During the last 40 years or so, studies in creativity received immense attention in the United States. This has led to a number of conceptualizations and theories about creativity in terms of person, process, product and press or in the environment. It is pointed out that these approaches to creativity are basically explicit in nature, where psychologists or other experts test their own hypotheses using some form of measurement or assessment.

Explicit theories are the constructions of psychologists or other social scientists, drawing on the data collected from people performing tasks presumed to measure creative functioning. In contrast, implicit theories are the constructions of lay people, derived from their belief systems about creativity. Unlike explicit theories, implicit theories “need to be discovered rather than invented” because they already exist in people's minds. Although implicit creativity theories are largely unsystematized conceptualizations of creativity, they frequently provide the psychological bases on which people make evaluations of their own or others’ creative behaviors. Representing the views of people in a given community about creativity, they can be used as ecologically valid criteria to evaluate the “social validity” of creativity in psychometric investigations (Runco, 1984, 1987) and act as a standards against which creative behavior can be compared and assessed (Runco, 1999; Runco, Johnson, and Bear, 1993). To the extent that certain aspects of creativity are not encompassed in current explicit theories, implicit theories may help broaden and change explicit theories and provide a conceptual framework for the development of new explicit theories.

Chapter one briefly introduced the nature of creativity and its different approaches, culture and creativity, meaning of implicit theories of creativity, implicit v/s explicit theories of creativity and finally implicit
theories of creativity in India. The purpose of this chapter is to review the literature with these above stated concepts. As a matter of convenience the studies have been grouped in various distinct categories.

**Creativity and its different approaches:**

Before 1950, there was little serious research being conducted on creativity. Prominent thinkers have always thought about creativity. Plato argued that creativity involved dictating whatever the Muse chanced to speak. Freud wrote an essay on “Creative writers and day-dreaming,” in which he wrote about the ‘strange being,” the creative writer. Einstein frequently discussed imagination and creativity; he was once quoted as saying that “imagination is more important than knowledge.” Similarly, Vyogtsky and Jung wrote well-known essays on the topic. But none of these people studied creativity.

Most of the early researchers who may have discussed or studied creativity actually focused on something else. Francis Galton focused more on heredity and human ability, Charles Spearman and Binet wanted to measure intelligence, William James was interested in higher-level cognition, and Cesare Lombroso studied genius and madness (Becker, 1995). Others interested in questions of creativity were modern-day Renaissance types who are long forgotten to even the ardent student of the field. Some of the other early work is less impressive. Witty and Lehman (1929) argue that creative geniuses, particularly creative writers, suffer from nervous instability. They also provide no evidence or data to support their ideas. Hutton and Bassett (1948), point out that lobotomized patients tend to be less creative.

Everything changed at the 1950 convention of the American Psychological Association. In his presidential address, Guilford called for the psychologists to increase their focus on creativity. He argued that creativity was an important topic and was not being studied or researched at the level
it warranted. Before Guilford, less than 0.2% of all entries of Psychological Abstracts concentrated on creativity (Guilford, 1950). He helped move the field forward. Guilford (1950) placed creativity into a larger framework of intelligence in his Structure of Intellect model. He attempted to organize all of human cognition along three dimensions. The first dimension was called “operations” and simply meant the mental gymnastics needed for any kind of task. The second dimension, “product,” represented the actual products that might result from different kinds of thinking in different kinds of subject matters. With five operations, four contents, and six products, Guilford’s (1967) model had 120 different possible mental abilities. Indeed, he later expanded the model to include 180 different abilities. Guilford’s four components of divergent thinking represent the foundation for the most popular measure of creativity, the Torrance Tests of Creative Thinking Torrance (1974) provides extensive reliability and validity data in the technical – norms manual of the TTCT. Torrance and his colleagues typically gave the TTCT and compared the scores to other measures of creativity, or else they showed that gifted students scored higher on TTCT than nongifted students. Torrance and Safter (1989) used one of the subtests (“Just Supposed”) to conduct a long range study looking at predictive validity. They found a solid relationship to creative achievement after more than 20 years.

Plucker (1999) reanalyzed data from a different Torrance longitudinal study and found that divergent thinking was much more responsible for how people differed in creative achievement than were traditional IQ tests.

One controversy in the creativity literature concerns whether the concept of creativity has a universal meaning or is perceived differently in various cultures (Csikszentmihalyi, 1997; Plucker & Runco, 1998). For example, some researchers believe that there is a universal understanding of the concept of creativity (Guilford, 1975; Plucker & Runco 1998) while
another group suggests that people in different cultures perceive creativity differently (Lubart & Sternberg, 1998; Rudowicz & Hull, 1997).

Guilford (1975) identified several factors involved in creative problem solving, including: Sensitivity to recognize problems, (b) Fluency – number of ideas, (c) Flexibility – shifts in approaches, and (d) Originality – unusualness. Guilford's approach to testing has been enormously influential in the field of creativity because the tests seem to relate only weakly to other kinds of ratings of creativity and to measure somewhat trivial aspects of the phenomenon (Amabile, 1996; Beittel, 1964; Merrifield et al., 1964; Piers et al; Skager et al., 1967; Wallach and Kogan, 1965; Yamamota, 1964).

In a landmark research carried out by Bellak (1958) six variables in a study of creativity were considered. These are (a) the product of creativity, (b) the creative process, (c) the creative personality, (d) the creative experience, (e) the role – playing of the creative person, and (f) the relation of Psychotherapy of creativity. In discussing the creative product, Bellak is particularly concerned with the problem of drawing inferences, concerning the creativity of the producer, from characteristics of the product. He points out that the results of attempts to identify unusual creative ability with projective techniques have been disappointing. He suggested four factors that may be responsible for this difficulty. First, a mental set and possibly special cues are care often necessary for creation. Furthermore, the mental set is often “stimulus – bound” to such specific situations as a work room a drawing board, etc. Second, creativity in order to occur may have to follow its own course; it cannot be called out on command as in a test situation. Third, any creative product is the final configuration of many variables. Finally, there has not been sufficient recognition of the extent to which personalities vary over time.

Golann (1963) in his study emphasized creativity in four ways: product, process, measurement and personality. Three main questions were
concerned with the issue of (1) definition and criteria, (2) the process viewed temporally, and (3) necessary personal and environmental conditions. The relationship between creativity and intelligence was discussed to illustrate the need for conceptual recognition as well as correlational data. The author was able to study how these factors are related at different age levels to behavior that is judged to be creative. This approach holds promise for providing a functional developmental understanding of creativity.

A study on 428 high school students was conducted by Yamamoto (1964), who received creativity scores on flexibility, fluency and inventive level as a result of the Minnesota Test of Imagination and Ask and Guess Test. These results were compared with Peer nominations for creativity; validity coefficients ranging from .18 to .65 were obtained averaging around .25, which was barely significant.

Some studies have also been conducted to examine the relationship between creativity and intelligence using psychometric and projective measures of creativity. In these studies attempts have been made to measure the ‘Novelty – Meaning Contexts’ of creativity through psychometric and projective measures in creativity. The same is reflected in Klofer’s (1954) assertion that creativity be described in terms of “personality Processes rather than output.”

Torrance (1963) replicated the Getzels and Jackson (1962) study and found similar results to theirs. He also followed up on their sample and noted that 55% of the high creative group ended up in unconventional occupations compared only 99% of the high intelligent group, lending some support to the ecological validity of the creativity test (Torrance, 1975). In a separate long – range predictive validity study of 236 high school students tested with Torrance Test of Creative Thinking (TTCT) in 1959 and followed up in 1971, Torrance (1975) found a canonical correlation of .51 for the
combined scores on the creativity test battery and later creative achievement.

Rudowicz et al. (2007) conducted an exploratory study to see inter scorer and parallel form reliability as well as convergent validity of Chinese version of the TTCT, measure the level of fluency, flexibility, and originality in 10-12 year old Hong Kong children and compare the score of Hong Kong sample with those from other studies. They administered both Figural and Verbal Form of TTCT. The overall results showed that the inter-rater reliability between the Verbal Form of the Test was higher than that between the Figural Form. The Hong Kong results on the Figural Test were generally higher than those obtained in Taiwan, Singapore, and USA but slightly lower than the German results. This trend in the results was reversed on the Verbal Form. The absence of sex difference on the TTCT was noted. The result is more or less similar to our result.

Cooper (1991) analyzed and criticizes 6 popularly used measures of creativity including (1) The Torrance Test of Creative Thinking; (2) The Creative Assessment Packet; (3) Subtests of Divergent Production from the Structure of Intellect Learning Abilities Test; (4) Thinking Creativity in Action and Movement; (5) Thinking Creativity With Sound and Words and (6) The Khatena Torrance Creative Perception Inventory. Reviewed through personal observation and published literature, these tests only partially measure divergent and productive thinking. The assessment forms seem to insufficiently attend to originality.

theory, testing the simulation model, and conducting simulation experiments is demonstrated. With formalization of the theory in the form of a block diagram, the entire pattern of casual effects in the ELM core statements becomes visible at a glance. The simulation model was tested through comparing simulated individuals’ reactions to stimuli with the experimental and statistical observed reactions of real participants in experiments. The simulation experiments revealed a dynamic attitude shift in dependency on the development of processing intensity.

Johnson et al. (2006) in a study examined supportive creative and reflective processes. Creativity has long been seen as a mysterious process. In this paper, current theories of creativity and models of the creative process are discussed and an empirical study outlined of participants individually and collaboratively undertaking two creative tasks in different domains. The task ‘write a poem’ and ‘design a poster’ were carried out via two media; pen and paper and with the use of a computer and software tools. Schon’s theory of reflection – in – action is applied to the study results. The research has generated software requirement for tools to support these specific creative tasks, and also initial design features to enable support for group reflection of evolving creative artifacts.

