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THE USE OF SONGS FOR LEARNING INTEGRATED LITERACY

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Abstract: Inspired from the STEM educational reform, the teaching of two subjects (mathematics and language) integratedly has inspired the researchers to conduct an activity to engage the young learners. Song is taken into consideration as it offers exciting learning experience, and that song lyrics is beneficial to carry information, elicit memory and activate thought and ideas. Rooted from the Vigotsky's ZPD, an intervention to the learning was initiated to arouse students' enthusiasm. The result indicated that though some students were still shy, majority students showed eagerness to learn.

Key words: song; learning integrated literacy

INRODUCTION

Integrated Literacy: an Overview

Literacy in language, mathematics, and science are interrelated. Kelley & Knowles (2016) in their study mentioned that due to the need of improvement, STEM education is driven by environmental and social impacts of the twenty first century. Although there is massive STEM educational reformin the last two decades, as many schools concern on the integrative implementation, there is a call of struggle in making connections across the STEM disciplines. Fantuzzo, Gadsden, McDermott (2011) introduced programs to produce significant growth rates in literacy onthe need to have integration in comprehensive mathematics, language, and literacy skills. The program called EPIC or the Developmental Learning Materials Early Childhood Express covers curricula including instruction in mathematics, language, literacy, and approaches to learning skills; formative assessment; and a learning community for teachers. Prochazkova (2013) through his "Mathematics for Language, Language for Mathematics" revealed that there is mutual influences and benefits of Mathematics and language in Content and Language Integrated Learning (CLIL), encourages teachers to apply it for learning; Mulwa (2014) in "The Role of the Language of Mathematics in Students' Understanding of Number Concepts in Eldoret Municipality, Kenya" revealed English song helps students in students' understanding in Mathematics; Trinick et all (2016) in "More than Counting Beats: Connecting Music and Mathematics in the Primary Classroom" In their research they examined the thinking processes involved in music and mathematics learning, there are more profound connections between the two domains that could enhance mathematical learning, in this case the combination of music and mathematics and the analogous concept development may arise equates to more than a sum of the constituent parts. The same research of Fullan and Campbell (2006) revealed that there is a need for teachers to develop a deep knowledge of literacy and mathematics pedagogy in order to understand and develop effective work when

dealing to various students; that students become literate as they develop the knowledge, skills and dispositions to interpret and use language confidently for learning and communicating in and out of school and for participating effectively in society. Literacy involves students in listening to, reading, viewing, speaking, writing and creating oral, print, visual and digital texts, and using and modifying language for different purposes in a range of contexts.

The current study aims to exposean integrated study – integrating the two subjects in one package: the use of English counting song to learn the two: English and Mathematics (numeracy). The two literacies are important as through the integration of two language literacy, students at the same time develop mathematics skills as well as the as they learn vocabulary related to number, space, measurement and mathematical concepts and processes. In the young learners' basic level, students learn the principle of numeracy: count, subtraction and addition.Students use this language and mathematical literacy to understand and interpret problems and instructions which have special language characteristics of mathematics. This knowledge will allow students to use their literacy to ask and answer questions, solve mathematical problems and to debate, develop and explain solutions (Harper & Jong: 2004).

Considering that the focus of English songs is broad topic of Teaching English for Young Learners therefore our theme was related to two themes: English and Numeracy. Through observations to series of learning activity of young learners in 2nd grade the study aims to answer the questons on how teacher presents the material and the problems hampering the process.

Theory Underpinning the Study

The idea of using song was based on the early childhood literacy and numeracy of Australian governments: Building Good Practice. As the theoretical basis and direction of operations, Vigotsky's fundamental theory of the ZPD and Scaffolding was used by two methods, adult supervision and parental regulation. All types of events have been registered and used as information to resolve these research issues. Vigotsky zone Proximal underground development in children at the cognitive level. The capacity of children is assumed to be impaired by the solution of external and internal issues, including "parent supervision" and more competent people in the provision of childcare and support. Proximal development zone (PDZ) is what the child can do independently without help (the ability the child can demonstrate), and what he can do with or after another person's careful guidance (teacher, parent, peer). Scaffolding is a specific type of help that the teacher offers the child in the SPD, characterized by joint participation in, negotiations and involvement in an activity, along with the monitoring and maximisation of child participation by carefully modulating the type of assistance provided and withdrawing the amount of adult aid carefully provided to keep the child in the ZPD (Winsler, 2003).

