

INDONESIA

Building Learner's Empathy through Child-Friendly Realistic Learning Approach (CFRLA), a CRC Project in Surakarta

Aryati Prasetyarini, Nining Setyaningsih, Mohammad Ali

1. Introduction

The project presented here is conducted in Muhammadiyah programme *Khusus* Primary School Surakarta and is focusing on the learners' protection and participation. Learners participation is enhanced by revitalizing the role of class councils and giving learners a chance to express their opinion. Children's rights to protection and participation are supported in the process of teaching learning processes, which are cooperative, fun, and realistic to facilitate their learning and ignite their cooperation so that they are more emphatic to each other. In addition, this effort is done by revitalizing the Captain's Diary and changing the strategies in solving problems that might occur in a more positive way. Captain's Diary refers to notes written by the captain (leader) of the class. The captain has to report the activities or condition in the classroom especially what his or her peers do in the classroom daily. Through this diary, the teachers can find the problems from the learners' perspective and give a chance for the them to discuss the problems they have and the solutions. To materialize the programs, a series of activities were conducted by involving many stakeholders namely teachers, administration staffs, parents, and Muhammadiyah Board.

2. Frame of Reference

The Indonesian government has developed many efforts to promote children's rights related to the three pillars of CRC, namely provision, protection and participation. Dealing with the first pillar, provision, the government implemented programs, such as Milk Drinking Movement at School, Additional Food programme for School Children and School Doctor Program. To protect children the government issued the Law on children protection, number 23, 2002: undocumented children and vulnerable children shall be protected by the State. With regard to the third pillar, Indonesian government issued the education based on two standards, namely content and process standard. The previous refers to the standard of teaching materials given to learners. The latter refers to the process standard of teaching, which covers three major steps, namely introduction, content, and closing. The content session covers three activities, namely exploration, elaboration, and confirmation. As the three activities are inquiry-based, the classroom activities should be managed to ensure that all learners in the classroom learn the materials actively, inductively, and cooperatively.

On this year of 2013, the Indonesian government starts to implement a new curriculum focusing on integrative thematic concept applied to elementary, junior high, high school, and vocational school. The change in the Indonesian educational system curriculum is necessary to strengthen the character, such as learners' tolerance, respect, and empathy for others. It is also in response to the concern that learners are becoming overwhelmed with the workload, and consequently learner violence is increasing. Learners learning at school need to learn how to be better citizen, which could be achieved by instilling character and a greater sense of morality. The suitable teaching methods applied to achieve the goals are those which accentuate context and cooperation among the group members and problem solving. One of the teaching methods which can be applied is Realistic Learning.

Realistic Learning is a cooperative learning approach which is adopted from teaching learning strategy called Realistic Mathematics Education (RME). It is a teaching strategy which requires a constructivist approach where there is great emphasis on learners, and progressing on the basis of their responses. The principles of the strategy are the use of contexts, models, learners' own productions and constructions, interactive character of the teaching process, and intertwinement of various learning strands. The concept of this strategy is the cooperative learning, that is a method of instruction that has learners working together in groups, usually with the goal of completing a specific task. This method can help learners develop leadership skills and the ability to work with others as a team (Bainbridge, 2012). Teachers can take some

benefits from this method since the learners work with their mates in a group to finish a particular task (e.g. problem solving).

The Curriculum is realized by the government to elicit children's protection and participation. It is due to the fact that children's protection and participation either in and out of classroom still falls short below from what is expected. In protection, based on the national survey, it is found that 80% of the teachers in Central Java bullied in the classroom by punishing learners to stand before the class and using abusive language to discipline the learners (Suroto, 2012). In addition, some learners experienced having been bullied by their peers or mates in or outside their school, which then inflict fighting among the groups of learners in a school or between two schools. While in participation, learners seem not to have freedom to express their feeling, emotion, and opinion. Teachers and adults tend to put learners as the object rather than as the subject of learning. It implies that learners should learn and memorize a set of knowledge without knowing why and how to learn the subject.