**Studies Related to Implicit Theories:**

Interest in implicit concepts of creativity gained ground in the United States in the late 1980s (Runco & Bahleda, 1987; Sternberg, 1985b, 1988). Most studies on implicit theories of creativity is carried out mostly within the Western context, particularly in American society. Cumulative evidence obtained from studies of implicit theories of creativity across a wide spectrum of social groups and age groups like teachers and students (Runco, 1984; Runco & Johnson, 1993; Westby & Dawson, 1995), parents (Runco, 1989) as well as laypeople (Hoskens & Deboeck, 1991; Puccio & Chimento, 2001) suggests some main characteristics that are important in the Western conception of creativity. These are “innovation / imagination,
intrinsic motivation, independence, risk taking, a wide range of interests, intelligence, high level of activity / energy, and a sense of humor” (Niu & Sternberg, 2002). Obviously, such shared beliefs may vary across different cultural and social groups.

The emergence of the importance of implicit theories stemmed from Kelly’s (1955) work on the theory of personality. According to Kelly, “a person’s processes are psychologically channelized by the ways in which he anticipates events, and that these ways exist in the form of constructs”. Thus a measure component of personality involves personal constructs or intuitive assumptions about the self and the social reality that surrounds that individual. In his view, just as hypotheses of any scientific investigation requires implicit assumptions that help to interpret any scientific findings, the assumptions of a naïve model of an individual can shed light on the way information about the self and other people is processed, understood and applied.

Later, Heider’s (1958) seminal work on laypeople’s theories indicated that naïve perceivers often try to process and understand their social world in a way scientists do. People generally create hypotheses based on their implicit theories and frequently test their efficacy. Although many of these theories may lack the rigor of scientific theories, people tend to rely on them to create “a stable, meaning system and to understand, interpret and predict their social world in a relatively stable way.” In fact, Kruglanski (1990) views laypeople as intuitive scientists – because just like scientists, laypeople use implicit theories to understand events and make sense of them by making inferences on their social reality.

The role of implicit theories in the identification, organization, and interpretation of information has given rise to the increasing acceptance of its value among both cognitive and social psychologists, clinical psychologists and cross cultural psychologists.
According to Kelly (1955), in order to understand constructs, there need to be a way to concretize them. Because people's theories are mostly implicit, systematic effort and investigation needs to be carried out to surface and identify these theories and to make sense of their relevance to interpreting human actions. A search in the literature on implicit theories revealed that a high proportion of such theories have been studied and utilized in the area of intelligence. In fact, Sternberg (1985b) has indicated that the largest number of studies of implicit theories has been carried out in the area of intelligence. In view of this, in order to understand the various types of implicit theories and the models associated with them, it would be worthwhile to delve into this particular domain.

Sternberg (1993) underscores the reason for the study of implicit theories: “In studying implicit theories, one is trying to find out what the stereotypes are, to find out how people process the information.”

Although there seems to be a major breakthrough where theories of creativity have been established based on the latter point of view, some researchers have suggested that there are “multiple roots for people's conceptions of creativity with a different philosophical base” (Niu & Sternberg, 2002).

When people engage in activities involving creativity, especially the evaluation of creativity, they rarely base their judgments and actions on formal theories of creativity. Although formal, or explicit, theories of creativity are necessary and helpful guides for research and enhancement efforts (and may, indeed, help this person to solve her or his problem), explicit theories do little to explain how laypeople conceptualize creativity as they proceed through their daily activities.

The acknowledgement of this shortcoming of explicit theories has led to an increase in the number of studies of implicit, everyday, or folk theories of various psychological constructs (Neisser, 1979; Schrempp, 1996;
Sternberg, 1987). Implicit theories of intelligence have also been expended in the study of implicit theories of giftedness, and learning disabilities, among other areas. Implicit theories of creativity have received only a small to moderate amount of attention.

Spiel and Korff (1998) investigated implicit theories of politicians, scientists, artists and school teachers by asking to write down what they spontaneously associate to the term “creativity”. Answers were analyzed using quantitative and qualitative context analysis and compared with regard to profession, gender and country. Results showed extremely high answer variability. Artists seem to form an outstanding group. They showed the highest participation rate of all subgroups, produced the highest number of associations, comprised the highest rate of subjects expressing ego-involvement in their answers and used the widest-ranging approaches to creativity.

Runco (1999) notes that “implicit theories allow us to judge creative behaviour even if we can’t define creativity”. Because implicit theories are easier to share than formal definitions of the construct, knowledge of implicit theories facilitates both planning and evaluation of efforts to foster creativity.

Implicit creativity theories may also facilitate cross-cultural research on creativity, since implicit theories tend to reflect the cultural influences of a society upon its members (Ruzgis & Grigorenko, 1994). However, investigations of the implicit creativity theories of people in non-western cultures are uncommon.

**Culture and Creativity:**

Creativity is a comprehensive observable fact. This phenomenon can be illustrated by diverse research studies in the field of creativity. One view is that creativity is a quality of individuals. Other studies include the analysis of creative production as well as creativity as a cognitive process. Apart
from the people, product, and process, creativity is also understood within a social perspective. This suggests that the concept of creativity is inextricably linked with the social, cultural, and historical milieu. One controversy in the creativity literature concerns whether the concept of creativity has a universal meaning or is perceived differently in various cultures.

Greater knowledge of people’s creativity theories will inform theory, research, and practice related to creativity. Cross-cultural studies of these theories have additional value in helping identify similarities and differences in the application of creativity in different contexts. In some cases, Western views of psychological constructs (e.g., intelligence, creativity, wisdom) are different from views in other cultures (Rudowicz & Hui, 1997; Sternberg & Kaufman, 1998). Implicit theories in different cultures can benefit our understanding of universal trends and culture specific variations in people’s perceptions, concepts, and behaviors. Rudowicz & Hui (1997) noted that even findings of similarities across cultural context informal theories of creativity, leading to a synthesis of theories across cultures. The purpose of this study is to investigate the implicit creativity theories of Indian university students in an effort to encourage greater cross-cultural study of creativity.

Drevdhal (1956) asked teachers from various disciplines to estimate the creativity of 64 student well-known to them. Fourteen days later, the teachers were asked to estimate the students again but based on psychological definitions of creativity. No differences between the two ratings were observed. Similar results were observed in a study by Sprecher (1996). In that case ratings based on behavior checklist were compared to global ratings collected later.

Niu and Sternberg (2001) explored the cultural influences on artistic creativity and its evaluation in an American and Chinese population of
students. The study concludes that American participants produced more creative artworks than Chinese counterparts. These differences were recognized by both American and Chinese judges.

According to Matsumoto (2001) many cross-cultural studies are at this stage, as they are concerned with picking out the pertinent and explicit psychological variables that explain any cultural differences. Differences in cultures exist because we have focused on and developed different aspects of our particular environments and attached meanings and value to them. For example, the difference between a weed and a vegetable is not simply determined by qualities that are innate in a plant, like whether it is edible or whether it grows from a seed. It really has to do with how we attach meaning to it. What is considered to be a weed in one country is considered an important vegetable in another.

Shweder, (1991) noted that if a cabbage were to grow in a rose garden, it would be treated as a weed and plucked out, since it is not the intention to grow a cabbage patch.

Kim (2001) points out that the distinction between a plant and a weed includes concepts like edibility, meaningfulness, and purpose.

Rasekoala (2004) provided example of earlier African creativity, underpinned by their cultural and spiritual value systems, which as the Benin bronzes, the Ishango Bone and the Yoruba Number System. The driving force behind such achievements, she suggested, was the “cultural and spiritual need to pay homage to spirits and natural phenomena, deemed to be the powerful forces behind the creation and sustainability of the Earth such as the Sun, Moon.”

Leung et al. (2008) reported on a series of studies that indicate that exposure to multiple cultures can be beneficial for creativity. For example, in one experimental study, people who saw simultaneously stimuli from two cultures wrote more creative stories than those exposed to stimuli from
only one culture. These same participants, tested one week later showed a continuing effect of the multicultural experience on a different creative analogy generation task.

Paletz and Peng (2008) argued that cross-cultural research is used to understand the nature of creativity. One potential problem for creativity theory is whether both novelty and appropriateness are equally valid dimensions across culture. Taking an implicit theory approach, the authors surveyed more than 400 students from Japan, China and the United States. Using repeated measures scenarios of cooking and textbook products, novelty was found to be important across the three countries for evaluations of creativity. However, the Chinese were more swayed than were the Americans by the novelty manipulation in terms of how much they desired the products. Appropriateness was more important for Americans and Japanese for evaluations of creativity and desire for products. Both novelty and appropriateness had large effects. Rather than relying on assumed country variations, the authors argue that cross-cultural research is used to understand the nature of creativity.

A number of empirical investigations have explored cultural differences. Jellen and Urban (1989), administered their own test for Creative Thinking Drawing Production to children in 11 different countries. Scores from England, Germany, and the United States were higher than those of Indonesia, India and China. Jellen and Urban had expected high scores from children in the Philippines, but that did not occur. Still Jellen and Urban concluded that Western culture is more conducive to divergent thinking than is Eastern culture. Jaquish and Ripple (1984) reported contrasts of various age groups sampled from Hong Kong and the United States. The youngest age group had 9 year old children, the oldest, 60 year old adults. Jaquish and Ripple relied on an acoustic test where one word is presented and examinees write down their reactions. Then another word is presented, and again examinees write down their reactions. There are four
such test items. Jaquish and Ripple found that the adults produced more original reactions than the children, with groups from the United States outperforming their counterparts from Hong Kong.

Nouri, Erez, Rockstuhl, & Ang; 2008, investigated creativity processes in homogenous and culturally heterogeneous dyads. The heterogeneous dyads consisted of an Israeli and a Singaporean, whereas the homogenous dyads consisted of two Israelis or two Singaporeans. In general, homogenous dyads were more creative. Qualitative analysis confirmed that communication barriers existed in the culturally heterogeneous dyads. Although Singaporeans and Israelis obtained similar scores on a creativity test when performed individually, when working together, Singaporean dyads were less original than Israeli dyads, but they elaborated more on each idea to stress its appropriateness when compared to the Israeli dyads.

