

Vol 3 Issue 5 June 2013

Impact Factor : 0.2105

ISSN No : 2230-7850

Monthly Multidisciplinary
Research Journal

*Indian Streams
Research Journal*

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RNI MAHMUL/2011/38595

ISSN No.2230-7850

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STUDENT LEARNING STYLE ON MATHEMATICS THROUGH BUGIS-MAKASSAR CULTURE

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Abstract:

This research focused on students learning style of mathematic by examining how Bugis-Makassar culture influences the students' perspective towards learning Mathematics. Senior High School students were observed closely. The study was undertaken from a constructivist perspective of learning according to which students' learn through active participation in the construction of knowledge (Glaserfeld, 1995). This was a significant in the context of mathematics learning style in Makassar which apply the traditional cultural value "siri'napa'ce" (very high motivation and spirit) (Abidin, 1983). Key findings of the study were that the students' learning style on mathematic are dominated by activist and pragmatist. It means that the students have high responsibility, spirit and motivation in solving the problem in Bugis-Makassar philosophy. The study also provides some useful insights into the sequence of teaching and learning mathematic by integrating traditional cultural in the classroom.

KEYWORDS:

Mathematic, learning style, siri' napa'ce.

INTRODUCTION:

Learning mathematics, students habitually encounter mathematics difficulties concerning calculations, understanding of concepts, principles and mathematical relationship with others subjects. Progressively, some countries around the world have perceived an increasing set of research on including mathematical applications and modelling in higher education and it has squeezed the mathematics curricula in these countries (Ghosh, 2012). Mathematics is essentially abstract and axiomatic knowledge and applying didactic, which begins with the elements that are not defined. This means that mathematics is a mental activity. As a mental activity, the activities of mathematical thinking cannot be discharged with cognitive activity. Bransfor, et al. (1999) However, mathematics has an abstract object, but teaching mathematics in schools should be derived according to level of student. In addition, mathematics can be presented more interesting with full disclosure based on the conditions and circumstances of students. Teachers respectfully, can create mathematics learning environment and appropriate in social and cultural environment in which students

In relation to the learning mathematics Soedjadi (2000:192) argues that the goal of learning mathematics in schools is essentially consisting of formal goals and objectives of the materials. Purposes related to the arrangement of formal reasoning and attitudes of students, is the purpose that is material relating to the use of mathematics in various purpose or knowledge. The main objectives of mathematics learning is to make the learners to be more critical, logical and systemic thinking and consequently, it is to make the learners to be honest, be disciplined in looking at and solving a problem. (Department of Education, 2001:8).

In the context of Bugis-Makassar culture, learning mathematics is one of the interesting and

important to learn but the students find difficult in learning. The Bugis-Makassar culture is the special motivation for the students to learn mathematics. Hence it is expected the students can prepare themselves to enter higher education, as well as for the purpose of the future life in workforce and in community life. For example Siri' is the core culture of Bugis Makassar in which a view of life that aims to enhance the dignity and self-esteem both as individuals and as social beings. Another Bugis-Makassar believe is Pacce' / Pesse' is a form of solidarity with the suffering of others. This implies that siri' and pacce' are being an integral with one's humanity, which contains the ethical difference between humans and animals.

As human beings, in which are noble values that guide in life, both in interacting with fellow humans, interact with other creatures, interacting with him and in relation to God the creator. For example, expression of the sense of Bugis cited by Abidin (1983:10) says "Naiariasengnge 'to waranimaperengnge'. Narekkomolioroppo-rioppolaommu, rewe 'co paimengSappalalengmuolai" (The brave man is strong and sturdy stand. If you are facing serious obstacles that you cannot go through or overcome, thinking back on the road or how to get through). This expression contains high human values, where each person is expected to have a life of courage and determination in the attitude and always uses his mind in all his problems. Exposure above illustrates that the Bugis-Makassar culture with the goal of learning mathematics there is a close connection, both of which honesty and discipline in looking at and solving a problem. In addition, the ability to think logically in the face of each issue is also reflected in the behaviour expected of each student who has studied mathematics, being able to culture the Bugis-Makassar, this is a way for the challenges and obstacles. Therefore this study aims at examining how Bugis-Makassar culture influences the students' perspective towards learning Mathematics.

LITERATURE REVIEW

Learning is a basic, adaptive function of humans. More than any other species, people are designed to be flexible learners and active agents of acquiring knowledge and skills. Much of what people learn occurs without formal instruction, but highly systematic and organized information systems – reading, mathematics, the sciences, literature, and the history of a society – require formal training, usually in schools. Furthermore, Cognitive activities of human being can only take place in the social and cultural environment. According to Vygotsky, all higher-level cognitive work in humans has its origins in social interactions of each individual in a specific cultural context (Bruning et al, 1995). Therefore, learning mathematics involves the mental activities which drive the learner to acquire the knowledge and skills and critical thinking.

