The Description Of Relationship Between Mathematics Charasteristic And *Bugis* Culture Values

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Abstract

The research was a descriptive qualitative research with an emphasis on the exploration of mathematical characteristics and *Bugis* culture value. The data collected in this study were analyzed using content analysis. Results of the analysis showed that the characteristics of mathematics are linked to *Bugis* culture value. The study findings included that the deductive-axiomatic mindset associated with the values of honesty, universality in mathematic related to the value of decency, non contradictions associated with dependability and value in mathematic agreements related to the value of loyalty.

Key Words: Mathematic characteristic, Bugis culture values

INTRODUCTION

Learning mathematics at school is expected to form a logical layout of learners, shape attitudes and provided supplies to the students to be able to use mathematics in daily life. Soedjadi (1999) stated that the teaching of mathematics at school levels basically refers to two main objectives, namely formal and material objectives. The purpose of formal mathematics is related the arrangement of reason and the formation of attitudes of the students, while the objective of mathematics teaching material is of interest related to the use of mathematics, both in the field of mathematics itself as well as other fields.

The specific explanation explained the goal of teaching mathematic in the school (1) preparing the students to face condition change in their life and world development through the practice of acting on the premise logical, rational, critical, careful, honest and affective, (2) prepare students to use mathematics and mindset of mathematics in everyday life and in studying various sciences

The purpose of teaching mathematic not only relies on cognitive purposes, but also at affective objectives, so that in teaching of mathematics, students are not only expected to have intellectual, but also expected to have a commendable attitude of honesty, accuracy and other affective attitude.

Culture is one of the main sources of public value system that can be expected to form a mental attitude or mindset of humans. Cultural values that has grown and developed into a group of people, lately has shifted along with the development progress. One effort can be done in restoring the cultural values that have been shifted through education.

Cultural values are not only studied the social sciences and humanities, but in other subjects there may be elements of cultural value that can be developed. Mathematics as a basic science is also became the main subject at every level of education and has certain values. Soedjadi study (1996) found their philosophic values in mathematic science such as the ethics and aesthetics. Saleh (2001) found the moral values in mathematics. To develop the study of mathematics that includes cultural values early is necessary to study the links between the cultural values with mathematics itself.

Soedjadi (2000: 1) suggests that there are some definition or meaning of mathematics based on viewpoint of the author, as follows;

1.   Math is an exact science branch and systematically organizing
2.   Mathematics is knowledge about numbers and calculations.
3.   Mathematics is the science of logical reasoning and dealing with numbers.
4.   Math is a quantitative knowledge of the facts and issues of space and form.
5.   Mathematics is the science of logic structures.
6.   Mathematics is the knowledge of the rules strict.

Various opinions and definitions put forward by experts on mathematics, but until now there is no precise definition and generally agreed on the definition of mathematics itself. Therefore, to know of mathematic, it can be seen from the characteristics of mathematics itself

Here are presented some mathematical characteristics as follows.

1.   Having an abstract object

Basic of mathematics object is abstract and called mental and mental object. The mathematic objects are:

a.   *Fact*; such conventions in according with certain symbols.

Example:
1)   "2" is understood as the number "two"
2)   "5-2" is understood as "two mines five"

b.   *The concept* is an abstract idea that can be used to characterize a number of objects. Whether, it depends on specific object about concept.
c.   *The Operation* is a special of relationship because of the operation are the rules for obtaining a single element or more elements known
d.   *The principle* is a complex mathematic object. The principle can be composed of several facts, some of the concepts, which are linked by a relationship /

operations. The principle is the basis of the relationship between the various objects mathematic. The principle can be axiom, theorems, properties etc.

e. *The Skill* is a procedure or a set of rules that are used to solve the matematica

2. Focused on deal

The agreement is a fundamental axioms and primitive concept. Axiom is also called; the base postulate is a statement that does not need to be proved. Concept of primitive is also called undefined primitive term is root definition which didn't need putting perception.