Song to Support Integrated Literacy

Teachers and students who practice not only need to math, but to memorize both without the skills to answer a comprehensive question separately. Mathematics is also required for language learning. This is in line with Halliday's (1988) who found out that learning language means learning to say. Mathematics and language in this context means that the language of mathematics involves learning how to use a language that is more than just understanding and responding to words in solitary trust, and how to render and express the same mathematical meanings (Mulwa, 2014). Language exists along with math, as it takes more than words and symbols to be conveyed if a person learns Mathematics. Voicing math is a compatible language for the person.

In relation to song, research on song and students' engagement has received large attention among scholars. Song has been reported to be not only an efficient learning tool, but also an exciting learning experience for participants and that song lyrics can be used to carry information, music can elicit memories, and melodies can activate recall of thoughts and ideas (Jensen, 2000; Jourdain, 1997; Governor, Hall & Jackson (2013). Their memories and melodies activate thoughts and ideas. In some study, such as Governor Hall & Jackson (2013), the value of incorporating song in related subjects has been expressed in finding that integrating the song into other topics increases and accelerates learners ' comprehension.These studies inform that the use of song helps to better understand concepts and the comprehension of students through better content-based speech, presenting students with alternative examples and concepts and helping them to build concepts.

Guidelines in Classroom Implementation

The process of intervention here are not solely based on the criteria of introduction, implementation, and evaluation, but following the concepts of Action Research of Kemmis and Taggard (1988). The difference here as it does not solely on cycles only but it is the modification of the work of Stringer, Christensen & Baldwin (2010) as our research foundation; that the approach to action research as applied to teaching is based on a simple LOOK > THINK > ACT heuristic that frames both the instructional work of the teacher and student learning activities. The three components act as a compass or map that guides teachers through the systematic steps of a process of inquiry. There are three stages covering Observe – Reflect – Think – Act - Reflect, Act – Observe – Reflect – Think – Act – Reflect repeated orderly.

FINDINGS AND DISCUSSION

Following series of stages, the intervention aims on how to bring solution for students. Based on Vigitsky's Zone of Proximal Development, teacher along with co-teachers helped students through some activities along to the use of songs.

Among the activities, one of them is through Total Physical Response (TPR). In this case during listening the video, some gestures were taken into granted, for example in explaining numbers, the co-teachers role model to the

students, one, to, three, etc by using fingers. Students did not only memorize the numbers, but they resulted in physical respond whenever they hear the numbers. Total Physical Response (TPR) is an understanding approach that students will respond to teacher instruction while students react to it through physical action (Savic, 2014).This listening and responding with action serves to understand meaning in the target language. The potential of TPR is that it enables young learners develop language skills and knowledge. It responds favourably to the children's need to be physically active, to learn language in a meaningful communicative contexts and stress-free atmosphere (Savic, 2014). The reflection from the process was that the young learners were anthusistically respond if the media of learning answers their needs. This is as suggested by Thissesn (2019) that emotion comes, after that comes cognition. It emanates that positive emotions tend to help people remember more complex things. Observed through the picture, although not all students reacted eagerly, most of the students enthusiastically responded to co-teacher's instruction when she asked them "who can list the number orderly". This was the reflection from a previous problem where teacher only listed several vocabularies traditionally in previous meeting. The teacher in the previous meeting helped these children by writing several vocabularies into the board. She helped them to pronounce the word one by one and repeated by the children. However, there was problem in the process. The reflection was that students were not all motivated in learning the target of learning. Baldi mentioned that "I don't know how to read," hence this became our decision to apply another act in the following stages. The focus was on the use of media learning to accompany the process.