They also explored individual differences in creativity and whether these differences fluctuate across cultures. The sample consisted 65 Americans, 100 Chinese, 50 Swedish and 62 Israelis in train stations. The results discovered differences in reported personal characteristics such as creativity breakthrough and need for uniqueness. For example, the Chinese respondents had the lowest scores on creativity breakthrough and need for uniqueness. However, when measuring actual creative performance as assessed by a creative insight task, no significant differences were found among respondents of the different countries, suggesting that people from different cultures have similar levels of creative ability.

Moreover, although creativity is generally defined and perceived positively in different cultures, we propose there are still substantial differences in the way creativity is perceived across cultures. Therefore, we developed a questionnaire aiming to capture the ‘meaning of creativity’ with sub-scales (e.g. breakthrough, usefulness, well being, re-interpretation etc.). The questionnaire is still under development. The studies describes above will assist to answer the questions of whether creativity is universal or
cultural specific, by demonstrating the universal aspects, as well as the social-cultural aspects of creativity processes.

A related issue is the possible presence of gender effects in implicit theories of creativity. Many Asian cultures support rather traditional gender roles, perhaps to a greater degree than is present in many Western contexts—although there is evidence that appreciable gender effects may exist in Western samples (e.g., Fryer and Collings, 1991). Creativity studies conducted within and across cultures should investigate the role of gender in implicit theory formation (Lubart, 1999).

The topic of gender differences in creativity has intrigued generations of psychologists. Despite considerable research there are still contradictory views about gender differences in creativity. Some studies have shown the superiority of males over females, others the reverse, some have reported non-significant differences between male and female. The view that gender is related the creativity of pre-school children is reported by Boden (1976), Westra (1978), Torrance (1980), Smith (1990). Also many researchers in India, (Acharyulu and Yasudhara, 1984; Singh, 1991; and Srivastava and Thomas, 1991) reported the same findings.

Jaquish and Ripple (1980) reported adolescent gender differences in divergent thinking which are consistent with a general position regarding the tendency for females to perform better than males on verbal tasks.

In the three separate studies of Torrance (1961, 1963, 1965) who found a number of difference between the gender on his measures of creative thinking ability. In general girls excelled boy on all verbal tests, especially after the 4th grade.

Kreshner and Ledger (1985) found that gender was highly significant in relation to creativity. Girls scored higher than boys did on several creativity subtests.
Strauss and Strauss (1968) in a wider cross cultural study observed clear cut gender differences in Americans and Indian student population. In both societies, boys were significantly more creative than girls. They further established that the gaps were wider in Indians than Americans. This was attributed to the degree of cultural and social uplift of females in American society. Mar’l (1971) found that Arab male rural subjects of VII grade scored significantly higher than females in nine score out of thirteen drawn from the battery of Torrance Tests of Creative Thinking (TTCT).

Singh (1978) reported that the girls were superior to boys in originality, fluency and elaboration of non-verbal creative thinking. Stephens et.al.(2001) investigated gender differences in creativity with a sample of 165 third and fourth grade American Indian students, of whom 86 were boys and 79 were girls. They used the Torrance Test of Creative Thinking Figural Form A to gather data from the students. The results indicated that females performed significantly better than males in subtests of originality and creative index. In another recent study, Hong et. al (2013) investigated gender differences in creative thinking among 10th grade students using a domain general and domain specific creative thinking test. The sample included 234 male and 244 female Chinese students and found that females had a significant advantage over the males in the subtests of fluency, flexibility and elaboration but not in originality when domain specific items were used.

Stoltzfus, Nibbelink, Vredenburg, and Thyrum (2011) examined the issue of gender, gender role, and creativity among 136 undergraduate students (57 males, 79 females). They used the modified version of the TTCT, which included tasks from both verbal and figural TTCT. The results of their study indicated that although males had higher score than the females in the verbal creativity tasks, The differences were not significant. The results also revealed that males had significantly higher scores than females in the non verbal creativity tasks.
Similarly, He, Wong, Li, and Xu (2013) investigated gender differences among 627 students in China using the Test for Creative Thinking – Drawing Production. Of the participants, 332 were boys and 295 were girls. They found that males had superiority over the females in creativity test performance as demonstrated by both composite creative scores and individual subscale scores.

Passi's (1997) review shows that the Indian findings are inconclusive. However, in the contemporary India, there is an increasing diversity in the education and workforce. Women joining these two sectors in greater numbers and breaking the ‘glass-ceiling’ in professional sectors challenge our traditional polarized concept of gender also.

In the past (India), on the whole, boys dominated in all aspects of life over girls; gender differences in recent years have decreased due to the tremendous change in the attitudes of society towards the girls and deliberate measures to facilitate girls participation in education by the government and non-government organizations. Girls are now more exposed to educational influences and parents are also adopting more liberal treatment of girls. The parents realize the importance of girls’ education so they do not discourage girls as in the past. Discrimination between sons and daughters is gradually diminishing. Earlier, more freedom was given to son than daughter. Now the imposition of rigid restriction and certain conforming patterns of behaviours on girls by the society and culture is less strong compared to the earlier years.

Implicit v/s Explicit Theories of Creativity:

A literature review of implicit theories of creativity in various cultures will provide evidence that creativity could be viewed differently in different cultures. In this context, numerous researches have been carried out in the recent past.
Seng, Keung and Cheng (2008) examined the implicit theories of creativity of trainee-teachers (N=315) in Hong Kong and Singapore by asking them to complete a questionnaire on belief about creativity. The 30-item questionnaire covering 15 aspects of beliefs regarding creativity was presented to the respondents as a set of six-point Likert scale. Through factor analysis, creativity was found to have five dimensions: 1. Physiology, 2. Generality, 3. Culture, 4. Individuality, and 5. Youth. Hong Kong respondents were found to hold more rigid views of creativity than their Singaporean counterparts. In particular, Hong Kong respondents believed more strongly that creativity is dependent on birth order, effort, health, logical thinking and youth and that there is a critical period beyond which creativity may not develop. While a high number of studies have focused on the nature of creativity and on approaches to identify and to promote creativity there is a lack of studies analyzing people’s implicit theories of creativity.

In a study by Amabile (1982) subjects assessed the creativity of collages and short stories. They received no instructions on how to do that. Rather, subjects were asked to use their own definitions. Results show correlations between the judgments of about 0.80. Subjects’ creativity assessments were shown to be independent of assessment of technical quality of products and individual preferences. Therefore, as Amabile (1982) concluded, the results support the assumption of a common subjective construct of creativity. However, results do not give insight into the respondent’s implicit theories about creativity.

In a series of studies Sternberg (1985, 1988) investigated respondents’ conceptions of creativity in comparison to their conceptions of intelligence and wisdom. Sternberg conducted a series of studies. In the first, professors of various disciplines (art, business, philosophy, and physics) and laypersons were asked to list behaviors characteristics of highly creative, intelligent or wise people in their respective fields (Sternberg, 1985). In the
second study, an independent sample of subjects (n=65 per discipline) from the same population was asked to rate the characteristics collected in the first study for an ideally creative, intelligent or wise person (Sternberg, 1988). Results show that intelligence and wisdom are most closely related, and wisdom and creativity are least related. However, interrelations differed across groups. For example, business professors and laypersons saw creativity and intelligence as more weakly related than the other groups.

In another study, college students were asked to sort characteristics collected in first study for creativity, intelligence and wisdom. Multidimensional scaling yielded six major elements for creativity (Sternberg, 1988): lack of conventionality, integration and intellectuality, aesthetic taste and imagination, decisional skill and flexibility, perspicacity, and drive for accomplishment and recognition. As in the study before, some overlap in the perceived dimensions of creativity, intelligence, and wisdom was found.

Although results show a high degree of overlap between conceptions of a creative person across different groups, there are some interesting differences as well not only between laypersons and specialists but also in the conceptions of a creative person as described by specialist (Sternberg, 1988). For example, professors of art emphasize imagination and originality, while physics professors emphasize the abilities to find order in chaos and to approximate solutions. In general, conceptions of creativity go far beyond conventional psychometric creativity tests (Sternberg, 1988).

Sternberg (1988) concluded that people have implicit theories of creativity and use these theories when conceptualizing these attributes and when evaluating themselves and others.

Martin Storme and Todd Lubart (2012) studied the conceptions of creativity and relations with Judge's intelligence and personality of 70 adults (age 18 to 65 years) from diverse socio professional categories as 44%
employees 39% executives, 13% students and 4% retired persons. Two methods were used to analyze conceptions of creativity. The first one consisted of analyzing adjectives that were associated by naïve judges with the notion of creativity of an advertisement. The second consisted of predicting the evaluation of creative level of advertisements by naïve judges, through the assessment of dimensions such as the originality of these advertisements or the quality of their design. Results show that with both methods, originality is always the most characteristics dimension of creativity. Factor g is positively related to the weight given to originality in creativity. A personality trait, preference for novelty is also positively associated with greater weight for originality in creativity judgments.

Nadezhda Lebedeve, Lusine Grigoryan (2013) examined cultural differences in values, implicit theories of innovativeness and attitudes to innovation across three ethno cultural groups: Russians, Tuvin's and Ingush. Using structural equation modeling was identified culturally universal model of values effects – direct and mediated by implicit theories of innovativeness – on attitudes to innovation. This study demonstrates how the direct negative impact of conservation values on positive attitudes to innovation is transformed positive impact, promoting the acceptance of innovations, through the mediating role of implicit theories of innovativeness. This study sheds light on the important mediating role of implicit theories of innovativeness in the impact of individual values on attitudes to innovation in different cultures.

There were revealed cross cultural difference in implicit theories of innovativeness: openness to change values is more important for Russian, while conservation values are more essential for the representatives of Caucasus and the Tuvin’s.

