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Reading Text for School Literacy Movement in Mathematics Learning

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Abstract

This article discusses the results of the reading text development on the small group stage for reading activities on the school literacy movements in mathematics learning with the futsal game context, which is currently being enjoyed by the people, especially among students. This research used a design research method whose type is development studies. The evaluation flow at the prototyping stage uses the formative study flow with the stages of self-evaluation, expert review and one-to-one, small group, and field test. The research subjects were 7th-grade students in one of the junior high schools in Kabupaten Karawang. Documentation, questionnaires, and interviews are ways to collect data in this study. This study has produced the reading texts that are used for the school literacy movement program with the futsal context on practical mathematics learning.

Keywords: School Literacy Movements, Futsal, Design Research

Abstrak

Artikel ini membahas hasil penelitian pengembangan pada fase small grup dari teks bacaan untuk kegiatan membaca pada program gerakan literasi sekolah tahap pembelajaran yaitu pada pembelajaran matematika dengan menggunakan konteks futsal yang saat ini sedang digemari diseluruh kalangan khususnya kalangan pelajar. Penelitian ini merupakan penelitian pengembangan dengan metode *design research* yang jenisnya adalah *development studies*. Alur evaluasi pada tahap *prototyping* menggunakan alur *formative study* dengan tahapan *self-evaluation*, *expert review*, *one-to-one*, *small group*, dan *field test*. Subjek penelitian adalah siswa kelas VII di salah satu SMP di Kabupaten Karawang. Dokumentasi, angket dan wawancara merupakan cara untuk pengumpulan data pada penelitian ini. Penelitian ini telah menghasilkan teks bacaan yang digunakan untuk program gerakan literasi sekolah dengan konteks futsal pada pembelajaran matematika yang praktis.

Kata kunci: Gerakan Literasi Sekolah, Futsal, Desain Riset

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INTRODUCTION

The school literacy movement is motivated by the lack of satisfactory literacy achievements from the results of students representing Indonesia in several international comparative studies, both Trends in International Mathematics and Science Study (TIMMS) and the Program for International Student Assessment (PISA). School Literacy Movement is a movement to develop students' personality or character by enculturating the school literacy ecosystem so that students become lifelong learners (MOEC, 2018). The habituation stage, the developmental stage, and the learning stage are stages in the school literacy movement. Reading activities carried out at each stage use 15 minutes following Permendikbud No. 23 Tahun 2015.

The implementation of the school literacy movement has not been carried out as a whole because what is done at school is the habituation stage whose aim is to increase students' interest in

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reading while enhancing students' ability to understand the reading text, and increasing confidence as a good reader, and developing the use of various reading sources (Retnaningdyah, Laksono, Mujiyem, Setyorini, Sulastri, & Hidayati, 2016). In the implementation of the habituation phase, students read books that they bring from home, or they borrow from the library. Books that are read are usually novels, storybooks, or other non-learning books. After students read, they are asked to make a synopsis or retell the text they read. At the development and learning stages, the reading text presented contains contexts that are familiar to students and have links with mathematical material. For the implementation of the development and learning stages, especially in mathematics, it has not yet been carried out due to difficulties in choosing reading texts related to mathematical material.

The school literacy movement program is an effort to overcome the unsatisfactory literacy achievements, and there needs to be an understanding of literacy not only being able to read and write but also being able to use the results of the reading for the readers' capability. Read and write in literacy are the important components that must be present and related to daily life. Mathematics is a subject that is closely related to daily life. Human activities in daily life are inseparable from the use and application of mathematics concepts (Sarismah, 2012). One of the fun activities of students is the activities of students in sports, such as playing futsal.

The International Council of Sport and Education states that the definition of sport is a physical activity that is a game and contains self-struggles or struggles with others as well as dealing directly with natural elements (Lutan & Sumardianto, 2000). Things relating to sports have become the context used for starting points in mathematics learning, one of which is the sprint context in ASEAN games that can help students understand fraction material (Roni, Zulkardi, & Putri, 2017). At this time, futsal is a popular sport among both male and female students. Futsal, as a fun activity for students, can be used as a context for the development of reading texts in the school literacy movement. Futsal is a ball game consisting of two teams with people aiming to put the ball as much as possible into the opponent's goal (Narti, 2012). Futsal includes a group of players who can play it. In mathematics, a group of objects that clearly defined is called a set. Intelligence, technical expertise, teamwork, speed, and entertainment are the factors that influence the development of good technical skills at playing futsal (Narti, 2012). One of the mathematical concepts that connected in futsal is speed so that it can be said that mathematics with futsal has a connection.

