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International Journal of Trends in Mathematics Education Research Vol. 2, No. 2, April 2019, pp. 76-80 Available online at http://ijtmer.com E-ISSN : 2621-8488 RESEARCH ARTICLE Copyright@ 2019 Hariastuti et al, & Published by IIES Independent 76 From Culture to Classroom: Study Ethnomathematics in House of Using Banyuwangi Rachmaniah M. Hariastuti1, Mega T. Budiarto2, Manuharawati3 1 PGRI Banyuwangi University, Jl.

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International Journal of Trends in Mathematics Education Research, 2(2), 76-80. DOI: 10.33122/ijtmer.v2i2.60 1. INTRODUCTION. Study of Mathematics require to be planned better and maximal so that the complexity of mathematics objects can be accepted and comprehended by student. For that teacher require to comprehend and have interest to be able to make instructional design of mathematics matching with study supporter matters.

Study device or design instructional defined by Smith and Ragan (2005as tiructidesgn rsto he ytemati nd reflective process of translating principles of learning and instruction into plans for instructional materials activities, information resources, and evaluati". he tatemeicthat nstructidesgn an use easily if it is compiled systematically.

The instructional design that made by teacher require to pay attention matters like student characteristic, student basic knowledges, ability of teacher, tutoolseAcordingtDaanto(2 nstonal i is plan depicting study organization and procedure to reach one elementary interest which have been specified in standard fi l and form iyl". Kosh) aid "iuctial i resent tudy whic its development relate at one particular certain elementary interest in cc".

i hown t ng ional ido get ut f curriculum which have been determined in every education ladder. According to Akbar (2015), in general instructional design load subject identity, elementary of study execution (Core Competence, Basic Competence, attainment indicator, and study target), instruct study execution (strategy, method, model, and study activity), study tools (source and apliance learn), and also instruct evaluation (evaluation instrument and model).

Problems which is often met by that instructional design made by teacher not yet earned to accommodate requirement of study because it is l ctual s thetudentan'e eas cmpred y "Cextu Teaching – Learning is one of the teaching – learning concept that can help teacher to correlate taught items with student real world situation and also push student make relation among they are owned knowledge and applying iitheirlfe d" n, 014).Byusicntextual eac – learning teacher can build the understanding of student through its invention by making relation between things that happened in real life with knowledge concept to be studied. One of he n ii ulture. ultural sa of ii expanding and owned together by a group, endowed from generation to generon(a stuti, 2016).

cultural Endowment process oftentimes do not matching with the one wanted because the rising generation influenced by technological growth which is on some part do not along with cultural growth. So that needed a cultural integration form conducted activity by the rising generation, one of them is study. The integration can be realized in the form of device study of mathematics base on etnomatematika.

D'Ambrosio (2001) expressing that "ethnomathematics is a research program in the history and philosophy of mathematics, with pedagogical implications, focussing the arts and techniques (tics) of explaining, understanding and coping with (mathema) different socio-cultural environments (ethno)". The statement indicate that ethnomathematics represent a research which focusing at implication mathematics philosophy and hispecall educatihnomathc sn the domain of education can be used to uncover the ideas in a cultural activities or social groups to develop mathematics curri cfor, th, nd the p (Septianawati, et al, 2017).

So, the study of ethnomathematics can be explore to become interesting study

materials. When we said about ethnomathematics, its always related with the culture. Albanese & Perales (2015) sa ithat nomatc sa research program that focuses on the relationships between mathematics and ultur".It sc n th"mhematial oncbason ultual ARTICLE HISTORY Received: 15 March 2019 Revised: 28 March 2019 Accepted: 22 April 2019 ABSTRACT Banyuwangi is a town part of Java island, Indonesia. Cultural of Banyuwangi still run by original society named Using tribe. One of the culture which still defended by Using tribe is custom house.

The paper describe about house of Using Banyuwangi and instructional design that made from the result of explore activity. This research joining ethnography method and development research. While the data collecting done with observation method, interview, and documentation. As for study device developed with ADDIE model that limited at development step.