The reflection of previous meetings was that as English is not taught as main subjects, students are not accustomed in it. Some were silent when they were taught to learn some vocabularies, hence the co-teachers must equip themselves with some other alternatives whenever the plan did not work well. Most of the activities cover were based on the TPR, in which the teacher or co-teachers gave command, introduced graduallt and repeated until internalised by the class. In these series of project, we scaffold the young learners based on a sociocultural approach to literacy. Young children in this context are meaning-makers through their active participation in everyday literacy practices. In this term, teachers should also consider how to make sense of children's drawings and other non-verbal modes embedded in literacy practices. Hence, this became our idea to engage them in drawing, as a reflective aspect whether they understood the content or any instruction or not.

Another activity was the use of scaffolding process through the use of drawing along withthe listening to the song. During the action the teacher gave example for the young learners on how to do drawing. By this she motivated them to be confident, to draw any character they like from the song. "You need to be confident" became magic words to motivate the students although the The theory was based on Clays Theory of Emergent Literacy (1975) in addition to ZPD from Vigotsky. The focus has been on the role of supportive social contexts to promote young children's literacy development from newborns to pre-schoolers before formal schooling begins. She argued that traditional literacy approaches (e.g.

readability), lacked continuity in the development of literacy among children (1) between early literacy behavior (e.g. reading using books, graphics) and conventional literacy skills and (2) between reading and writing.According to Clay, development in literacy begins before children begin to receive formal primary education and, instead of sequentially, young kids develop their reading and writing simultaneously and interrelatedly. This concept of new forms of meditation by means of semithetical tools can be understood as transformation of children's development through social interaction with important persons (Clay & Cazden, 1990).The theory of human development and learning by Vygotsky shows that literacy is a social process through which the fundamental, given or bio-determined processes of learners can be traced compared to many previous literacy studies, with discreet cognitive skills as identified through particular psychological structures that are increasing and changing during child development.

In the following project, we engaged these young learners in TPR based learning process. Some young learners were invited to join the puppet activity, combining two kinds of literacy: language and numeracy. In this process, the co-teacher commanded the young learners to hold puppets they like. She instructed based on the song. In “Five little ducks went swimming, only four went home” for example the students pointed how many ducks left. At first the students did not catch the instruction, but she patiently translate into Bahasa Indonesia. She practiced commands without performing the actions, and the students responded, demonstrated their understanding, and practiced together. After checking their understanding, the co-teacher gave the first command (*show the ducks)* to the class, and after the students showed their comprehension, the teacher commanded with series of instructions. In this process, the co-teacher introduced certain vocabularies to the students. Translation was not avoided to help the learners.

Some following instructions used by co-teacher in building communications with the students to check the numeracy vocabulary scaffolding and logical thinking were: “How many ducks?”, “show the ducks left”, “point the ducks”, “show your friends the ducks, please”, etc. THis is in line with Bechler (2019) that most researchers agree that explicit vocabulary instruction is an essential piece in addressing low achievement on mathematics assessments. Here we conducted the project based on the belief that numeracy is not for memorization, but there should be well understanding behind it. Students would not only know numbers, but they would be able to relate why the song was “five ducks”, “four ducks”, “three ducks”, etc.

Sturgeon’s research in 2018 supported the idea that the concern of combining the two has called attention from the background that certain students often get distraction in memorizing or understanding mathematis. Hence this can be alleviated through interdisciplinary instruction and the benefits of pairing math and literacy abound. When merged, lessons incorporating both subjects spark interest. They are memorable and serve as a refreshing change of pace that involve children in innovative ways, thereby potentially enhancing learning as a result of increased engagement. Using literacy to present and review mathematical terminology and concepts has the added bonus of increasing the accessibility for