Lim and Plucker (2001) investigated the implicit creativity theories of Korean adults in an effort to encourage greater cross – cultural study of creativity. In this study, they conducted one pre study and two experiments.
In the pre study 428 Koreans’ implicit creativity theories were identified and the structure of 478 Koreans’ ratings of the indicated behaviors was analyzed in experiment 1. In experiment 2, 211 participants evaluated the creativity of 44 hypothetical profiles based on the results of the first experiment. Results provide evidence that Korean conceptions of creativity are similar to Western conceptions, although Koreans may emphasize negative behaviors and personality characteristics (e.g., deviance) to a greater degree. When asked to use their implicit theories to evaluate the creativity of hypothetical profiles, Korean adults strongly emphasized specific cognitive, personality, and motivational aspects of creativity over non-cognitive aspects (e.g., perseverance, independence).

Suzanna Jeyanthi Ramos (2005, 2014), explored the extent of influence of culture on implicit theories of creativity among laypeople from the United States and Singapore, as well as the ethnic groups in Singapore – the Chinese, the Malays, and the Indians, in regard adaptive and innovative styles of creativity as well as their own conceptions of creativity. A total of 523 participants were involved in this study. They comprised 139 participants from the United States and 199 participants from Singapore, 84 Chinese, 54 Malays, and 47 Indians. The participants completed the first part of a questionnaire that consisted of a ten-point to rate the creativity level for the descriptors of the Adaptor-Innovator derived from Kirton’s explicit theory of creativity called the Adaptor-Innovator Theory. They also completed the second part of the questionnaire where they were asked to give words they believed were associated with creativity. The data were analyzed and compared with each other as national cultures as well as amongst the three ethnic groups in Singapore. The results revealed that the participants had an implicit belief that high creativity was associated with Kirton’s innovative style of creativity. Also, the words they believed were associated with creativity seemed to have an innovator bias.
Puccio and Chimento (2001) conducted a study of American laypeople including college students, to explore their perception of creative style between adaptors and innovations. The participants involved in the study consisted of two groups. The first group consisted of 113 participants from diverse backgrounds in terms of ages, occupations, and educational levels. The second group consisted of 75 participants from two undergraduate courses in creative studies at Buffalo State College. This was a homogenous group in terms of age and educational background.

The respondents were required to read descriptions of two different types of people – Adaptors and Innovator, and asked to use their personal view of creativity and rate the creativity of each person (the adaptor or innovator) based on a scale of 1 to 10. It was noted that they gave higher scores to the innovator. This highlights the fact that the respondents perceived the innovators to be significantly more creative than the adaptor. The findings from this study seems to contradict Kirton’s theoretical position, where he has stated that the adaptors are equally creative as the innovators (Kirton, 1976), at least with regard to laypeople.

Puccio and Chimento (2001) believe that culture could have played a role in influencing the perception of the innovator style as being more creative since ‘innovation’ is highly valued, marketed, publicized, and sought after. Furthermore, they suggest that, “the popular phrase often used to describe creativity, ‘out-of-the-box-thinking’, seems to reflect a bias towards the paradigm-breaking style associated with Kirton’s innovator.”

Another possibility put forward by the researchers is that explicit studies of creativity may have exacerbated the situation by putting undue emphasis on the innovator style of creativity. In fact, some of the characteristics of a highly creative individual like (a) innovation, (b) imagination, (c) independence, (d) risk taking, and (e) high level of activity/energy (Nui & Sternberg, 2002), tend to be more associated with the innovator style. Also, as Talbot (1997) pointed out: the majority of interest
in the creativity field has been devoted Creative Innovators (often in implicit contrast to uncreative Adaptors). It leads to the commonly held belief (not least by them) that Adaptors are not creative, and that Innovators are always creative.

Another study by Gonzalez (2003) shared similar finding in an Argentinean sample that reinforces the perception that the innovator is more creative than the adaptor. One out of four respondents gave the adaptor a rating of ‘5’ on a scale of 1 to 10 points, while more than one out of four respondents gave an innovator a rating of ‘8’. Further, there were two respondents who even gave a rating of ‘0’ for the adaptor.

One of the observations made by Gonzalez (2003) is that the “Argentinean laypeople possess a built-in bias regarding creativity level of adaptors and innovators.” She also postulated that the disparity between implicit and explicit theories could have three possible reasons: (a) Kirton's explicit theory is correct and laypeople have misconceptions about his theory, (b) the laypeople are correct and therefore, Kirton's theory is inaccurate and possesses inherent problem, and (c) there are no correct or incorrect conclusions but the results highlight the fact that relatively new theories like Kirton's may take some time to be accepted by the society at large (Gonzalez, 2003).

Dweck, Chiu and Hong (1995) examined different types of implicit theories and their implications for behavior. They created a theoretical model that explains how implicit beliefs influence people’s inferences, judgments and reactions based on the types of implicit theories they hold. Dweck et al. (1995) postulated that in the role of processing social information people have two types of implicit theories: entity and incremental. An entity view of the world maintains that people have stable personality traits and these traits will influence how people behave and that people behaviors reveal presence or absence of such traits. An incremental view of the world believes less in fixed traits and “more in the power of
current psychological states – such as needs, goals and intentions – as the proper way to understanding behavior."

Bergen (1991) researched the malleability of implicit theories by presenting to college students a “scientific article” that argued for an entity or incremental theory. The students were asked later to predict the behavior of a person with a particular trait. Participants who were exposed to a scientific article reinforcing entity theories believed that there was a greater chance that a person with a particular trait would behave in a trait-consisted manner in the future than participants who were led to an increment theory.

Runco and Bahleda (1986) compared implicit theories of artistic, scientific and everyday creativity among students and artists. The results suggest that implicit theories distinguish core characteristics between different types of creativity. Words like logical, experimenting, patient and thorough were common characteristics of scientific creativity; expressive, emotional and perceptive were words associated with artistic creativity; helpful, active and common – sensible were assigned to everyone creativity.

Fryer and Collings (1991) examined British teachers’ perceptions of attitudes towards creativity. Ninety percent of teachers believed that creativity can be developed and that creativity involves concepts such as imagination, original ideas, self-expression, discovery, seeing connections, invention, innovation and divergent thinking among others.

Rudowics and Yue (2000) analyzed similarities and differences in the concept of creativity among sample undergraduate students from Beijing, Guangzhou, Taipei and Hong Kong. The results show the entire sample share core characteristics of creativity: Originality, innovativeness, thinking and observational skill, flexibility, willingness to try, self-confidence, and imagination. Yet, some of the major differences of the samples indicate that Beijing and Guangzhou samples in contrast to Hong Kong and Taipei,
perceive wisdom and being individualistic as characteristics of a creative person. In contrast to the other samples, the Beijing sample considers “independent” and the Taipei sample “enjoy life” as indicative of a creative behavior or person. It is interesting to notice that creativity characteristics received relatively low ratings on the desirability scale. Participants in all four samples do not perceive characteristics associated with creativity as important for a Chinese person to possess. The study reveals that Western and Chinese populations share core characteristics of creativity. However, characteristics related to humor and aesthetic appreciation were missing in the Chinese sample.

Niu and Sternberg (2002) also explored contemporary views of creativity within Western and Eastern cultures. From the review of literature they suggested eight characteristics that are important in the Western conceptions of creativity: innovation/ imagination, intrinsic motivation, independence, risk taking, a wide range of interests, intelligence, high level of activity/ energy and sense of humor. One component in the Chinese conception of creativity seems to be uniformly absent in the Western conception of creativity, the moral component of creativity.

In Singapore, Tan (2002) asked a group of PGDE student teachers (n=19) to generate ideas related to the construct ‘creativity’. They described a creative person as one who was talented, intelligent, innovative, dared to be different, task motivated, imaginative, quick, witty, open- minded, adventurous, curious, knowledgeable, confident, well-exposed, individual and flexible.

In the same paper, Tan reported the results of cluster analysis of responses of first year undergraduates (n=162) to a Likert scale of 27 definitions of creativity, modified from the one by Rudowicz and Hui (1998). The first cluster identified is characterized by newness, uniqueness, imagination and expressing own ideas. The second cluster focuses on expressing or constructing, thoughts, ideas, imagination, feelings,
suggestions, opinions and art that are new, unique and beyond regulations. Motivation, problem – solving, career, hard work, education, individuated behavior and innate potential defined the third cluster.

Soh used the checklist of 18 defining characteristics of creativity by Fryer and Colognes (1991) to elite responses from teacher educators, ministry officials, school principals, psychologists and social workers (n=74) in Singapore. Five orthogonal factors explaining 61% total variance were obtained. The first factor loaded by discovery, convergent thinking, and tangible products awareness of beauty and imagination. The second is an Aesthetic factor defined by aesthetic products. The third is an inventiveness factor characterized by various thinking process, invention and innovation. The fourth is an association factor loaded by valuable ideas, seeing connection and mysterious process. Finally, the fifth factor, characterized by original ideas and divergent thinking, is an originality factor.

In another Singapore study, Soh administered the Fryer- Cologens scale to a group of teachers (n=44) who were English – educated and used English as the medium of instruction for various subjects and another group of teachers (n=69) who were Chinese –educated and taught almost exclusively Chinese Language. Five factors highly similar to those found in the study cited above were obtained. Further analysis showed that, when compared with their Chinese – educated counterparts, the English – educated teachers scored higher on the Aesthetics, Originality, Association and Inventiveness factors, through not on the Product factor. Thus it appears that cultural background in terms of educational and life experiences has an influence on the implicit theories of the teachers, even when the two groups were located in the same place and worked in the same system.

Saunders, Andringa and Ward (2003) reported a study conducted at a summer camp at Texas A & M University. The study involved gifted (n= 76) and non gifted (n=54) adolescents aged between 11 to 17. They responded to a battery of creativity tests and rating scales. The researchers reported
that positive implicit theories of personal creativity were most predictive of participation in creative hobbies. Moreover, a belief in own creative aptitude or incremental view of creativity were related to greater endorsement of positive creative beliefs about self.

Westby and Dawson (1995) conducted two studies to examine teachers’ perceptions of creative students. Study 1 was based on earlier works that identified personality characteristics associated with creativity. The prototypically of these characteristics as they applied to creative children was rated by college students. Elementary school teachers were then asked to rate their most and least favorite students based on these characteristics. There was a significant difference between the teachers’ judgments of their favorite and least favorite students on these measures. Judgments for the favorite student were negatively correlated with creativity; judgments for the least favorite student were positively correlated with creativity. Students displaying creative characteristics appear to be unappealing to teachers.