3. Deductive Mindset

The truth of a concept or statements obtained as a logical result of the previous truth, it has connected to a concept and statement in mathematic are still consistent. The deductive proof process will involve other previously mathematic form been proved true by the deductive well.

Methods used by the search for truth that mathematics is a deductive science, whereas by natural science is inductive or experimental. But in mathematics search for the truth can be started by way of inductive, but so generalizations are true for all circumstances must be proven deductively. In mathematics a generalization, nature, theory or proposition that cannot be accepted as true before it can be proven deductive. For example, in biological science, is based on observation of breastfeeding was always some animals give birth. So that we can make generalizations inductively that every mammal is spawned.

Generalization is justified in mathematics is a generalization that can be demonstrated deductively. Example: for proving the sum of two odd numbers is an even number. Proof deductively as follows: suppose m and n are any two integers then $2m + 1$ and $2n + 1$ of course, each is an odd number. If we sum $(2m + 1) + (2n + 1) = 2(m + n + 1)$. Because m and n are integers then the $(m + n + 1)$ integer, such that $2(m + n + 1)$ is an even number. So the sum of two odd numbers is always even.

4. Symbol empty of meaning

According Soedjadi (1985: 13) argues that the symbols in mathematics generally empty of meaning that can be given meaning in accordance with the scope of his universe.

In order for a symbol, that means we have to understand the ideas contained in the symbol. Therefore, the most important thing is that the idea must be understood before the idea itself symbolized. For example, the symbol (x, y) is the pair symbol "x" and "y" is empty of meaning. If the concept is used in the field of analytic geometry, it can be interpreted as the coordinates of the point, for example, A (1,2), B (6.9), point A (1,2) point A is located at the intersection of the lines $X = 1$ and $y = 2$ point B (6, 9) means the point B is located at the intersection of the line $x = 6$ and $y = 9$. The relationship with symbols will apply some concept I real life

5. The universe talks attention
If the universe of his talk is a number then the symbols meaning is a numbers. For example, if we talk in the scope of the vector a + b = vector c then letters are used instead of mean numbers but should be interpreted as a vector

6. Consistent of system
In mathematics, there are many systems. To one another can be interrelated but can also be disjoint. Algebra systems: the system of axioms of the group, the axiom of the ring system, the system of axioms of the field, and so on. Systems of geometry: neutral geometry system, the system of Euclidean geometry, non-Euclidean geometry system. Within each system and structure that there is consistency

B, Overview of Bugis Makassar Culture
The first before we are discussing the culture of the Bugis-Makassar, the first we described the correlation word Bugis and Makassar. Bugis and Makassar ethics are two of the four major ethnic groups residing in South Sulawesi. In essence, the culture and way of life Bugis are generally the same, and in harmony with the culture and way of life Makassar. Therefore discusses Bugis culture is difficult to separate Culture of Makassar. This is tweetable according to Abdullah (1985) which says that the family system or the kinship of human life and human Bugis Makassar, it can be said there is almost no difference. Further, he stated that the two groups of this tribe (Bugis and Makassar) is basically a cultural unit. Therefore, what applies to the world of human Bugis Makassar also applies to humans.

The Bugis-Makassar culture means is the totality of ideas and behavior which is owned by the Bugis-Makassar and it can be passed from one generation to the next through learning. The result of thinking in the form of cultural values Bugis-Makassar that has been manifested in the behavior patterns of the Bugis-Makassar in daily life. Cultural values Bugis-Makassar question include the value of honesty, values of justice, values of wise, values of decency, *abbulosibatang, sipakatau, Siri' 'and pacce'* (Rahim, 1992). Medium Sikki (1998) suggested cultural values Bugis-Makassar as follows: the value of loyalty, of courage, wisdom values, work ethic, cooperativeness, firmness, solidarity, unity, harmony, deliberation.