The result V K R Z H G _ W K D W _ K R X V H _ R I _ 8 V L Q J ¶ V _ F R Q V W U X F W L R Q _ V K R Z _ W K H _ H [L V W H Q F H _ R I _ P D W K H P D W L F V _ F R Q F H S W V _ V S H F L D O O \ _ J H R P H W U \ _ W Z R _ dimension, pythagoras, and similarity. This result used to developed the instructional design based on contextual teaching-learning. Selected items is pythagoras.

The instructional design will be implementing at research hereinafter. This is an open access article under the CC – BY-SA license. KEYWORDS House of Using; Ethnomathematics; Instructional Design; Contextual Teaching-Learning; Hariastuti et al International Journal of Trends in Mathematics Education Research, Vol. 2, No. 2, April 2019, pp.

76-80 77 perspectives allow students to not only reflect and appreciate their own cultur e alsthe ulture nd diti others remo2015 The opinion instruct us that culture can become mathematics base study through mathematics concepts in so many culture. Pai 11)sthat"etthemc, a rcfi es advantage by rejecting any dogmatic position and being aware of cconsmpliated i theirdc".

Shnomac application in study have to become bridge between mathematics object which is abstract. As according to opinion W eldeana(2 he iatin of tudentscbacground n tision n and ethnomathematics in particular provides bridges between school mathemac s' ry ciwaysthahelb oci and individ ualbarrirsFthrere be aid on paof ethnomathematics which can be applied in study.

Applying of Ethnomathematics in study clarified by Barta & Shockey (2006) as "ethnomathematics in the elementary classroom is where the teacher and the students

value cultures, and cultures are linked to curriculum". This matter strenghtened by opinion Rosa & Orey (2011) that “tintatiof ethnthematial pecvithe col mathemac urriulum ps devs’ intellectual, social, emotional, and political learning by using their own unique cultural referents to mparttheir nedgsil atti”.Topi ndiate at culture earn incircuit with curriculum and so that the curriculum can be design based on ethnomathematics.

“Crriulum resenta etplanandarementcertt, content, and lesson materials and also the way is used as guidance manageof tudy vty rethe et ertai on (Depdiknas, 2013). Specificly curriculum have to be developed as according to characteristic of each study. Curriculum development conducted in the form of instructional design. Instructional design which is have cultural bases repran pprh f ontis tudy of contextual load five strategy, that is: relating, experiencing, applying, cooperating, and transri” n, 14).

he t ndiate at en tudy te have to related with real life, student experience of study activity which is related to life of vinicity, existence of process applying items which have been studied by student in finishing real life problem, existence of activity form between student in course of transfer of knowledge, and existence of transfer of knowledge from source and teacher to student through existing things around student.

“Tre are sn cnent oontetual teaching - learning, that is: constructivism, inkuiri, questioning, community learning, modelling, reflon, andnti assmentpriono, 2009). Each of component inseparable and related. Strategy and component of contextual teaching – learning earn integrated with cultural concepts. Various cultural of Indonesia can become interesting materials study of mathematics because loading immeasurable mathematics concepts.

It is supported by Bishop opinion that “cre l nflivdual aviand e role ivdual undersndirowtnclng stud of mathemc” (Tandillng, 2013 Indonesia represent a state with cultural variety. One of the town in Indonesia which still maintain local culture is Banyuwangi. Ethnical society of Banyuwangi, we can called Using tribe, owning unique custom house form.

T ustom herein efered “he Usng“Hoo Using represent house that own simple space appearance and identik with cei(Yulik& i2014). he on to ocisat Usng oci zng arysetyc“Hoof isl defended in some area in Banyuwangi which is also referred by Using community center like Countryside Kemiren, District of Glagah and Countsde Alyscmpiprianto,). Figure 1. House of Using Banyuwangi in Kemiren House of Using architecture differentiated pursuant to its roof form.