Study 2 explored the conflict between the results of stud 1 and teachers self reports that they enjoy working with creative children. Teachers’ concept that have guided previous research in a reanalysis of data from study 1 employing the teacher – generated creativity prototype, there was a tendency for the favorite students to be more similar to the creative prototype than the least favorite students. This may happen when teachers are unaware of the ostensibly undesirable behaviors that are associated with creativity. These teachers also described creative children as conforming and cooperative – characteristics that are ordinary linked with noncreative behavior. This association may reflect a teacher’s need for all students to work within the framework of the classroom. Cropley (1992) suggested that teachers often viewed the behaviors and personality traits of creative children unfavorably.
Studies on implicit conceptions of creativity in other cultural contents other than the North American context suggest that despite the numerous similarities, there are also some differences in how creativity is viewed.

Anecdotal data regarding implicit theories of creativity from non-Asian cultures suggest that the differences across cultures refer to slight variations rather than an essential divergence.

Much of the literatures on cross cultural studies of implicit – theories of creativity involve Eastern conceptions of creativity, particularly in Asian cultures. Rudowicz and Hui (1997) found that, similar to the Western conception of creativity, the Chinese included characteristics like (a) innovative ideas (b) imagination (c) intelligence and (d) independence. However, the characteristics of (a) humor and (b) aesthetic tastes were not present in the list of characteristics.

Welchsler & Martinez (2001) found in their Brazilians and Cubans sample, much emphasis on emotional sensitivity like intuition, humor, curiosity and being a dreamer. These humanistic characteristics outweigh the more cognitive process associated with creativity.

Studies related to Japanese and Korean implicit conceptions of creativity are also very sparse. One study by Muneyoshi and Kagwa (2004) asked laypeople of their conception of creativity. They were, in order of frequency, (a) new, (b) create, (c) art and (d) intuition. The researchers concluded that the Japanese attach the value of creativity to traditional arts.

As for Korean conception, they have similar views with the American view of creativity in terms of personality, perseverance, independence, and cognition. However, the Koreans view the creator as a loner and viewed less favorably than the Americans.

Van de Vijver (2001) has outlined the progression of cross cultural psychology in terms of significant phases in the growth of this field. The first
phase was the application of Western psychological research in a variety of cultural contexts, highlighting the cultural differences as an area or investigation. For example, the earliest use of cross-cultural comparison can be traced to W.H.R. Rivers, who conducted fieldwork research in India and New Guinea. This comparative method was considered to be the heart of the scientific method as it was argued that without comparison, differences and similarities cannot be observed or inferred (Berry, 1980).

Furthermore, an analysis by Lonner and Adamapolous (1997) indicate that most cross-cultural theories view culture primarily as an antecedent to behavior. Explanations of cross-cultural differences are often based on very simple reasoning. For example, if Indian and American women exhibit different behavior, it is due to their difference in cultural background. But from a scientific perspective, this particular reasoning is hardly illuminating as the specific factors that account for these differences are not sufficiently explored. They also point out that to understand culture one should be able to go beyond mere description and explain it or even predict it in some form.

The second phase is where there is a change of existing theories, methods, and models to elucidate cultural differences by “mediating context variable.”

Also, in the second stage, there has been realization that methods and instruments developed with a Western perspective as the frame of reference right not be advantageous in field research involving non-Western subjects. For example, in the field of psychology, research in Asian populations has increased dramatically.

According to Sue & Chang, (2003) the Asians represent 60% of the world’s population and they have been found to exhibit significant differences from non-Asians, particularly Westerners in terms of cognitive strategies, modes of behavior, and self enhancement tendencies. Thus the issue remains as to whether imported measures of assessment, especially from a Western country, are useful and applicable.
Van de Vijver and Leung (1997) have dealt with this issue and have described three different types of validity enhancement in cross-cultural and multilingual studies. One of them involves a literal translation of an instrument where no changes to the instrument are needed to avoid construct or method bias. One example is the Back Depression Inventory that includes translation of measures of depression and anxiety. These literal translations constitute the most common method of validity enhancement. A second possible enhancement involves adapting the instrument for use in a different culture where items are made appropriate for a specific culture context. One example is the Minnesota Multiphasic Personality Inventory that has been adapted successfully for international consumption.

The third and final enhancement is where a particular instrument is considered ineffective or unsuitable in a certain cultural context, and therefore, a new instrument is constructed for that particular cultural context. A good example is the Chinese Personality Assessment Inventory, which is the measure sensitive to aspects of Chinese culture. It is pointed out that this approach is generally not favored as it creates problems for direct comparisons. Thus, there has been concerted effort to improve the suitability of measures and assessment.

The third stage of the evolution of cross-cultural psychology, as envisioned by Matsumoto (2001a), is the “creation of universal theories of psychological processes”, where these models and theories can be applied to individuals of various cultural backgrounds, even to the point of superseding current mainstream theories and models. In this way, developments in methodology and statistics are truly considered to be tailor-made for cross-cultural research. As Van de Vijver (2001) points out, this may require combined experiences derived from various branches of psychology to develop new frameworks of assessment and measures.
Morris, Menon and Ames (2001) point out that implicit theories described by early psychologists like Kelly (1955) and Heider (1958) are tied to broadly Western culture and contend the integrating implicit theory of social perception with cultural psychology “is mutually enriching.”

According to Ng (2001, 2004), in his controversial thesis “Why Asians are less creative than Westerners,” described Asian society as hierarchical, tightly organized and collectivist. There is an emphasis on social order, harmony and gaining approval and a negative view of conflict in society. By contrast, he argued Westerners are loosely organized with fewer social rules and norms to adhere to. They are individualistic and egalitarian, encouraging open and democratic exchange of ideas between individuals to develop creative potential. They are less negative about conflict in society. Therefore, he concluded, Asians are less creative. However, in her ‘Creative Malaysians, Lee (2004) provided a series of example of creative people in Malaysia and other countries in South East Asia. Therefore, she argued, it is too simplistic to assert that Asians are less creative than Westerners.

According to Hussain (2004) where as the West relies on a scientific approach of hypothesis building and the search for evidence, the traditional Eastern system places great emphasis on building a solid foundation and then building up basis knowledge step by step. Other researchers have drawn attention to features of Asian cultures which can foster creativity, including an emphasis on collectivism which can encourage working together for incremental innovations. Hussain highlighted the incredible creativity and inventiveness of Chinese society as well as the outstanding works of great thinkers like Confucius.

According to Lubart (2010), in a study of national inventiveness and innovation, it appears that societies which feature individualism, low power distance, and low levels of uncertainty avoidance are more likely to be inventive and innovative. However countries with high levels of individualism may struggle with idea implementation, as this stage often
requires a team effort. Obviously the picture is more complex and individual cultures cannot be classed as simply as Hofstede’s criteria might suggest. Within every culture there will be pockets of creativity as well as sections of society who resist creativity.

But as Hussain pointed out, both Eastern and Western cultures and civilizations have made outstanding contributions to the arts, mathematics, science and technology which influence our thinking and our lives, alluding to the role religion has played in this, Buddhism, Christianity, Hinduism or Islam.

Pornrungroj (1992) used the Torrance Figural Tests in comparison of Thai children who were born and raised in Thailand with Thai – American children who were born and raised in United States. Comparisons indicated that the children born in Thailand had higher divergent thinking scores, across the board (fluency, flexibility, originality and elaboration).

The study of implicit theories is important, both within and across culture, for they can be very “useful in helping formulate the common – cultural views that dominate the thinking about a given construct”. Expectations and thoughts held by teachers and parents about the characteristics of creative children may have very powerful influences on the children with whom these adults interact, Implicit theories, from which expectations are formed, are the constellations of thoughts and ideas about a particular construct that are held and applied by individuals. Though these theories may never be explicitly expressed or formalized, they are maintained and are either intentionally or unintentionally applied when making judgments about certain characteristics and behaviors of creative children. These implicit theories probably act as standards against which children’s creative behaviors and performances are judged.

Runco and Johnson (2002) used social validation methodology across two cultures to examine the implicit theories of parents and teachers. Adults
(n = 150) from the United States and India were rated on 68 adjectives for creativity and desirability. The results indicated that all groups distinguished between indicative and contraindicative aspects of creativity and, for the most part, viewed creative traits desirability. These results were qualified by the adjectives that received high ratings for creativity but significantly lower ratings for desirability. These provided evidence that creativity and desirability are related yet separate constructs and that parents and teachers recognize that some traits associated with creativity may be undesirability. Multiple analysis of variance (MANOVA) revealed significant differences between the United States and India for intellectual and attitudinal clusters of adjectives, p<.001, however, parent and teacher differences were not found, p>.05. These findings support the notion that implicit theories are influenced by cultural traditions and expectations.

Consider other reports regarding the attitudes of adults toward children who exhibit creative traits and behaviors. Raina and Raina (1971) suggested that teachers often viewed the behaviors and personality traits of creative children unfavorably. Others reported similar findings in research with parents (Raina, 1975; Singh, 1987).

Bernal (1974), in a study designed to enhance the validity of educational assessment by including input from community informants (teachers, parents and older siblings), studied groups from various cultures and found that American Hispanic parents value and nurture skills and traits that are much different from those valued by American non-Hispanic parents. He reported that children whose real-life skills included the speed with which new languages are acquired and the ability for effective risk-taking behavior or considered with the highest regard within their community.

Le Vine (1974) studied parental goals and expectations varied with relationship to the economic environment, and customs developed primarily to ensure survival. In his work with African populations, he found
obedience in children was preferred to independence and self-reliance. When economic conditions are stable, parents develop childrearing philosophies to fit personal and cultural goals beyond those that are essential only to survival. Taken with the mixed reports of the implicit theories of individuals living in different countries are expected to be culture specific.