verbal students (and teachers) who don't consider themselves 'mathematically-minded'.In addition to aiding instruction, literacy can also help teachers assess learning. Writing about math necessitates reflection, requiring students to organize and consolidate their understanding. As such, it can serve as a powerful assessment, capable of discerning between rote memorization and true comprehension. In Sturgeon's experience teaching prekindergarten through grade one mathematics and language arts, poetry was reported effectively highlight the complementary nature of literature and math and can be an efficient teaching aid capable of successfully maintaining the integrity of both subjects. It was reported that she was able to adapt the previous lesson into a review of subtraction by working with her daughter to create a 10-line poem beginning with 10 words and ending with 1. This was challenging for her and did require more assistance than the previous lesson, not necessarily owing to challenging math, but because it is difficult to formulate thoughts that are progressively restricted. This proved that mathematics is inside any text, depending on the teacher's creativity. In sum, numeracy is along with literacy.

The children were given options to execute the next phase: puppet creation. They might choose to create it from the printed version, or their previous work. We prepared the tools: scissor, glue, straw, paper and stick. This was purposed to provide enjoyable learning. The pre-school education curriculum is play-based because learning through play is fundamental to young children in education. It helps them develop the necessary skills in life. For example, puppets provide an essential link between learning and play which makes them wonderful teaching tools for at home, pre-school, classroom and in the wider community. Puppetry is a teaching aid, rather than a teaching method. The use of puppets should be coordinated with the curriculum and the syllabus to work well for the children language learning. There are many benefits of using puppets in the classroom. Puppets are an aspect of our history and everyday lives. They are valuable educational tools which can be used both for adult and young learners. As puppetry is primarily a visual art, it can communicate to people who are not literate or who do not understand spoken lan-guage and it has been used in this way for thousands of years. According to Jean Piaget's theory, puppets play helps young children develop creative and cognitive skills by forcing them to use their imagination. They make up the roles, the rules, the situations, and the solutions. It is through imaginative play that children come to un-derstand the differences between fantasy and reality. The real world becomes more real to children who have opportunities to pretend. Firstly, the puppets can be used as a teaching tool in language classrooms(Çağanağa & Kalmıs, 2015). Puppets are not only entertaining but also captivating. Young children believe and relate to the puppets. In this, after creating the puppets representing ducks, Indian, monkey, the children continued to the use of it in building logic in mathematics. The co-teacher instructed "show me the ducks left now" and the children would point the numbers. By learning through this method children would know for example that number 1 is the result of 5 minus 4, not by memorizing only. This entertaining learning is believed able to bring positive learning impact to children as in the level of young learners, mathematical activities need to be embedded in everyday

situations (Gross and Rossbach2011) or that early learning needs to be based on play, even though the understanding of play itself varies (Gasteiger2015). Furthermore, teachers might use a training programme for mathematics, to ensure that mathematical competencies are explicitly fostered. Ever since Friedrich Fröbel (1862) invented the kindergarten, mathematics has been a part of early childhood pedagogy. Fröbel was aware of the educational potential in play and games and developed his 'Spielgaben' (German = play gifts, in English called Froebel Gifts) – toys that embody mathematical ideas such as symmetry, shape, and number (Fröbel and Lilley 1967; von Marenholtz-Bülow1887). He knew that mathematics is an important part of every child's daily life which helps them to understand the world around them. Moreover, in the twentieth century, working with mathematics in early childhood was mostly play based and rather implicit, and learning occurred incidentally. This is in line with what we offered to the integrated lesson.

An activity is done through the use of puppet. The co-teacher invited the children to do sing stop motion games in Little Ducks Song. They turned around by listening to her instruction. For instance "Five little ducks went swimming one day, over the hills and far away, ….. but only four little ducks came back." By this, one student would stop and moved from the circle. This gave them information that 5-1 is equal to four. The co-teacher helped them by giving the hand signal indicating 4. The combination of puppet was to let children experienced the imagination process of becaming the character of duck.