In many cultural values Bugis-Makassar mentioned above, *Siri"* is the core of the culture of the Bugis-Makassar. Mattulada (1995) *mengemu-ballooning* that *Siri''* is none other than the core culture of the Bugis-Makassar, which mendinamisasi as well as being the driving force of the *panngadareng* as the manifestation of the totality of culture Bugis-Makassar, as well as the five elements of *panngadareng ie ade* (rules of behavior in society), *bicara* (rules of justice), *wari* '(rules of procedures), *rapang* (rules that put events) and *sara'* (rule or Islamic law). Further, Mattulada argued that *panngadareng* someone humanizing self-actualization and realization of the embodiment of the community building human interaction with each other and with social institutions.

6. Consistent in system

In mathematics there are many systems. To one another can be interrelated but can also be disjoint. Algebra systems: the system of axioms of the group, the axiom of the ring system, the system of axioms of the field, and so on. Systems of geometry: neutral geometry system, the system of Euclidean geometry, non-Euclidean geometry system. Within each system and structure that there is consistency

The concept of *Siri'* 'in manuscript *Lontarak* not found the limits of standard, however, the general restriction on *Siri"* agreed upon by experts in the seminar series' held in Singapore in 1977 formulated as follows. *Siri'* 'is a system of cultural values and personality is the defense institutions of self-esteem and human dignity as individuals and members of society.

In addition, it also agreed that

1. *Siri'* 'in the culture system, is self-defense institutions of law and morality and religion as one of the main values that influence and natural coloring my thoughts, feelings, and human volition.
2. *Siri'* 'in the social system is the existence of a relationship dynamisation of balance of individuals and communities to maintain the balance of kinship
3. *Siri'* 'in the system of personality is a concrete manifestation of the human mind that uphold honesty, balance to care maintains human dignity.

According to Abidin (1983) Siri' 'is composed of two types of Siri'' ripakaSiri' 'and Siri'' maSiri' '. Siri' 'ripakasSiri'' occurs when someone insults or treats fellow human beings beyond the limits of fair and civilized humanity in public. The medium of Siri' 'maSiri'' is a way of life that intends to maintain, improve or achieve a feat that is done with a vengeance and all toil for the sake of Siri' 'that person, for the sake of Siri'' families and for the sake of Siri' 'group.

Siri'' in maSiri' 'contains motivation to change, improve and develop the fate of individuals and groups. Siri' 'work as a source of motivation as the desire to succeed, with the hope of getting the value and dignity respected in the eyes of superiors or subordinates. It contains the value of chivalry, honesty, obedience to parents, teachers, and leaders, human values, compassion, determination to defend the truth and eradicate the evil, adherence to applicable law, the willingness to sacrifice to defend humanity and justice and devotion to God. The determination to get successful, for the Bugis-Makassar, cannot be stopped to make it true. When they said something, they will make every effort to prove those words. This is a realization of the motto of sailors Bugis-Makassar, namely "Kualleanna tallanga na toalia" (better sinking than behind the low tide).

As a source of motivation, *Siri'* 'contains elements of intense competition or competition is keen in supporting life. The spirit of this competition requires the individual skills in pursuit of achievement. Persistent nature in the battle to achieve the maximum is the color that marks every competition between people in the life of the family, relatives or in public life in the broadest sense. This competition can lead to creativity in the work. Abdullah (1985) suggested that competition stimulates the birth of the initiative and the birth of an ambition that is positive for any man to get up struggling with persistent, never give up in life and living.

Siri' 'within the meaning of *ripakaSiri''* is a manifestation of the act to defend the honor for the sake *Siri'* 'in the public eye. Make Bugis embarrassed in public, will evoke a sense of *Siri' 'ripakaSiri''* in itself, and it is an insult that can cause a burning feeling inside the Bugis. Errington (Abidin, 1999) suggests that for the Bugis no purpose or reason for living is higher or more important than keeping *Siri''*nya and if they are offended or *ripakaSiri'* '(embarrassed) they prefer to die fighting, to restore *Siri''na* (uphold dignity) than live without *Siri'* '.