METHODS

This study uses the design research with the development studies (Akker et al., 2006; Plomp & Nieveen, 2010). This method consists of the preliminary stage, the prototyping stage, and the assessment stage (Plomp & Nieveen, 2010). The evaluation of the prototyping stage uses formative evaluation, which includes self-evaluation, expert review and one-to-one, small groups, and field tests (Tessmer, 1993; Zulkardi, 2006). In this article, the discussion of research is about the small group

phase.

The small group phase uses the second prototype, which is the result of revision from the expert reviews and one-to-one stages. In this small group phase, a trial of the second prototype was conducted on a small group. Twelve students were involved in the small group phase (Kohar, Zulkardi & Darmawijoyo, 2014). The results of the small group became the basis for revising the design of the second prototype, which was then referred to as the third prototype. The small group phase is part of development research to see the practical aspects of a developed product in this study. Practicality can be known from the results of small group trials (Putri, 2013). The subjects of the study were 7th-grade students of a junior high school in Karawang. The data were collected through documentation, questionnaires, and interviews.

RESULTS AND DISCUSSION

In the small group phase, the researchers tested the second prototype of the reading text with the futsal context in mathematics learning for 12 junior high school students in Karawang. The initials of the students are FCP, NP, SA, GM, ARF, BVR, SP, EAG, MNR, KBC, DF, DRS. This reading text is valid based on the results of the one to one phase and expert review (Effendi, 2018). Small group trials were asked to read texts with the futsal context and answer the questions in the text following the school literacy movement stages, namely the habituation stage of three texts, the developmental stage of five texts, and the learning stage of five texts.

The habituation stage consists of texts about the history of futsal in the world, the history of futsal in Indonesia, and the achievements of the Indonesian futsal national team. Students read the text for the habituation stage and complete questions related to the text and in line with the objectives at the habituation stage including increasing students' interest in reading, enhancing students' ability to understand reading, and increasing confidence as a good reader, as well as developing the use of various reading sources (Retnaningdyah et al., 2016). The questions in the reading text of the habituation stage include students’ feeling about the text, difficult words for students, and retell the reading text using their own language. The result of the student's answer in Figure 1 shows that the student likes the text, easy to understand the text, and able to retell the text that has been read. Students can answer all questions from the text and the benefits of the text that is to increase students' knowledge about the Indonesian futsal national team.

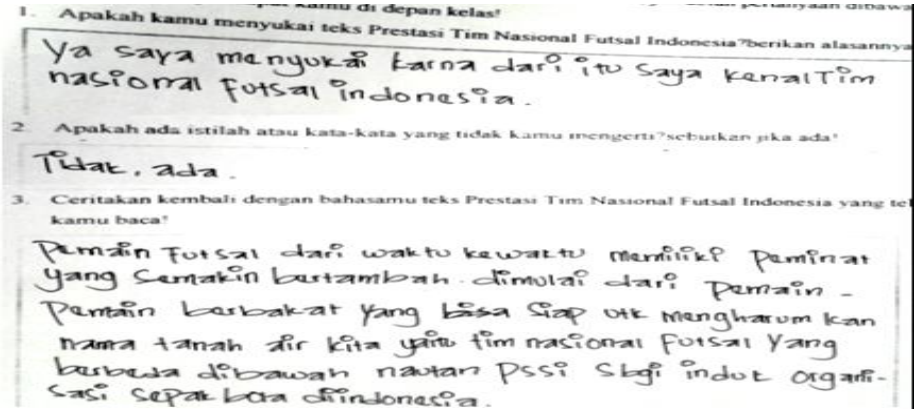

1. Apakah kamu menyukai teks Prestasi Tim Nasional Futsal Indonesia?berikan alasannya
Ya saya menyukai karna dari itu saya kenal Tim nasional futsal indonesia.
2. Apakah ada istilah atau kata-kata yang tidak kamu mengerti?sebutkan jika ada!
Tidak, ada.
3. Ceritakan kembali dengan bahasamu teks Prestasi Tim Nasional Futsal Indonesia yang te kamu baca!
Pemain futsal dari waktu kewaktu memiliki peminat yang semakin bertambah dimulai dari pemain - pemain berbakat yang bisa siap utk menghaarum kan nama tanah air kita yaitu tim nasional futsal yang berbeda dibawah naungan pssi sbgi indut organi- sasi sepak bola diindonesia.