Therefore they respond to the children's individual learning visually, aurally and kinesthetically. Peyton adds that puppets are beneficial for the students who learn the language kinesthetically. Moreover, they are teaching tools, which make lessons more fun than the tra-ditional classrooms. They make the lessons more active and lively and bring fun not only for children but also for the teachers who use puppets in their classrooms. Mishina and Wallace indicate that the puppets destroy the barriers between the teachers and students in the classroom. The teachers who try to keep themselves with a strict distance in the classroom become friendlier to the children with the help of puppets. This entertaining atmosphere in the classroom, which puppets create, makes the teacher to act more candid to the students. More-over the teacher's strict looking in the classroom is diminished. By this way, the barriers between the teacher and the students can be broken down and easier communication in the classroom is achieved via puppets. Then, both the teacher and the students in the classroom have fun in their learning and teaching processes.

While the co-teacher motivated one of the young learners to be confident. Integrated mathematics and literacy is aimed in building learner's self-confidence as if the child experience negative learning athmospeher then it would impact on his/her keen to the subject in the future. The fact has shown that nowadays, early childhood mathematics is in the international spotlight. Partly this is the result of a myriad of studies that seem to show that early childhood mathematics achievement is a strong predictor of success or otherwise in future school mathematics, other school subjects and life itself (Perry& Dockett, 2008).

The introduction of vocabulary tailored to the context is very crucial as integrative vocabulary, that is the integration of word-recognition vocabulary and word-meaning vocabulary, significantly effects not only an individual's reading achievement but also his or her ability to fully participate in both social and academic learning routines. There are many facts stating that many scholars put langguage and Mathematics in different priority, some considerEnglish subject as their least priority in academic because most of them are inclined to Sciences and Mathematics since their priority degree courses are along engineering, arts, and sciences. A research undergone by Frutas (2019) suggested that the scholars gained holistic development of their academic capabilities because they are not only good in their subjects of interest but they are also good in language. THis means that there should be no dichotomy between the two literacy: mathematics and language. A support of Genlott & Gronlund (2016) also supported the fact that literacy and mathematics are necessary skills that for different reasons unfortunately not everybody acquires sufficiently. Through a continuous social interaction, drawn in the context of socio-cultural theory enable students to learn both literacy and mathematics thus they were able to interact with peers and teacher.

Tucker (2011) mentioned that learning to count proficiently involves the acquisition of skills through involvement in key experiences using the language of number and comparison. In this case, children need tolearn number names in order, count objects by touching them, understand that the last number they say is the total number of objects in the group, transfer these skills effectively from one context to the next, and move competently from counting concrete objects to counting abstractly. Tucker stated that professionals also face frequent questions from preschool and primary teachers about effective mathematics curriculum and methodology for the younger set. Relevant methods that enable to encourage a deep and healthy interest in numeracy among very young children is highly needed to arouse their attention. Tucker (2011) revealed a fact that parents with formal approach tend to push children with memorization which will end children in trauma feeling as they don't encourage mathematical thinking. As a result, it is teachers'responsibility to guide parents to see that mathematics can be learned through fun, creative and interactive play. To avoid negative beliefs, such as the one portraying mathematics as difficult and boring, young children must experience (and adults mustfacilitate) positivity and enjoyment around instruction. Tucker offers effective suggestions that play potentially contributes significantly to the transformation from tedious to enjoyable. The first chapter of the book outlines why play and creativity are important in early education, that mathematics instruction can be organised around play-based activities. Tucker explained counting skills and the use of number lines can be provided by a variety of creative designs; as well as the use of many patterns that can be used in mathematics: mathematics can occur in art, the natural world, music and poetry and through information communications technology (ICT).

The use of realia and game in learning math. The co-teacher instructed the children to do counting based on the song. It was not only 1 to 10, but the number was expanded to 15. Children were introduced to know the logic of mathematics

in numerical order by learning it through song. Thus, they knew numbers as well as the English vocabulary also. Based on the interview these children were happy to learn in the different context. They play in the same time, they also learn without any threateningfeel. This is explained by Tucker (2011) that it is very important to help develop a positive 'can do' attitude that encourages ratherthan discourages children. The play-based activities link mathematics with the dailylife and potentially render mathematics exciting for young people.