There are three kinds of roof, that is tikel balung, cerocogan, and baresan (Wibowo,

2015). Tikel balung represent elementary form house of Using which consist of four roof area, baresan represent elementary house which consist of trihedron roof, while cerocogan elementary house which consist of two roof area. Figure 2. Form Roof House of Using (Nur, dkk.,

2010) House of Using construction become piquancy part of study mathematics. For that require to identified mathematics concepts in house of Using construction, hereinafter integrated in instructional design of contextual mathematics. 2. RESEARCH METHOD This research represent development research base on house of Using exploration. The explore done by observation, interview, and documentation.

Result of research will be elaborated descriptively pursuant to indicator study of mathematics contextual teaching - learning which is relevant to be developed to, base on house of Using. The indicator can be elaborated as follows. 1. Grouping: subdividing of responder in heterogeneous group 2. Modelling: concentration of attention, motivation, and forwarding of target of study 3.

Questioning: exploration process, guiding, leading, giving points, instructing, developing, evaluation, inkuiri, and generalizing 4. Community learning: activity that learn entangling a certain social group 5. Inquiry: activity that identify, investigation of, hypothesis, konjektur, generalizing, and invention 6.

Constructivism: develop understanding alone, construction conception order, and also analyse and sintesis 7. Authentic assessment: assessment during and after study process 8. Reflection: reflect to conducted study process Adaptation from Lestari & Yudhanegara (2015) Development instructional design conducted with ADDIE model which limited at development step. Research path executed as according to diagram following.

 Figure 3. Path Research 3. RESULT AND DISCUSSION House of Using represent made house in the form of unloading tide. Federating component-component from home do not use other glue or nail. Figure 4. Roof and Prop Component from House of Using All prepared component hereinafter will be united in place which have been determined as house of Using location.

Elementary framework from house of Using owning criteria pursuant to compatibility and briskness. Figure 5. Component House of Using Long wood above house referred as suwunan. Two wood standing named ander. Wood which forming trilateral hypotenusa referred as ampik-ampik. Wood below ander named lambang and below lambang there are short jait that is connective front soko to behind soko.

Connective wood between two lambang referred as penglari and below penglari there are long jait that is connective left soko and right soko. Back frontage tikel house have supported roof by wood called soko tepas. Soko tepas have smaller surface than soko inside house and support roof wood called gelandar. Determination about footage and wide of wood that used base on according to and compatibility.

The example: for the making of a house of Using with ground size measure 13 m × 13 m, required soko with length 4 m and surface size measure 26 cm × 26 cm, penglari made as long as 13 m, lambang made by wood broadly surface 28 cm × 26 cm. If ground size measure smaller, then requirement of wood also correspond to condition based on according to and compatibility.

The example: for the making house of Using with size 6 m × 10 m, required soko 16 cm × 16 cm, penglari determined broadly surface 16 cm × 18 cm, lambang determined broadly surface 18 cm × 16 cm, short jait broadly surface 16 cm × 14 cm, ander determined broadly surface 14 cm × 12 cm, suwunan determined broadly surface 12 cm × 12 cm, etc.

Determination of ander represent a simple ethnomathematics process but cannot be explained by worker making the house of Using framework algorithmly mathematics. Ander represent wood which its position is vertical with lambang. High determination of ander conducted pursuant to ampik-ampik length (wood which forming trilateral side at]roof). Figure 6.

Ander Ampik-ampik length can be determined pursuant to critical length to be weared. If pass to be used to have length 26 cm and used by eleven pass in each joint ampik-ampik hence ampik-ampik length is 286 cm. Figure 7. Ander and Ampik-ampik Position Both the joint brought into contact upper ampik-ampik so that tip of under as according to lambang length which have been made.

Its become guidance to determine ander length, that is vertical wood from meeting of upper ampik-ampik to lambang. Houseof ’s strn w ce mathematics concepts specially geometry two dimension, pythagoras, and similarity. One of the instructional design of mathematics contextual teaching – learning which can be made is pythagoras in junior high school.