Mathematics is one of the most significant subjects in schools in a modern people however many teachers find crucial problem in teaching it to the pupils. Since this subject can become abstract very certain and short time and that means that for many pupils it can become worthless as it loses contact with the actual world that they know outside school. Consequently, all over the world pupils are facing a big problem and thus failing in their mathematics courses, and many adult learners don't understand it either. Unfortunately, many mathematic teachers also find this subject is difficult to understand. Learning mathematics is different from learning many other things, such as remembering visual image of familiar thing or object or learning native language. As Bransfor (1999) state that the most important biological element regarding the human being's brains is that they have not developed considerably from the brains of our hunter-gatherer ancestors. Thus, we are excellently altered or they would be if it were not for environmental influences for fight or flight decisions and other survival tactics. Furthermore, Dehaene (1997) claim that human being are virtually wondering to do arithmetic with small numbers but everything else in mathematics is difficult, because it doesn't come to us unconsciously. Thereof, learning mathematics needs hard work strategy in which the children or students can be interested in.

In the context learning, there is an extensive agreement that cultures are of the pivotal important key in affecting the way we live and learn. In discussions of the questions towards the importance schooling of culture has widely been approved (Bruner, 1996). Also in mathematics education, culture has increasingly become a fundamental concern (Alexander, 2000; Bishop, 1988; Presmeg, 2007, Staub, 2007). The concept of culture, however, is a very mysterious one. Therefore learning mathematics and culture may be integrated in order to encourage the students' learning strategy.

Learning mathematics and Culture are two learning environment in which some researchers try to connect one each other. Both mathematic and culture targets group students who seem to suffer from a poor attitude toward mathematics: elementary education majors and those in majors without a specific mathematics requirement. Some study was carried out to investigate the mathematics learning such as Schultes & Shannon (1997) who investigate mathematic and culture, Ghosh (2012) investigate learning mathematics in secondary school. These studies view that in the modern era, the need for navigating the leaning strategy in mathematics class has been significant aspect in enhancing the student's motivation. For

example the local culture empower can be used as new innovation in teaching mathematics.

Another study was carried out by Civil (2002) investigating the connection between school mathematics and everyday experiences. The result showed that students tend to recognize mathematics through the terminologies and perceive it as a subject of 'calculables'. They consider problem solving in mathematics as being not much more than a process of searching of rules by picking out various clues from the question. Ezeife (2002) propose that approach to the teaching and learning of mathematics from a cultural perspective assists a two-pronged purpose. The first is to build a bridge between the student's background knowledge. The Second is the formal mathematics teaching and learning the student would encounter over several years in a typical school setting. Ezeife (2002) further found out that there is a positive effect, and overwhelming influence on the integrating the learner's culture and environment into mathematics instruction.

A number of study have been carried out in terms of mathematics and tradition in societies, such as Lean (1993) conducted study in Papua New Guinea, Barton & Fairhall (1995) carried out study on Maori tradition in learning mathematics and Garden (1995) studied the mathematics learning style of Mozambique societies. They found that in mathematics learning style in the traditional societies was not relatively influenced by the contemporary technological advancement. Furthermore Bishon, (1997) suggested that mathematics educators should consider cultural ideas in mathematic learning and teaching seriously. Hence mathematics education would be not a meaningless and boring set of routines for many pupils, as it is at present, but a satisfying, interesting, and meaningful experience.

METHODOLOGY

A survey was carried out at Senior High School Unismuh Makassar to gather information regarding students' learning style on mathematics in the classroom. The instrument used for this study was a set of questionnaire and the achievement test. A set of questionnaire was comprised of two parts. Part one elicited information on the students' background. Part two of the questionnaire comprised sixteen items regarding students of Bugis Makassar learning style on Mathematics subject. The questionnaire was administered to 50 students of Senior High School of Unismuh Makassar. The respondents were given 40 minutes to complete the questionnaire. Achievement test was administrated in order to know the students achievement on mathematics learning. The data were analysed statistically by using SPSSPC software program or excel. The statistical analyses used are frequency, percentage, and reliability index

RESULT AND FINDINGS

a. Student Achievement on Mathematic learning

In conjunction with the mathematic learning of the students of Senior High School of Unismuh Makassar they gained a significant achievement on the scores. It can be seen from the result of the analysis that the average of the students' scores is 3.21 with the standard deviation .34. It means that the students prefer to lean mathematics with their own style in which bugis-Makassar culture. As it is explained previously that Bugis-Makassar culture with the goal of learning mathematics there is a close connection, both of which honesty and discipline in looking at and solving a problem (Abidin, 1983). It can be said that the students of 50 are able to solve the problem in mathematics learning as they have high value tradition with Bugis-Makassar culture.

McKeachie (1978) stated learning style of the students with cultural tradition elicit higher levels of reflective thinking and creative problem solving, including synthesis, application, and evaluation. There is also evidence that information learned through active discussion is generally retained better than material learned through lecture. Moreover, students often prefer to participate in discussions rather than to be passive learners in a subject.

