on priority.

C) Will do as per the immediate convenience.

D) Even though there will be interest towards all, a practical decision will be taken.

3. **Usually what makes you to complete a job?**

A) Interest towards it

B) Its importance

C) Only if it is challenging enough

D) As per the direction of others

4. **If I decide to do something,**

A) Other things become clear secondary

B) Necessary adjustments are made to do it along with others

C) It is difficult to carry on till it is complete

D) Often it is left uncompleted

5. If you want to do many things in a short while.

A) All things are completed quickly

B) They are completed based on priority

C) Everything is done all along

D) Most are left incomplete

6. When you think, you

A) Concentrate around one important thing

B) Think step by step

C) Can think of more than one thing at a time

D) Thinks without any order

7. When you face a problem

A) All aspects of the problem get considerable attention

B) The problem leads you to other problem

C) Can see the different aspect of the problem based on its solution.

D) Will think of nothing else till the problem is solved.

8. In most of the problems you face, you,

A) Focus on important matters

B) Classify the things based on importance

C) Will be anxious where to start

D) Will give importance to even minor aspects

9. When you solve problems, you

A) Feel capable of solving the problems.

B) feel that you have solved it systematically

C) feel that it was solved with others help

D) feel that it could be solved due to extraordinary effort

10. When you have to face a few problems together, you

A) Cannot concentrate on any problem

B) Will solve the complex ones slowly

C) Will try to overcome the limitations and solve the problems

D) Will concentrate only on one that seems to be important.

PART III

Some possible situations in your daily life are given. Two extreme patterns of response that could be adopted are given below. Based on the intensity of your behavior mark 'X' on the answer sheet by selecting the options A, B, C, D, E

Example:

1. When you meet a person you will observe his dress, behavior, movements etc.

Will care/observe generally A B C D E will care/observe specifically

A. If you care/observe a person ***generally***

Mark A

B. If you care him ***generally occasionally***

Mark B

C. If you care about him ***sometimes generally and sometimes specifically.***

Mark C

D. If you care them ***specifically most often***

Mark D

E. If your care them ***specifically always***

Mark E

1. **When you meet a person for the first time, you attend the person,**

Overall	A	B	C	D	E	In detail

2. **When you purchase note books or study aids,**

Will purchase the beautiful ones	A	B	C	D	E	Will purchase based on price, quality, quantity etc.

3. **When you borrow a book from the library, you borrow**

Famous books or books famous authors	A	B	C	D	E	borrow after glancing through preface, epilogue

4. **When you read poetry,**

Surface meaning is understood	A	B	C	D	E	think about the deep level of meaning When you read stories.

5. **When you read stories,**

Read quickly to know the story	A	B	C	D	E	Each and every part will be read carefully

6. **When you listen in the class,**

Matters stressed and written by the teachers will be listened carefully	A	B	C	D	E	All the things with details and examples are listened to

7. When you read text books,

Will read only the important parts carefully	A	B	C	D	E	All the parts are read with care

8. When you do experiments in the lab, you are interested in,

Easy experiments which demand less attention	A	B	C	D	E	Experiments that are to be carried out with

PART IV

Some possible situations in your daily life are given. Two extreme patterns of response that could be adopted are given below. Based on the intensity of your behaviour mark 'X' on the answer sheet by selecting the options A, B, C, D, E.

Example:

1. When you meet a person you will observe his dress, behaviour, movements etc.

Will care/observe generally A B C D E will care/observe specifically

A. If you care/observe a person ***generally***

Mark A

B. If you care him ***generally occasionally***

Mark B

C. If you care about him ***sometimes generally and sometimes specifically.***

Mark C

D. If you care them ***specifically most often***

Mark D

E. If your care them ***specifically always***

Mark E

---

1. **When you have to take a decision, you will prefer to do it**

After discussion with elders and friends	A	B	C	D	E	Individually

2. **You spend your free time,**

Having entertainments along with friends and others	A	B	C	D	E	Having entertainments alone

3. **When there are discussions in the class, usually**

You express your opinion	A	B	C	D	E	Express the opinion only when compelled

4. **The method of study in which you are more interested,**

Group study with friends	A	B	C	D	E	Individual study

5. **When three are celebrations and festivals in your school,**

You are interested in viewing it discussing with others	A	B	C	D	E	You are interested in viewing it without the interference from others

6. **In solving the problems and answering questions during free time,**

You will discuss it with others and find the answers	A	B	C	D	E	You will do it individually

7. When you are with your friends,

You usually speak	A	B	C	D	E	You attend others speak

8. When there are problem among students in the class,

You will interfere and solve	A	B	C	D	E	You will keep away from it

9. When doubts are to be clarified,

You will seek the help of others	A	B	C	D	E	You will do it yourself with the help of books and study Materials

10. When there are group activities in the class,

You will be in the forefront of it	A	B	C	D	E	You will not be very active

PART V

Some possible situations in your daily life are given. Two extreme patterns of response that could be adopted are given below. Based on the intensity of your behavior mark 'X' on the answer sheet by selecting the options A, B, C, D, E

Example:

1. When you meet a person you will observe his dress, behaviour, movements etc.

Will care/observe generally A B C D E will care/observe specifically

A. If you care/observe a person ***generally***

Mark A

B. If you care him ***generally occasionally***

Mark B

C. If you care about him ***sometimes generally and sometimes specifically.***

Mark C

D. If you care them ***specifically most often***

Mark D

E. If your care them ***specifically always***

Mark E

---

1. If you are permitted to wear color dresses apart from uniform in your school,

Will select a regular color dress	A	B	C	D	E	Will wear a uniquely colorful one

2. When you are asked to do a project by your teacher on a subject that may or may not be related to your study area,

you will choose Either from study area or its related field	A	B	C	D	E	A different aspect even though it is not in the study Area

3. If you are given reading time in your school, you will read books

Related to syllabus	A	B	C	D	E	From out of syllabus

4. When you are solving mathematical problems in the class room, you prefer to solve them,

As per direction of your teacher	A	B	C	D	E	Quickly by your own plan

5. If you score very low marks in class tests and term exams, you will.

Be anxious about the next exam	A	B	C	D	E	Try to console yourself to improve next time

6. When conspicuous changes come into your daily activities,

It will affect you study	A	B	C	D	E	You can go without much bother

7. If you prepare a time table to prepare for examination, you will

follow it albeit modifications	A	B	C	D	E	not follow the time table during study

8. Rules and regulations in the lab are followed by you,

Meticulously	A	B	C	D	E	Casually

9. Your role in your problems, you will be influenced by,

‘What other’s will think’	A	B	C	D	E	Your own impressions

10. If others play a major role in your problems, you will consider that

you should change according to others	A	B	C	D	E	Others are out of sync in the situation

APPENDIX C

Short Scale of Creative Self

Maciej Karwowski (2011)

Below you will find several sentences used by people to describe themselves. Please decide to what extent each of these statements describes you. There are no good or wrong answers.

1. **I think I am a creative person ;**

Definitely not – somewhat not– neither yes or no – somewhat yes – definitely yes

2. **My creativity is important for who I am ;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

3. **I know I can efficiently solve even complicated problems;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

4. **I trust my creative abilities;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

5. **My imagination and ingenuity distinguish me from my friends;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

6. **Many times I have proved that I can cope with difficult situations;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

7. **Being a creative person is important to me;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

8. **I am sure I can deal with problems requiring creative thinking;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

9. **I am good at proposing original solutions to problems;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

10. **Creativity is an important part of myself;**

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes

11. Ingenuity is a characteristic that is important to me;

Definitely not – somewhat not – neither yes or no – somewhat yes – definitely yes