Lee, Kim, RYU and Song (2013) examined whether people use the general implicit theories of creativity or not when applying them to themselves and others. In order to examine the proposed research question, this study carried out a series of studies following the similar procedure used by Sternberg (1985b) and Lim e. al.(2002). On the basis of the actor–observer asymmetry theory, the authors propose that conception of creativity would be differently constructed depending on the targets of attention: general, self and other. Three studies attempted to examine this hypothesis. In the preliminary study, a measure was developed to assess the characteristics that describe general creativity. In study 1, exploratory and confirmatory factor analysis found the conceptual factors of general creativity. In study 2, the common and specific factors of general, self, and others’ creativity concepts were compared through invariance tests. As a result, it was revealed that the invariance test failed, which means that the general conception of creativity may not be applicable to monitor self and others’ creativity in a consistent way.

Pizzingrilli, P. and Antonietti, A. (2010) administered a brief story about the realization of a single drawing by two different authors (one creative and the other not) and a semantic differential scale of adjectives to describe a creative person on a sample of 119 children attending primary (second and fourth grades) and secondary (last grade) schools students. Results showed that children were able to catch differences between creative and non-creative drawings. The semantic differential scale confirmed that children were able to outline a profile of the creative person.
Some age-related differences emerged: younger children overestimated the aesthetic values of the drawings and were more focused on personality traits linked to social desirability and this may depend on the influence of school context: being appreciated by teachers and parents, assuming a correct behavior, and being attentive at school are all factors that affect the positive representations of children. In conclusion, age and context-related variables may affect implicit theories of creativity.

In the recent examination of such differences Zha et al. (2006) administered the Creativity Assessment Packet (William, 1991) to 56 Chinese graduate students and 55 graduate students’ native to the United States. This is, of course, a selected sample, all individual being highly educated. Every individual was in a doctoral program at the time of investigation. In fact, Zha et al. (2006) looked at Graduate Record Examination Test scores, in addition to the divergent thinking test scores from creativity Assessment Packet.

Not surprisingly, tendencies toward individualism and collectivism were assessed with the Individualism-Collectivism Test (Triandis, 1995). Put briefly. This focuses on the examinee’s perception of his or her responsibilities and obligations, which may be toward their culture or society. There are three subtests, one for Attitudes, one for Self-Concept, and one for Values.

Zha et al. (2006) reported that graduate students from the United States performed at higher levels than Chinese graduate students on four of the five indicators of creative potential. The exception was flexibility, which was not significantly different in the two groups. The largest effect size was in the originality scores. The U.S. students also had the expected individualistic tendencies and the Chinese students had the expected collectivistic tendencies. They also earned higher scores on the Quantitative section of the GRE. Surprisingly correlation with the two cultural groups failed to find strong associations between individualism and divergent
thinking. Only two of the 30 correlations that might have supported this association were statistically significant.

Avraim and Milgram (1977), reported that individuals in the Soviet Union tended to have lower scores on tests of divergent thinking than individuals in the United States and individuals in Israel. They suggested that there was more dogma in the Soviet Union, and that this led to more conformity and less originality.

Of course not all cultural research is psychometric. Mead (1959) compared Samoans, Arapesh, Bali, and the Manus and found that creativity was viewed differently and encouraged differently in each. For the Samoans, creativity involves making only slight changes in traditional forms of creativity. For the Arapesh, creativity lacks form and “flounders in the helpless ineffectuality in the present.” For the Manus, creativity lacks traditional form but “a restless seeking, a reaching – out for the new” is developed in these people so that they become “not the inheritors of tradition but the willing originators of forms of which they are virtually ignorant”

Torrance (2003) also reported cultural differences in what he had previously labeled the fourth – grade slump. The United States generally shows the slump in fourth grade, but India and Germany show it one or two years later, at least in Torrance’s figural test of divergent thinking. Some cultures apparently show little discontinuity and slump. In Western Samoa, apparently there were significant differences between different schools. These particular investigations support the idea of overlap among cultures. That is because the fourth – grade slump probably characterizes only about 50 to 60 percent of the student body; it does not happen to everyone, even within one culture. Hence you might have a slumping fourth grader in a highly creative culture who behaves more creatively than a particular student who is in a less creative culture but is not slumping. The high in the low groups might be higher than the low in the high group, if that makes it clearer.
Attitude to innovation are largely conditioned by cultural values. Lebedeva (2008, 2009) carried out an empirical study on student samples in Russia, Canada and China, which revealed cross-cultural and gender differences in value priorities of students of the three countries. The results of correlation and multiple regression analyzes of the relationship between values and innovation attitudes allowed to confirm the hypothesis that values to openness to change promote positive attitude to innovations, whereas Conservation values serve as impediments. These results are consistent with those of overseas studies (Dollinger et al. 2007) and are indicative of the near-universal nature of this relationship.

Wang, A.Y., (2011) compared the differences in creative thinking between student teachers in Taiwan and the United States, and attempts to understands the factors that may cause the difference. The results show that the most distinctive difference between the two groups is the ability of elaboration. The findings suggest that creative thinking has more to do with beliefs than practices. The strong belief in a particular teaching perspective, whether product or process-oriented, may have a negative impact on creative thinking, and that developing reading, writing, and self-expression abilities is likely to help in developing the ability of elaboration.

Despite the voluminous number of studies on teachers' implicit theories regarding the characteristics of creative persons and the recognition that the subjective views of creativity could differ across cultures (Sternberg, 1985), there have been few studies that specifically addressed Chinese people's conceptions about creativity in general and Chinese teacher's implicit theories regarding characteristics of creative students in particular.

In a pioneering study, Chan & Chan (1999) examined Teacher's implicit theories of creativity by requesting 204 Hong Kong primary and secondary school teachers to list the characteristics of either creative or uncreative students. Their responses, an average of about 4 to 5 creative or
uncreative characteristics by each teacher, were categorized into 42 creative and 33 uncreative attributes, traits, or trait adjectives. The most frequently mentioned creative attributes were “imaginative”, “always questioning”, “quick in responding”, “active”, and “high intellectual ability” whereas the most frequently mentioned uncreative attributes were “conventional”, “timid”, “lack of confidence”, and “conforming”. Unlike results of U.S. studies, this study yielded findings that suggested that Chinese teachers regarded some characteristics of creative students as socially undesirable and other characteristics as associating highly with intellectual functioning. Chinese teachers suggest that nonconformity, expressiveness, and assertiveness are seen as characteristics of rebelliousness, being opinionated and being self-centered.

Rudowicz (2003) discussed and illustrated by empirical study the different manifestations of the impact of culture on creativity: They are (1) conceptualization of creativity on both the explicit and implicit levels; (2) attitudes towards creativity and values attached to creativity (3) channeling creative endeavor through different domains of human activities (4) socialization processes and educational goals and practices. It is argued that creative expression is a universal human phenomenon that is firmly grounded in culture and has its own profound impact on culture itself.

Kankaras Milos (2009) examined laypersons’ implicit theories of creativity in two different national cultures’ i.e. Serbia (n=257) and the United States of America (n=255). A questionnaire constructed by him comprised of 52 indicative and 36 contra indicative personal characteristic which were rated by respondents on a 5 point scale on criteria of their creativity and desirability. Results show that both groups have similar conceptions of a creative person as energetic, self confident individual, gifted with creative talents and exceptional intellectual abilities, with profound emotionality and brightness. The main difference between the two groups is that respondents from Serbia do not perceive characteristics
which reflect obedience to social norms as a contra-indication to creativity as contrary to their American counterparts. Respondents have mostly seen creative attributes as desirable, although there is a number of characteristics that are rated differently in terms of their creativity and desirability are two distinct concepts and indicate positive view of creativity as a phenomenon and creative person as such.

Hass, Richard, W. (2014) conducted an experimental survey on 321 undergraduate students to test the hypothesis that implicit theories of creativity vary according to creative domain. Participants were randomly assigned to groups in which they were instructed to imagine a self-generated exemplar of a creative product in 1 to 6 traditionally creative domains: art, science, technology, music, design, or writing. Participants than rated the likelihood that each of 39 creative traits would be found in the individual who created his or her self generated exemplar product. Results illustrate that participants were rated higher on nonentrenchment and aesthetic taste than were exemplars from science and technology. Overall, participants' implicit theories reflected a positive association between creative productivity and intellectuality.

Kharkhurin and Motallebi (2008) conducted a study to see the impact of sociocultural environment on creative potential of American, Russian, and Iranian college students. The divergent thinking performance of the students was compared on the Abbreviated Torrance Test for Adults. The study revealed that, compared to the Iranians, Americans and Russians have superior abilities to consider a problem from different perspectives and to generate original solutions to a problem. The performance differences on the originality measure of the representatives of the Western and Eastern countries calls for the possible revisions of the traditional definition of creativity as a construct emphasizing originality in thinking. Although originality and innovation are inherent properties of creative behaviour in the Western thought, it might have lesser value in the East. One of the possible explanations of the Iranian sample’s low performance on this
measure may be their inability to generate several solutions to a problem, which stems from specific aspects of Iranian sociocultural environment. The anecdotal evidences regarding the educational system of Iran suggest that the Iranian educational system put more emphasis on the manipulating of existent knowledge that results in finding a single correct solution. Reciprocally, this tradition often discourages people from exploring the problem and generating new solutions.

The studies of the Iranian social system also demonstrated that independent, nontraditional ways of thinking do not earn a high opinion. No doubt creativity is inherent in all cultures and earns recognition in all areas of human enterprise. However, the manifestation of creative potential might be culture specific. Therefore, the results of the growing number of studies showing the superior creative performance in Western samples could be attributed to the differences in the perception of the concept of creativity per se, and the cultural biases of the tests of creativity that adopt a culture specific definition of creativity.