Figure 1. Student's answer (S1)

The reading texts for the developmental stage of the school literacy movement consist of five texts with the futsal context, namely the field and ball of futsal, the basic techniques of futsal, the strategy of futsal, the sanctions of futsal, and the futsal match system. Students read the text, and after that answer questions on the text prepared based on the purpose of the developmental stage of the school literacy movement, one of which is students can know the relationship of the reading books with various matters relating to themselves and the surrounding environment (Retnaningdyah et al., 2016). In the text entitled the field and ball of futsal, it is presented the rules of the field and ball in a futsal game that includes its length, width, and diameter. From the text, students express their opinions about the benefits they get and the difficult words encountered in the text and the relationship of mathematical material related to the text.

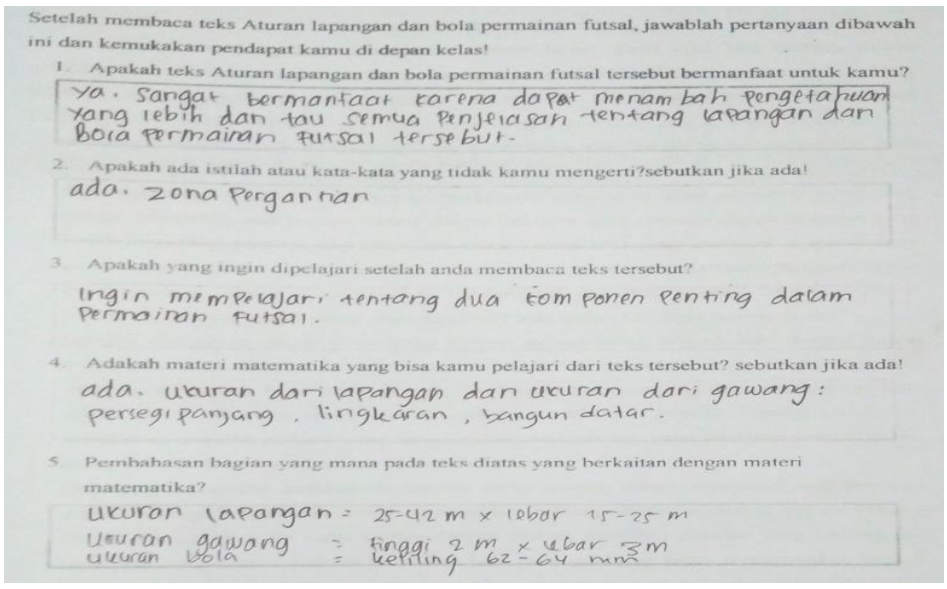
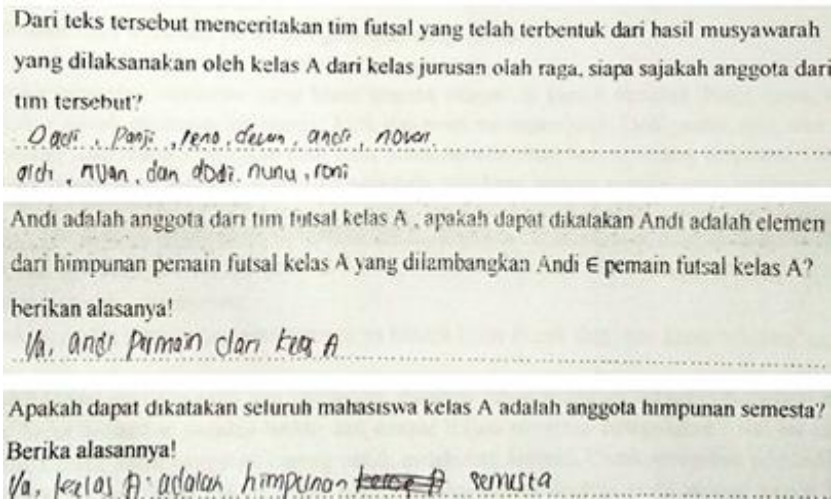

Setelah membaca teks Aturan lapangan dan bola permainan futsal, jawablah pertanyaan dibawah ini dan kemukakan pendapat kamu di depan kelas!
1. Apakah teks Aturan lapangan dan bola permainan futsal tersebut bermanfaat untuk kamu?
Ya. sangat bermanfaat karena dapat menambah pengetahuan yang lebih dan tau semua penjelasan tentang lapangan dan bola permainan futsal tersebut.
2. Apakah ada istilah atau kata-kata yang tidak kamu mengerti?sebutkan jika ada!
ada. zona pergantian
3. Apakah yang ingin dipelajari setelah anda membaca teks tersebut?
Ingin mempelajari tentang dua komponen penting dalam permainan futsal.
4. Adakah materi matematika yang bisa kamu pelajari dari teks tersebut? sebutkan jika ada!
ada. ukuran dari lapangan dan ukuran dari gawang: persegi panjang, lingkaran, bangun datar.
5. Pembahasan bagian yang mana pada teks diatas yang berkaitan dengan materi matematika?
ukuran lapangan = 25-42 m x lebar 15-25 m
Ukuran gawang = tinggi 2 m x lebar 3m
ukuran bola = keliling 62-64 mm