Such conditions inflict many problems. The first is the relationship among the learners. Since the learners learn the subjects individually, they tend to compete with each other to get a good mark. They tend to think that learning takes place in the classroom through competition to get higher mark. In this case, empathetic aspects are neglected, so that peer and teacher bullying can easily occur. Empathy is more a sense that one can truly understand or imagine the depth of another person's feelings. It implies feeling *with* a person, rather than feeling sorry for a person (www.wisegeek.com/what-is-empathy.htm). It can also be defined as the identification of, and understanding of, someone else's situation and feelings. Empathy is being able to look at a situation from someone else's perspective (www.parenttrust.org/for-families/parenting-advice/parenting-tips/tips-child-development/tip-2/). Some indicators are sharing, cooperation, helping, and comforting. The second problem is dealing with the school way to solve such a problem. Based on the school structure, schools have not only administrative staffs but also guidance and counseling who is responsible to help learners find the solution to solve their problems. However, the staff does not work maximally since learners seem afraid of discussing their problems in learning.

One of Muhammadiyah elementary schools is *Muhammadiyah programme Khusus* Primary School Surakarta. The school which was established in 2000 is a full day school. There are some goals of the establishment of the school. The first is that the learners should learn at school joyfully and actively. The second is helping learners to develop their competence maximally. To meet the needs, classrooms are designed as small classes with 30 learners in each class with two teachers in each. Right now, there are two parallel classes in each grade, except the fifth grade which has three parallel classes. This classroom design proves to be effective in one hand to push the learners

to meet the academic achievement. It is the first rank on getting the highest score on National Examination in Surakarta. On the other hand, this programme inflict on social problems among the learners.

The social problems can be seen in teachers and learners' behaviors. Since teachers are obliged to maintain the school predicate as the best school, they tend to measure the progress of the learners based on the score or the product only. In addition, they tend to teach learners traditionally where teacher-centered is the most common strategy in all classes. The learners' process in learning is not the priority. It causes teachers to behave negatively. Based on the interview done by the team with twenty learners, it was found that the teachers tend to shout to learners who cannot do an exercise or cannot understand their explanation and giving punishment to those who do not their homeworks by sending them outside of the classroom. The learners imitate such a behavior since they think that that is the good way to communicate with others. Learners bullied others verbally by telling those who cannot do the exercise (saying 'stupid'), some learners hit others or fought with them because they were annoyed.

When the project started, the learners had no place to express what they are feeling when learning in classroom. Teachers never asked the learners about the difficulties they have when learning a particular subject. The headmaster had a regular meeting once a week to discuss the problems that the learners have. However, the topic that the teachers brought in to discuss was based on the teachers' problems rather than the learners' feeling and emotion during the teaching and learning process.

With the design of the project, child rights to protection and participation can be promoted. In protection, the design is expected to protect the learners from peer and teacher bullying. The learners are required to work together in learning, so that they learn to help and understand each other. The emphatetic aspects are built in this method, so that the peer bullying can be minimized. In participation, every learner participates actively in the classroom. The learners also have chance to express their opinion to the teachers, so that the teachers can learn how to respect their learners.

This programme takes the spirit of the previous batches in which Muhammadiyah University of Surakarta is the CRC Learning Centre and Muhammadiyah programme *Khusus* Primary School Surakarta as the project setting. The previous programs of Batch 15 and 16 are the stepping stones to conduct this program. All teams focus on how to manage the classroom and how to apply contextual and meaningful methods in the teaching and learning processes.

The main goal for all teams is to promote the idea *Child Friendly School*. Child Friendly School refers to the condition of a school which is Safe, Realistic, Enjoyable, and Free. **Safe** is the condition where the school protects the learners from

bullying from peers, teachers, and other staffs involved in the school. In order to protect the learners from harassment, the classroom activities require the learners to engage them actively in a community and work on the problems they face in practical life (realistic). These kinds of activities can ignite the learners to enjoy their learning (enjoyable); their joy of learning leads to a lifelong passion for solving problems, understanding, and taking the next step in their thinking. By engaging learners in a community, teachers give chance for them to express their opinion freely.