The content of the two meanings of the series always engraved in the hearts Bugis-Makassar people in his life, living in his hometown and living in overseas. Abdullah (1985) says that the concept of *Siri'* ', which is a live view of human Bugis-Makassar, is the soul and spirit for each individual community(Tarman and M.Arief, 2016). This concept is reflected in the pattern of behavior, the social system and the pattern of thinking. Further, he said that in any region of the Bugis-Makassar people live, whether they live in an environment of a homogeneous society, and in a region that is far from home by a distance of a thousand miles and is bounded by the sea or ocean, the concept of *Siri'* 'is always preserved in their family life.

In the Bugis-Makassar maintain self-esteem as the embodiment of the concept of *Siri'* 'is an obligation of every individual or group, because the loss of dignity for the people of Bugis-Makassar synonymous with the loss of his soul as a human being. Man in Bugis-Makassar people can only be regarded as a man if he has self-esteem as the embodiment of *Siri'* '. Without *Siri'* 'man is no different from an animal. Thus *Siri'* 'is a basic human need Bugis-Makassar to maintain the dignity of humanity.


RESEARCH METHODS

The research was studied in this interdisciplinary research between mathematics education and the humanities. The research was descriptive qualitative research with an emphasis on the exploration of mathematical characteristics and cultural values Bugis.

Data Collection Procedures Collecting data in this study conducted by researchers between assisted by two (2) members of researchers who have a background in mathematics education and cultural background Bugis. It was hoped the data collected may be eligible objectivity.

Data analysis technique Data analysis technique used was based on content analysis, which is based on two schemes below

Skema-1
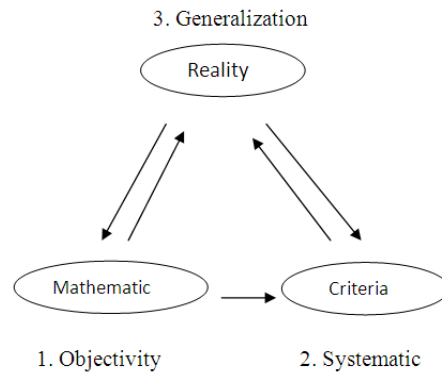
Rource : Soedjadi, 1986 : 19

The Explanation of Scheme 1 Objectivity is the analysis conducted to be lifted from the bottom of the formulated explicitly that allows two or more people achieve the same results.

Systematic is consistency in the use of assessment criteria. Generalization is the discovery should theoretically relevant (may be referred to the reality).

Scheme-2
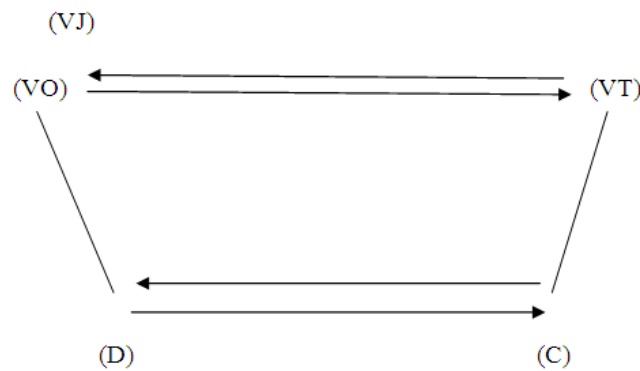
Resource: Soedjadi, 1986 : 20

VT is a value term / term (value), which is characteristic of mathematics that will be expiration its links with cultural values of Bugis.