Kaufman's et al. (2014) study was conducted to examine implicit theories of creativity in computer science in the United States and China. 308 computer scientists asked for adjectives that would describe a creative computer scientist. Computer scientists and non-computer scientists from China (n= 1069) and the United States (n=971) then rated how well those adjectives described creative computer scientists using a 5-point Likert Scale. Data were factor analyzed. Results show that the concept of a creative computer scientist had four dimensions: 1. Smart/ effective, 2. Outgoing, 3. Creative thinking and 4. Unsociable. Differences in the implicit concepts across disciplines, ethnicity, gender, age, and working experience were analyzed. Implicit conceptions of creativity vary by domain, even within the same cultural context, as demonstrated by the differences between the implicit conceptions of creative computer scientists given by Chinese participants in this study and the culturally similar participants in the
Rudowicz and Yue (2000) study, who were simply asked to describe a creative person in general. In the United States, when people think of a creative person they are more likely to think of someone in the arts than someone in the sciences, so if asked simply to describe a creative person, respondents are more likely to think of a creative artist than a creative mathematician. Chinese participants rated “creative thinking” as more important for creativity in computer science than did American participants. It is not clear why this might be the case or whether this result would remain true if researchers asked about creativity in other domains. One possibility is that of the Chinese participants viewed computer science in China as logging behind that of the U.S. and therefore, creative thinking is more strongly required during this “catching-up” period.

The result of this study of implicit theories of creativity suggests that the context of domain or discipline should be taken into consideration when thinking about conceptions of creativity and the creative person. Results also suggest that a domain-specific understanding of creativity in different science disciplines might be more complex than current understanding suggests.

Culture also impacts how people conceptualize creativity. Nisbett et al. (2003) demonstrated a strong and pervasive cultural influence on human cognition. Culture, they argue, influences even our most basic cognitive process. East Asians tends to use a more holistic approach to reasoning that emphasizes similarity and connections between objects and the field, an approach that is rooted more in intuition and experience than in formal logic. Westerners follow a more analytical and decontextualized approach to reasoning. Niu, Zhang and Yang (2004) extended this work by examining cultural influences on creative performances as well as on deductive reasoning. They found only weak correlations between deductive reasoning and creativity on a creative writing task, but they reported statistically significant cultural influences on the creative writing task. Our
understanding of creativity will of necessity be influenced by the field, discipline, or domain that we wish to understand. Just as different domains have different knowledge bases and modes of thinking and analysis, so too can we expect that creative people working in those domains will have different traits and dispositions (Fiest, 1999; Simonton, 2005, 2009).

Zhou, Shen, Wang (2013) conducted a study to examine teacher’s conceptualizations of creativity: a cross-cultural comparison. The purpose of the study was to understand teachers’ conceptualizations of creativity and its differences among 3 countries. The conceptualization of creativity denotes the concept and exhibition of creativity, the traits of creative students, and the fostering and hindering factors for creativity in school setting. A questionnaire was administered to 515 teachers from China, Germany, and Japan. Results showed that creativity was perceived as a divergent thinking ability that emphasizes 3 countries. It can be developed and more easily exhibited in art and science and is unrelated to school achievement. Creative students were perceived as imaginative, original, curious and willing to try new things. Besides the shared conceptualizations, there were also differences among countries.

Chinese teachers thought it was less likely to exhibit creativity in literature. To them, the perceived fostering factors of creativity were critical thinking, independence, and motivation; hindering factors were evaluation system and resource limitations. To them, the perceived fostering factors of creativity were encouragement and feedback, independence, and initiative; hindering factors were working pressure, resources, and discipline. Japanese teachers considered creativity less likely to be developed.

Shane, Venkatraman and MacMillion (1950) examined national culture and preferences for innovation – championing strategies in 30 countries, with 1,228 professionals from four different industries. Innovation champions are those who promote the new ideas and help to overcome resistance to these ideas and these ideas in organizational context.
In this study, innovation was defined as any idea that is new to an organization. Questionnaires were used to measure the perceived effectiveness of various innovation-championing strategies. The result show that high uncertainty avoidance is related to preferences for idea champions to work within existing organizational rules and procedures to promote the ideas. For high power-distance contents, effective innovation champions focus on gaining the approval of important authority figures, whereas in low power-distance contents, innovation champions focus on seek to build a broad base of people who see value in an innovation. Finally, collectivism was associated with the strategy of getting people from different organizational departments to see the benefits of an innovation, and thereby build consensus for the new idea.

Gender differences seem often to be related to social status, and as different kinds of work in society vary in social status, creativity becomes gender related. Recent trends suggest that the gender-related organization of creativity may be decreasing given the numerous changes in modern societies.

As Ludwig (1992) noted, various gender-related differences can be observed for creativity as we look across cultures. In certain traditional societies, men may show their creativity in woodcraft, sculpture, and medicinal-healing practices, whereas women may express their creativity in basket weaving, making clothing, embroidery rugs or pottery.

In some cultures, one gender group may be allowed access to fields involving creative work, with the other gender group denied access.

Kim (2007) argued that Asian cultures based on Confucianism have long fostered inequality between men and women, with a traditionally being expected to show high levels of obedience, which is not conducive to creative work. Of course, creative work is not inherently gender typed.
Hopp, M et. Al (2016) studied a cross national study of implicit theories of a creative person. They concluded that implicit theories can influence learning behavior, the approaches individuals take to learning and performance situations, and the learning goals individual set, as well as, indirectly, their accomplishments, intelligence and creativity. They used Kenya and German students, a cross cultural sample for this study. They asked students to draw a creative person and rate it on a number of attributes. The data indicated considerable differences among the implicit theories according to students gender and nationality. Kenya girls ascribed a gender to prototypical creative person that differed from their own, whereas the gender of the prototypical creative people drawn by German students was more equally spread. By Kenya students valued social variables as important, followed by talent in languages and math. By contrast, German students valued imagination and talent in the domain of languages, mathematics and technical areas.

Jeffrey and Jennifer (2016) conducted a study on implicit theories of creative ideas between Chinese and American. Their study provide evidence of two distinct implicit theories of creative ideas and so help to resolve the debate over differences in creativity assessments between Chinese and American sample. They used 26 domain general cues on 2140 participants. About 95% of the Chinese used a broad range of cues, whereas about 75% of the Americans used a narrow range of cues. Members of both culture found cues such as breakthrough, surprise, and potential to indicate creativity. In contrast, cues such as easy to use, feasible and for a mass market were indicators of creativity for most Chinese and non creativity for most Americans. Thus, in addition to domain knowledge, knowledge about creativity itself contributes to creativity assessments. Cross cultural differences in knowledge about creativity can help in explaining differences in how members of different cultures assess creativity. These findings have implications for the scholarly conceptual definition of creativity and suggest an array of possibilities for research on creativity and innovation.
According to Nemerzitski, S.(2017) implicit theories of creativity provide an understanding of attitude towards among different populations, including students. Insights on how students see and define creativity might help to adjust educational settings and thus make it possible to provide students with better conditions to support their creativity. Although many studies have been conducted on creativity in different cultural settings, little is known on individualism or collectivism is connected to implicit theories of creativity. In his study, carried out among secondary school students in Estonia and Russia, identified possible differences in how students from different cultural backgrounds (and varying in individualism and collectivism) define creativity. The results indicated that there were differences in how students from Estonia and Russia defined creativity: Although students from Russia have a tendency to identify creativity more with novel ideas, students from Estonia defined creativity more in terms of self-expression (students from schools with Estonian as the language of instruction) and uniqueness (students from schools with Russian as the language of instruction).

**Implicit Theories in India:**

With regard to India, as India is a multilingual country, each language has its own word for creativity which may not exactly translate into an English meaning. As well as this, in India creativity tends to be viewed as a faculty which is distinct from intellect. In this context it is known as pratibha, or intuitive creative power. In Hindi, the terms srijanatmakta and sisrksa are used for creativity. The root sri means – to produce, to create, procreate, let go, let loose, and release. Sisrksa means intending to eject, wishing to create and produce (Runco, 2011).

Thus, amongst the traditional rural, semi-urban people creativity is perceived as the skill to create artifacts which they believe need not always be original. But amongst the urban educated, the Western notion of creativity implying novelty and originality is accepted.
In India creativity is valued. What it means to people depends on their tribal / rural / urban residence, socio-economic stands, and level of formal education. However, in the realm of formal education it is not valued over and above intelligence or wisdom. The uniqueness or need for autonomy of the creative person (as in the Western context) goes against the Indian cultural value for familism / collectivism. When creativity threatens group cohesiveness it is discouraged, as getting along with others is considered very important.

The school system generally does not support creative expression as it can only be nurtured in a democratic environment. In India, school is experienced as a space that commands compliance to authority and as a place for following teachers’ instructions. Within that, art, craft, music, and dance may be encouraged. But only the best ones are rewarded. Others do not see themselves as creative. It is not seen as a quality everyone can have.

Raina, Srivastva, and Mishra (2001) suggested that one idiosyncrasy of the West is the emphasis on products and the use of novelty and appropriateness as criteria and indicators of creativity. They feel that that the East was more process oriented and focused on “the experience of personal fulfillment. This claim about cultural differences was supported in an investigation of literary creativity. Unfortunately their conclusion about cultural differences is weakened somewhat by the fact that they present data from case studies, with the individuals’ studies being winners of the prestigious Jnanpith Award (the highest literary award in India).

This is slightly problematic because it means that the evidence used to support the conclusion about cultural differences is itself slanted toward products (Runco, 2007). Individuals who won this award had been productive in the sense of writing award – winning literature. It would also be unfair to conclude that all creativity in the West is product – oriented. There are dozens if not hundreds of descriptions of the creative process, especially among artists in the West (Runco, 2007).
Perhaps more convincing, then, was Raina et al.’s (2001) observations about similarities between India and the West. They found “frustrations and sufferings” among the eminent award winners and cited the work of Albert (1997) and others on the frequency of similar earlier experiences among creative individuals raised in the West. They also noted that “defiance of tradition” has been a feature common to many Jnanpith laureates. A final similarity noted by Raina et al. was that the authors in their study tended to be involved in networks of enterprise. This often holds true of creative individuals in the West as well (Davis et al, Gruber 1988).