Figure 2. Student's answer (S2)

Based on the student's answer in Figure 2, the text is easy for them to understand, and there are benefits obtained by students after reading the text. This is shown by the opinion of students that the text is useful for them, and there are not many difficult words for them. They also give opinions about

mathematical material related to the rules of the field and futsal game balls, and they know that the rules of the field and balls of futsal relating to the planes, like circle and rectangle. Thus, mathematics learning can be started from daily contexts known by students so that it can help students to understand mathematical material. The context or experience of students can be the starting point of the process of mathematics learning (Zulkardi & Putri, 2006).

The text presented at the learning stage is a short story with the title "*Harumkan Nama Kampus dengan Modal Kebersamaan*" The text at this stage is arranged based on the set material. The text is divided into five parts, and the questions are adjusted to the sub of the material, i.e., the concepts of the set and the universal set, the empty set and the subset, the presentation of the set with Venn diagrams, the intersection and the union of sets, the differences and the complement of a set. The questions in the text are arranged according to the objectives at the learning stage. The aims are improving students' ability to understand texts, relating it to personal experiences, improving critical thinking skills, and communication skills through responding to textbooks (Retnaningdyah et al., 2016).


Dari teks tersebut menceritakan tim futsal yang telah terbentuk dari hasil musyawarah yang dilaksanakan oleh kelas A dari kelas jurusan olah raga, siapa sajakah anggota dari tim tersebut?

Andi, Panji, Reno, Dewa, Andi, Novan, Aldi, Alvan, dan Dodi, Nunu, Roni

Andi adalah anggota dari tim futsal kelas A, apakah dapat dikatakan Andi adalah elemen dari himpunan pemain futsal kelas A yang dilambangkan Andi ∈ pemain futsal kelas A? berikan alasanya!

Ya, Andi Pemain dari kelas A

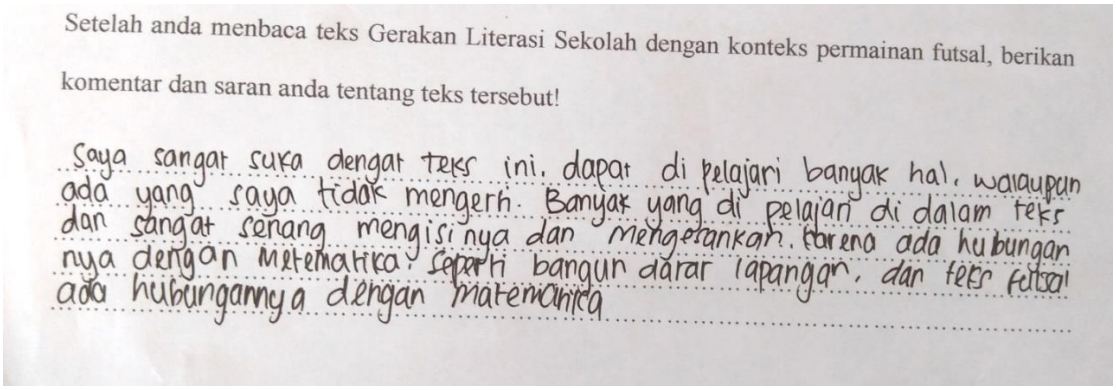
Apakah dapat dikatakan seluruh mahasiswa kelas A adalah anggota himpunan semesta? Berika alasannya!

Ya, kelas A adalah himpunan ~~kelas A~~ semesta

Figure 3. Student's answer (S3)

Figure 3 is the student's answer relating to the concept of the set and the universal set. The answer shows that student can name the players who are members of the team A and state that Andi is a member of the team A and the reasons stated have led to the concept of the set. The student is not yet aware of the notations in the set because the reading text is given at the beginning of learning as a starting point for learning the concepts of set and universal set. Nevertheless, it can be said that they can see the relationship of the text with mathematical material so that the text can build their understanding of formal concepts about the concepts of set and universal set. Saputri and Zulkardi (2020) state that the learning that can help students to connect abstract mathematical concepts with real-world problems is learning with RME. It is because one of the characteristics of RME is self-developed models, meaning students create their mathematical models to solve problems following mathematical reasoning through generalization processes and formalization.