VJ is a value of judgment / decision (value) s, shows the relationship between the characteristics of mathematics with cultural values of Bugis

D is a description (the description of VO)

C is the criterion (criteria, with respect to VT)

RESULTS AND DISCUSSION
1. Structure of Deductive -Axiomatic and Values Honesty
VO is a deductive structure-axiomatic VT is the value of honesty
D: The composition of the Deductive-aksiomatif provides boundaries that a procedure / declaration can be declared true or not. A definition is accepted as true if can be proved through previous statements, and so on up to the rank benr statement by itself without the need to prove.
C: Putting things in proportion and in resolving a problem, implemented in a fair and wise, is the essence of honesty.
VJ: Structure deductive-axiomatic related to the value of honesty.
In the structure of deductive-term axiomatic known axiom is a statement received by the base without the need of proof. Theorem used in these structures may be justified if it does not conflict with the axiom that has been set. For example in the Group set out in four axioms, then all the theorems and proofs is only true when using all four axioms as the initial agreement. Description coming out of the structure it is not stated correctly. This shows that the habit of using the deductive-axiomatic mindset can lead us to always say something that is true and put things in place. Thus mindset deductive-axiomatic is containing the value of honesty.

2. The universality and Proper Values
VO is the totality
VT is the value of decency
D: universality shows certain limitations proper thing to do.
C: Putting something in the limits agreed upon is the essence of tilapia propriety.
VJ: universality with regard to the value of decency.
The object of study of mathematics is an abstract object, so it is always used symbols to describe the object. The symbols used have no meaning before the specified scope of the conversation, which is often called the universe of discourse. Completing math problems without considering the universe of discourse can lead to errors in solving the problem. For example $1 + 1 = 10$ wrong if we take in base ten, but if we take on the basis of two, then the statement is true. Universality shows are certain limits to the things that are worth doing. Thus the universality contains the value decency and loyalty

3. Anti Contradictions and Values Tenacity
VO is anti contradiction
VT is the value of persistence
D: Mathematical is rejected contradictions, both in structure, agreements and procedures. The contradiction means that the justification of a statement at the same time does not justify it.
C: Justifying the statement at the same time something does not justify a betrayal of loyalty confidence, which means that no firm in the establishment.
VJ: Anti contradiction with regard to the value of persistence.
In mathematics both in structure and in the agreement and the procedure is not justified contradiction, it is stating a statement is false and also true as well. Anti

contradiction implies consistency in the rules or procedures that have been agreed upon. This consistency requires persistence and thoughtful consideration so as not to break the agreement. This means that the anti contradiction contains the value of persistence.

4. Agreements and Value of Loyalty
VO is a deal
VT is the value of loyalty
D: Mathematics includes agreements. The agreements provide boundaries that a procedure or statement can be declared true or not.
C: Complying with the agreement between the two parties, both government and the people as well as the agreement of the two kingdoms, as well as adherence to customary flourish in society, including the value of loyalty.
VJ: Agreements relating to the value of loyalty.
Mathematics imbued by agreements that provide boundaries in reducing any statement or conducts the operation. This can be attributed to complying with the obligations agreed arrangement between two or more parties, whether an agreement between two or more, the agreement between the government and its people as well as an agreement between the two governments (kingdoms).

CONCLUSIONS AND RECOMMENDATIONS
1. Conclusions
a.   Habitual use of deductive-axiomatic mindset can lead us to always say something that is true and put things in place. Thus the deductive-axiomatic mindset associated with the value of honesty.
b.   Universality shows are certain limits to the things that are worth doing. Thus related to the universality of values propriety.
c.   Anti contradiction implies consistency in the rules or procedures that have been agreed upon. The consistency of this i requires persistence and thoughtful consideration so as not to break the agreement. Thus the anti contradictions associated with the value of persistence.
d.   Math imbued by agreements that provide boundaries in reducing any statement or conduct the operation. This means that the agreements related to the value of loyalty.

2. Suggestions
a.   In order for the purpose of learning mathematics not only relies on cognitive purposes, then suggest the math teacher to always give you an idea of mathematical characteristics linkages with local cultural values.
b.   Because this study only limit ourselves to the Bugis culture, it is suggested to researchers in the field of mathematics education to be able to cooperate with researchers in the field of culture in assessing the relevance of mathematics to the values of a particular culture.

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