The core competence is about “comehdingpythortor ou pliancean investign iousnube tten”. e sic competence is indingpythortheemwritingpythortheemfort side of a trilateral; and counting right triangle side length if known oth side”. The competence can be break

down in to study target which is expected that student can: 1. Explaining pythagoras theorem through given physic appliance; 2.

Determining pythagoras theorem to a right triangle knew by its sides; 3. Counting right triangle side length if known other side length; 4. Determining and explaining pythagoras theorem in Using custom house construction; 5. Hariastuti et al International Journal of Trends in Mathematics Education Research, Vol. 2, No. 2, April 2019, pp.

76-80 79 Determining required wood length for the ampik-ampik, lambang, and ander from house of Using. The study activity is starting with Teacher explain study process which student will be given spread sheet to be done by teaming, later discuse to finishing it. Teacher divide student in heterogeneous group and give reading materials about House of Using Bangi'sconuction nshorliho Ut each group.

Teacher present containing video process from house of Using and introduce study guest speaker in video, that is house of Using maker. The core activity consisting of observing, questioning, experimenting, associating, and communicating. Observing activity load process: (1) student pay attention to video then reading materials and perceive given by house of Using replica; and (2) teacher ask student check off reading materials content by means of house of Using replica.

Questioning activity load process: (1) student asked to make question concerning trilateral in house of Usingconuctionwritindoqo placewhich ve been provided at spread sheet; (2) teacher and student chosen question mathcing with indicator to be reached, like: - paticularshaes omho Usingconuctwhich in form of is trilateral - how to determine ampik-ampik wood length - how to determine ander wood length - which shares can be determined beforehand among lamngth,dendpik -ampik - how to determine ander length if known ampik-ampik length and lambang - how to determine ampik-ampik length if known ander length and lambang - hoto terinelamnglengif wn de th d ampik-ampik, etc.

Experimenting activity load process: (1) student look for information concerning question which have been made in reading mranho Usingrlica habe ; 2) student do pythagoras items in spread sheet; (3) student make ho Usingrf strat differt than reading materials or replica which is in spread sheet; (4) after studt aw w useof sing's ooconuctionstudt demlengof ch ouof 's ooconuctio component.

Associating activity load process: (1) student given pythagoras puzzle and then ask to determine pythagoras theorem through that puzzle and write down the result in spread sheet; (2) student asked to apply pythagoras theorem which have obtained of to

determine anrleng pi - aman ba hose Urf construction. While the communicating activity load process: (1) delegating student from every group to submit result of its discussion in front of class and asked other group to give coments; (2) teacher give reinforcement about forwarding of result of discussion from student; (3) every group asked to collect result of its activity.

In the end of the study process, student asked to make conclusion from study which have been done by showing student at random and then Teacher give individual quiz about pythagoras theorem in the form of problem solving to student. Instructional design of mathematics contextual teaching-learning which have been made, to be selected for the items of pythagoras in Junior High School.

Its compiled pursuant to indicator approach of contextual teaching - learning by peeping out grouping component (student working in team), modelling (concentration of student attention at reading materials and house of Using replica), questioning (asking process in order to axplore ability of student in comprehending study items), inquiry (invention process of pythagoras theorem through house of Using replica), constructivism (develop understanding process of student), authentic assesment (assessment process during and after study), and also reflection (withdrawal conclusion process through reflection study).

As for community learning indicator not yet earned is fully planned to remember limited study time. Its solution given by video of making process house of Using with special worker guest speaker, the maker. 4. CONCLUSION This research represent union between exploration research base on ethnography which is its result used as material to develop instructional design of mathematics contextual teaching – learning. The result not yet been done trying to practice in classroom. Its also not been validating by expert yet.

But its fitt in with Adam (2004:65) said that there is great potential to develop an ethnomathematical curriculum model so that mathematics will be more meaningful to the student. Its also according to Orey & Rosa (2006) that traditional mathematics education aims at transmitting a certain amount of content and uses it in artificial situations presented as problems that artificially formulated, in such a way that they can only help memorization skills, at best. meaningful to the students.

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