Mathematical literacy is strongly influenced by Realistic Mathematics Education (RME) because it emphasizes the importance of solving mathematical problems in real-world settings, so that it can be used as a basic theory for developing literacy-based mathematics learning (Zulkardi & Kohar, 2018; Putri & Zulkardi, 2019). In line with this, the activity of the school literacy movement at the learning stage is related to the students' mathematical literacy ability so that students can construct students' knowledge, and the learning outcomes obtained will be in accordance with the objectives of mathematics learning. Mathematical literacy is specifically introduced as an intervention to improve students' abilities in mathematics learning (Spangenberg, 2012). Furthermore, students provide suggestions and comments on the text as well as the questions that have been read and answered by students that aim to find out whether students like the text or not, whether the students have no difficulty understanding and answering the presented questions, and whether the text has benefits for students as well as advice given as material for revision to become the third prototype.


Setelah anda menbaca teks Gerakan Literasi Sekolah dengan konteks permainan futsal, berikan komentar dan saran anda tentang teks tersebut!

Saya sangat suka dengat teks ini. dapat di pelajari banyak hal. walaupun ada yang saya tidak mengerti. Banyak yang di pelajari di dalam teks dan sangat senang mengisinya dan mengetahui. karena ada hubungan nya dengan matematika. seperti bangun datar lapangan. dan teks futsal ada hubungannya dengan matematika

Figure 4. Student's comment (S2)

The student's comment in Figure 4 shows that the student has the same opinion about the text and the questions presented by the researchers. Students think that they like the text, and there are no difficulties in answering the questions because the text given is easy for them to understand, and the text has benefits for them because it increases their knowledge about futsal, and they also know that the futsal is related to mathematical material. In addition to written comments, researchers used a questionnaire to see the practicality of the reading text of the school literacy movement with the futsal context in mathematics learning. A questionnaire is a technique of collecting data through forms containing questions that are asked to someone or a group of people in writing that aims to get answers and information needed on research.

The results of the questionnaire showed that the reading text had practicality. The statements of interest in the text can be seen from the statement No. 1, that is dominated by students who agree to the statement "*I like the text that I have read*", and statement No. 3 is dominated by students who disagree with the statement, "*The text is very boring*". The statement about the use of the text can be seen from statement No. 2, which is dominated by students who strongly agree with the statement, "The text is very useful to understand the relationship of mathematical material and futsal" and

statement No. 7 is dominated, which strongly disagrees with the statement, "*I vainly read the text*". The statement on the ease of the text readability can be seen from the statement No. 4 which is dominated by students who agree with the statement "*the questions presented in the text are clear, and I can answer*"; statement No. 5 which is dominated by students who disagree with the statement "*the presented texts are unclear and incomprehensible*"; statement No. 6 which is dominated by students who strongly disagree with the statement "*the questions in the text are difficult to understand so I have trouble answering questions*"; and statement No. 8 which is dominated by students who agree and strongly agree with the statement "*I easily understand the presented text*". After written comments and filling out a questionnaire about the practicality of the reading text, the researchers conducted interviews. The interview is a data collection technique through the communication process between researchers and informants or research subjects to collect information by the Q&A (Emzir, 2010). The interview was conducted with a student. The following snippet of interviews related to improvements for the second prototype:

R : *Is there a part of the text that you want to change, if so, which part would you like to change?*
S : *Yes, there is. The letters are too close each other and I also want to eliminate mathematical symbols.*

Based on the students' written comments, questionnaire, and interviews, it shows that the text for the school literacy movement with futsal context has practicality with the revision of writing sentences with greater spaces and eliminate the set notation on questions in the learning stage. Practicality is seen as a primary quality because an impractical assessment won't almost long-lasting, no matter how valid and reliable (Yanjin, 2018). With a practical product, it will make users comfortable using the product so that the product can long-lasting. According to the KBBI, practicality is a practical matter, while practical is an easy and favorable subject based on the practice. Practically refers to the extent that users (or other experts) consider the intervention as appealing and usable in normal conditions (Akker, 2006). In developing texts for the school literacy movement, practicality is shown by the existence of interest/liking, usefulness, and convenience for students in understanding the text.

CONCLUSION

Based on the results and discussion in this study, it can be concluded that the second prototype, which was tested in the small group phase, has practicality. The practicality is in terms of usability, ease, and interest students in the reading texts; and revisions in writing sentences so that they have greater space. Besides, the set notations in the questions at the learning stage were also eliminated to produce a third prototype of the reading text for the school literacy movement program with a futsal context in mathematics learning. The produced texts are three texts for the habituation

stage about the history of futsal, five texts for the developmental stage about various rules in futsal, and five texts for the learning stage with the title of "*Harumkan Nama Kampus dengan Modal Kebersamaan*".

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