CONCLUSION AND SUGGESTION

The first reflection was that considering English is not taught in Elementary level, but introduced in class 5 and 6 through Modules and English structure; then the certain songs reflected the target were used. The second reflection was that teacher's help in introducing certain vocabulary in building literacy of English language had not received positive respond from certain students as they preferred to the use of visual aid. This was resulted that the use of projectors in the school was very minimum, hence the intervention of learning was responded enthusiastically. The third reflection was that song was used, however the teacher and co-teachers implemented the application heterogeneously to eliminate children's boredom. Including this were the use of TPR, game, realia, and some other methods of learning. To sum up, song has facilitated the learning of the two literacies. However, in relation to the blocks of the learning and how to overcome itone reflection was from the availability of internet connection in the school and projector. There were two facts: as students' boredom in learning we had to anticipate with the ready songs to switch. The co teachers and teacher might store the videos, however, three months duration to learn needed enormous plan to execute. Video from mobile phone internet connection through the use of personal gadget with personal data support was a must in this learning context. If not, the teacher should be equipped with downloaded video based on the previous reflection in the classroom.

Dealing with the availability of projector, as it is an expensive property, we had to provide independent learning media. A projector was a must especially when the co teachers and teacher wanted to introduce certain vocabulary and the concept of mathematics logic.

Another problems hampering werestudents'motivation and teacher's awareness to be a long life learners. Dealing with students' motivation to practice English, some were still shy. When some students had initiated to practice English, some others bullied them as English is regarded as "non native language" of Indonesian society. Shyness was the major problem dominating the students'other problem. Co teachers'effort to motivate them was an initiation to nurture the confidence. The shyness was affected also by the less motivating learning atmosphere in the classroom as in Indonesian's context, making mistakes is also a shameful thing and students tended to avoid making mistakes.

Another reflection was from teacher's background in which most of them are not from English Department. Government's policy has shifted to the elimination of English subjects as students were not expected to lose their identity by learning foreign language and forget their origin. This triggered English as an

unimportant subject in schools. Another factor was that for schools providing English, the system of learning was solely in accomplishing the course book or module.

The last problem to consider was the range of songs options. Certain songs dealing to substraction and addition were available but there were limited numbers of songs as the integration of two literacies, especially dealing with multiply and divide fractions.

REFERENCES

Campbell, C. and Fullan, M. (2006). Unlocking potential for learning: Effective district-wide strategies to raise student achievement in literacy and numeracy—Project report. In C. New York, NY: McKinsey & Company.

Ernest T. Stringer, Lois McFadyen Christensen, Shelia C. Baldwin (2010) Integrating Teaching, Learning, and Action Research: Enhancing Instruction in the K-12 Classroom. New York: Pearson Education, Inc.

Fantuzzo, John W; Gadsden, Vivian L; and McDermott, Paul A (2011) An Integrated Curriculum to Improve Mathematics, Language, and Literacy for Head Start Children. American Educational Research Journal 48(3):763-793

Governor, Hall & Jackson (2013). Teaching Primary Science Constructively. Belmont, California: Wardsworth Cegage Learning.

Harper & Jong (2004). Best Practices in ELL Instruction. New York: The Guilford Press.

Mulwa, C., Lawless, S., Sharp, M., & Wade, V. (2014). The Evaluation of Adaptive Technology-Enhanched Learning Systems. Paper presented in the World Conference on E-Learning on Corporate Government, Healthcare and Education. Montreal, Quebec Canada.

Prochazkova (2013). Safety and Reliability: Methodology and Applications. Slovenia: CRS Press.

Todd, Kelley and Geoff, Knowles (2016). A conceptual framework for integrated STEM *education*. *International Journal of STEM Education.*3(16), 134-149

Winsler, (2003). Child and Adolescent Development: An Integrated Approach. San Francisco State University.