One study by Kapur, Subramanyam and Shah (1997) focused on scientific creativity where Indian scientists believed that scientific creativity required more rules and logic than artistic creativity. In view of this, scientific creativity is seen to have a more profound impact on society as compared to artistic creativity. In addition to this, although they shared a Western view of characteristics of creative individuals, like (a), open-mindedness, (b) curiosity and, (c) risk taking, they considered themselves to be creative than their Western counterparts and attributed this to the socio cultural norms which require them to place more emphasis on diverse hierarchical relationships that encourage group development rather than individual development. This is in line with studies of Indian culture, where the welfare and integrity of the family always supersedes individual needs and self identity (Das & Kemp, 1997).

Passi’s (1997) review of Indian researches on creativity clearly reveals how western ideas have been recycled in India. Implicit theories can be viewed as providing conceptual framework to enrich explicit theories that explain creative behavior of Indians.

Panda, M. and Yadav, R. (2005) conducted a study on Implicit Creativity Theories in India to understand the nature of creativity in Indian context. 290 students were asked to list behaviors that describe an ideal creative person. On the basis of these descriptions, a check list of creative
behaviors was prepared and the same was rated by a sample of 205 students. Factor analysis of these ratings yielded four interpretable factors, tentatively labeled as “Sociability and social Responsibility”, “Leadership”, “Unconventional personality orientation”, and Task Persistence”. This clearly showed the emphasis on relational, social and interpersonal aspects rather than cognitive, analytical and utilitarian aspects of creativity. The result also indicated gender differences.

Male students, as compared to female students are able to access higher amount of resources but at the same time find the world more competitive and face higher level of expectations from home and educational institutions. This explains male students emphasis on traits like independence, manipulativeness and unconventional personality orientation.

The women placed higher values on ability to lead and make quick decisions, openness and perceptiveness as desirable characteristics of an ideal creative person, as these behaviors help them achieve and pursue higher education.

The fact that males and females emphasis different behavioral aspects of creative individuals shows that these behaviors are the ones which the respective gender group values and also needs for the fulfillment of the culturally desired personal, family and social roles. The findings suggest, certain degree of cultural continuity in implicit creativity theories in Indian context.

Contemporary studies by Srivastava and Mishra (2001), Awasthi Sadarangani, (cited in Mishra et al, 2006), Mishra (1992), Sharma (1996) and Chaudhuri examining the process of musical and literary creativity, reveal that the inspiration for creativity was the search for the relationship between the inner world and outer existence and, therefore, creation could be understood as self-extension as the artist tried to achieve identification
with the subject matter and “become” the creation in his feelings. The creator was engaged in more than merely creativity the product. Literary and artistic creativity often involves reinterpretation of traditional ideas. Therefore, the repeated creation of the images of gods and goddesses and the 16 similar texts /epics that appeared in different Indian languages and at different points of time, after the first great Indian Languages and at different points of time, after the first great Indian epic Ramayana was writer, are all considered original (Panda, 2004).

Padhi’s (1998) study on primary and secondary school teachers, showed that “curiosity” and preoccupation with tasks” were the most salient qualities of the creative personality.

According to Mishra & Gergen, 1993; Sinha, 2002, Indian culture has valued creativity in its diverse dimensions since ancient times. The contemporary Indian worldview is shaped by many sources – Western worldview, ancient Indian thought and folkways are all represented in the Indian mind, influencing perceptions of creativity.

Raina and Srivastva (2000) state that while innovative products are not disregarded and the terms ‘creativity’ and ‘excellence’ refer to extraordinary achievements in any field of human endeavor, the ancient Indian learning tradition also emphasized the cultivation of humanitarian excellences of felicitous speech, truthfulness, restraint, generosity, compassion, sacrifice and service, all of which have been subsumed under the rubric of ‘dharma’ (virtue). These are excellence of ‘being’ and approached thus, ‘excellence’ and ‘creativity’ is the stressing for the highest standards in every phase of life, the discovery of the best in oneself, driven solely by strong and powerful inner urges without external prodding.

Rekha Sharma Sen and Neeraj Sharma (2011), examined implicit theories of creativity among Indian children and adults. According to them the constructivist qualitative inquiry reveals a multiplicity of implicit
theories of creativity context in Indian culture with generic and domain specific usage of indigenous terms. Creativity was dominantly construed as a faculty of the nature of ‘pratibha’ in keeping with Indian philosophical thought, and with reference to the self, with participants invoking the holistic self, cognitive self, experimental / emotional self and physical self to describe creativity. The sense of creativity in these seemingly disparate, self based construal, the uncovering of which is the unique contribution of this study, derived from the person’s experience of sense of agency, rather than merely the production of novelty being central for some but epiphenomenal for others; the varied meanings of newness, experiencing creativity as self expression, self extension, self fulfillment and self actualization, and equating creativity with the act of learning reflect distinctive elements of implicit theories that have emerged in this study.
### DESCRIPTION OF VARIABLES INCLUDED IN THE STUDY

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Codes</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>V13</td>
<td>Is friendly</td>
</tr>
<tr>
<td>2.</td>
<td>V17</td>
<td>Is helpful to others and involves in social work</td>
</tr>
<tr>
<td>3.</td>
<td>V23</td>
<td>Is kind hearted and polite</td>
</tr>
<tr>
<td>4.</td>
<td>V33</td>
<td>Has high level of tolerance</td>
</tr>
<tr>
<td>5.</td>
<td>V50</td>
<td>Has good communication skills</td>
</tr>
<tr>
<td>6.</td>
<td>V51</td>
<td>Is adjustable</td>
</tr>
<tr>
<td>7.</td>
<td>V30</td>
<td>Is very intelligent and talented</td>
</tr>
<tr>
<td>8.</td>
<td>V36</td>
<td>Has a good moral character</td>
</tr>
<tr>
<td>9.</td>
<td>V53</td>
<td>Is headstrong</td>
</tr>
<tr>
<td>10.</td>
<td>V61</td>
<td>Is good at leading others</td>
</tr>
<tr>
<td>11.</td>
<td>V63</td>
<td>Is independent</td>
</tr>
<tr>
<td>12.</td>
<td>V68</td>
<td>Has impressive personality</td>
</tr>
<tr>
<td>13.</td>
<td>V1</td>
<td>Is open minded</td>
</tr>
<tr>
<td>14.</td>
<td>V2</td>
<td>Has lots of divergent ideas</td>
</tr>
<tr>
<td>15.</td>
<td>V8</td>
<td>Is very sensitive</td>
</tr>
<tr>
<td>16.</td>
<td>V9</td>
<td>Dedicated to one’s work</td>
</tr>
<tr>
<td>17.</td>
<td>V19</td>
<td>Is very energetic</td>
</tr>
<tr>
<td>18.</td>
<td>V20</td>
<td>Has self respect</td>
</tr>
<tr>
<td>19.</td>
<td>V25</td>
<td>Always give their best</td>
</tr>
<tr>
<td>20.</td>
<td>V38</td>
<td>Is unique and extraordinary</td>
</tr>
<tr>
<td>21.</td>
<td>V45</td>
<td>Has positive attitude</td>
</tr>
<tr>
<td>22.</td>
<td>V5</td>
<td>Has high level of curiosity</td>
</tr>
<tr>
<td>23.</td>
<td>V11</td>
<td>Has sense of humor</td>
</tr>
<tr>
<td>24.</td>
<td>V15</td>
<td>Always learn from mistakes</td>
</tr>
<tr>
<td>25.</td>
<td>V26</td>
<td>Ready to accept challenges</td>
</tr>
<tr>
<td>26.</td>
<td>V35</td>
<td>Has long attention span</td>
</tr>
<tr>
<td>27.</td>
<td>V39</td>
<td>Is very hardworking</td>
</tr>
<tr>
<td>28.</td>
<td>V67</td>
<td>Makes best out of waste</td>
</tr>
<tr>
<td>29.</td>
<td>V6</td>
<td>Is imaginative</td>
</tr>
<tr>
<td>30.</td>
<td>V16</td>
<td>Has high level of motivation</td>
</tr>
<tr>
<td>No.</td>
<td>Code</td>
<td>Description</td>
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<tr>
<td>-----</td>
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<tr>
<td>31.</td>
<td>V29</td>
<td>Thinks in a logical way</td>
</tr>
<tr>
<td>32.</td>
<td>V34</td>
<td>Is thoughtful</td>
</tr>
<tr>
<td>33.</td>
<td>V47</td>
<td>Has scientific mind</td>
</tr>
<tr>
<td>34.</td>
<td>V49</td>
<td>Has problem solving ability</td>
</tr>
<tr>
<td>35.</td>
<td>V57</td>
<td>Has strong will power</td>
</tr>
<tr>
<td>36.</td>
<td>V58</td>
<td>Is determined towards one’s work</td>
</tr>
<tr>
<td>37.</td>
<td>V60</td>
<td>Thinks beyond the limits</td>
</tr>
<tr>
<td>38.</td>
<td>Cm</td>
<td>Cognition and Motivation</td>
</tr>
<tr>
<td>39.</td>
<td>Tp</td>
<td>Task Persistence</td>
</tr>
<tr>
<td>40.</td>
<td>Upo</td>
<td>Unconventional Personality Orientation</td>
</tr>
<tr>
<td>41.</td>
<td>Ld</td>
<td>Leadership</td>
</tr>
<tr>
<td>42.</td>
<td>Soc</td>
<td>Sociability</td>
</tr>
<tr>
<td>43.</td>
<td>FluV</td>
<td>Fluency Verbal</td>
</tr>
<tr>
<td>44.</td>
<td>FlexV</td>
<td>Flexibility Verbal</td>
</tr>
<tr>
<td>45.</td>
<td>OrgV</td>
<td>Originality Verbal</td>
</tr>
<tr>
<td>46.</td>
<td>FluF</td>
<td>Fluency Figural</td>
</tr>
<tr>
<td>47.</td>
<td>FlexF</td>
<td>Flexibility Figural</td>
</tr>
<tr>
<td>48.</td>
<td>OrgF</td>
<td>Originality Figural</td>
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</tbody>
</table>