Table 2: Students' score summary

N	Σ	\bar{X}	StDev
50	160.52	3.21	0.34

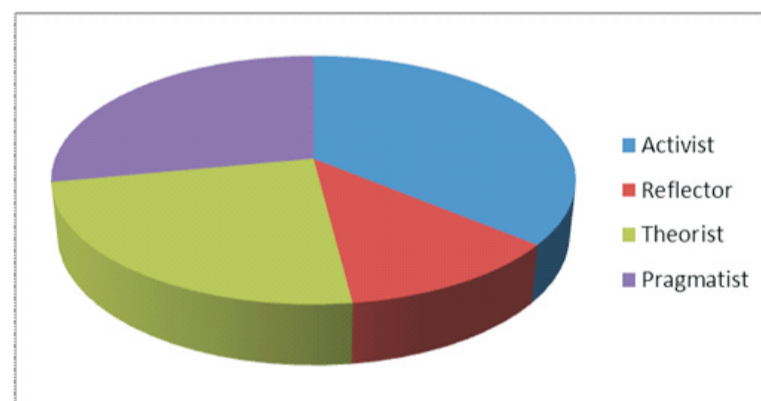
a. Students learning style

Learning style is how the people to approach new information. Each of students learn and processes information in their own special style. Although, some learning patterns, preferences, and approaches can help the students to realize that other people may approach the same situation in a different way from your own. Students learn in different ways such as by seeing and hearing; reflecting and acting; reasoning logically and intuitively; memorizing and visualizing. Consequently, teaching methods also have to vary. Some instructors lecture, others demonstrate or discuss; some focus on rules and others on examples; some emphasize memory and others understanding. How much a given student learns in a class is governed in part by that student's native ability and prior preparation but also by the compatibility of his or her characteristic approach to learning and the instructor's characteristic approach to teaching. According to Burning et.al. (1996) learning style is a complex construct involving the interaction of numerous elements; thus, at the outset, the experimenter is faced with the difficult task of having to decide which dimensions of learning style to elucidate and which interactions might be meaningful, in a practical sense, in understanding their contribution to achievement.

The learning style of the students of Senior high school of Unismuh Makassar is mostly integrated in the culture of Bugis-Makassar culture. This culture tradition emphasis on how the students possess the responsibility to solve the problem. Sire' napa'ceis one the Bugis-Makassar culture which encourage the Bugis Makassar people to take responsibility in solving the problem. In the sense of the learning strategy on mathematic for the students at Senior High School of Unismuh Makassar integrates the culture tradition Sirinapa'ce in their learning style. The table 1 shows the student learning style

Table 1. Students Learning Style

Learning Style	Total	Percentage (%)
Activist	18	36
Reflector	6	12
Theorist	12	24
Pragmatist	14	28
Total	50	100



As the table demonstrates that there are four learning styles were used to observe the students, they are activist, reflector, theorist and Pragmatist. The table shows that most of the students of Senior high school of Unismuh Makassar or 36 % are activists. Then followed by pragmatist learning style in which there are 14 students of 50 or 28 %. There are 24 % of the total students involves in theorist and there are only 6 students or 12 % as reflector. From the table, it can be claim that the students of Senior high school of Unismuh Makassar are activist in which they are able to solve and have high responsibility in solving the problem. In this sense the sirinapa'ceas the Bugis Makassar philosophy impact on the students' learning style in particular on mathematic subject. As Staub (2007) state that culture and mathematic learning can be integrated to enhance the students' learning style. Furthermore, Abidin (1983) Siri' napa'ce (Malu) in the context of Bugis-Makassar culture, is the special characteristic and motivation for the students to learn

mathematics. Hence the learning style of activist which the students own gives clear information that the Bugis-Makassar learners believe Siri' napa'ce philosophy is as motivation in solving the problem in particular learning mathematics. Therefore it is expected the students can prepare themselves to enter higher education, as well as for the purpose of the future life in workforce and in community life.

CONCLUSION

Mathematic learning, a circulated form of cognition, takes different outlines in different contexts. Each group comprises a set of cultural traditions, practices, belief systems, and thinking patterns. Shifting the design of socialization may disturb the process of socialization which elders in a society had experienced as children. Therefore a tremendous capacity can develop new methods of cultural internships in changing societies. Speedily, cultural changes also act as driving forces on most societies, and these changes need to be incorporated into learning processes. The mathematics involved in forecasting these events in advance should be taught in schools. Also, cultural cognition requires a comprehensive view of the representational forms, since there are different learning styles. It reveals that the students of Senior High School of Unismuh Makassar are mostly activist. In this sense they have apply the Bugis Makassar traditional culture, that siri' napa'ce. This philosophy encourages the students to be independent, responsible and problem solvers.

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