3. Purpose

In general the purpose of this project is to improve learners rights to protection and participation in Muhammadiyah programme Khusus Primary School, Surakarta. More specifically it aims to:

1. develop a model for teaching mathematics through a Child Friendly Learning Approach in the fourth grade and to build learners' empathy.
2. revitalize learners' class council and school rules based on CRC.

4. Methodology

CRC agents of Batch 17 designed a programme to promote the learners' rights to protection and participation in the school. The design was implemented in Muhammadiyah programme *Khusus* Primary School Surakarta as the project setting. The design emphasizes the cooperative teaching and learning strategy where realistic learning becomes the main focus.

4.1 Target Group and Stakeholders

The target groups of this project plan are the fourth grade teachers and learners. Meanwhile, the stakeholders of this project plan are (1) Muhammadiyah Board in Surakarta, (2) teachers and (3) parents of the project school.

4.2 Activities

To achieve the objectives, the project is focused on teaching students using realistic learning where the students are involved in a joyful and fun learning and working together with their peers. The cooperation among the learners is useful to ignite their empathy so that it can minimize bullying. In this case the teachers and the learners interaction in the school, the teaching method, the classroom environment for child friendly realistic learning was designed in such a way that it promoted children's rights. In addition, the class council was developed to give a chance for the learners to express their opinion and ideas and minimize bullying.

4.3 Outcome 1:

Teachers of Muhammadiyah programme *Khusus* Primary School Surakarta are more aware of children's rights and Child-Friendly School

4.3.1 Sharing and Coordinating with the Change Agents

This activity was done to identify the communication strategy to disseminate the content of CRC principles and Child Friendly School. Before applying the project, the first thing to do was planning the strategy to disseminate what we learnt in Sweden and the project. It was done by having a meeting in Muhammadiyah programme *Khusus* Primary School. From this activity, we got an agreement to share the responsibility to manage the project.

4.3.2 Disseminating CRC Principles and Child Friendly School

The dissemination was conducted to the Board of Muhammadiyah in Surakarta, Principals of Primary Schools in Surakarta, the teachers and staffs, the fourth grade learners, the parents of the fourth grade learners of the project school. Dissemination to Principals of Primary Schools in Surakarta, together with the teachers and Staffs of Muhammadiyah programme *Khusus* Primary School Surakarta was held on November 12 November 2012 at the meeting room of Muhammadiyah programme *Khusus* Primary School Surakarta. All the executives (principal, vice principals, treasurer), all teachers, administration staff, and the principals of other schools such as from Muhammadiyah 1, 2, 11, State Elementary School of Tegal Ayu, Laweyan, Mangkubumen Kulon, and Muhammadiyah Plus Malang Jiwan, Karanganyar, Muhammadiyah Al Kautsar, and 30 teachers were present. The main agenda to discuss in the meeting were Child Right Convention and the project plan. In general, the result of the activity was favorable. The principals and the administration staff seemed understand and accept the child rights. However, some teachers showed a

resistance on the concept, especially with bullying and participation. In this meeting, the team found a problem especially on the concept of bullying. Some of the teachers perceived the concept of bullying in a different perspective. They saw it as something, which is normal for children at their own age. It took some time for the team to make them understand. Besides consulting this problem with the mentor, the team also discussed it with the previous teams. The discussion with the people inspired the team to find solutions. It seemed that the teachers were afraid of the fact that the students were not obedient to them when they were given a freedom to express their opinion. It took time for us to find the solution to this problem. Some strategies were applied to solve, such as discussing in a more intensive way in a less formal meeting, how to handle undisciplined students, and why the teachers should pay attention to children rights. The dissemination was not only done through the formal meeting but also from the school magazine which is published twice a year.

Dissemination to the fourth grade learners of Muhammadiyah programme Khusus Primary School Surakarta

To disseminate the project to the fourth grade learners, a meeting was conducted on Monday, November 19th, 2012 after final examination. The meeting was conducted in the same day in two sessions since there were two classes, namely class A and B consisting of 32 and 33 students respectively. The agenda in the meeting were discussing the education system in Sweden, child rights, realistic learning, and school rules. In the process of discussing the agenda, the principal played the very significant role. The result was quite surprising since they really wanted to experience an interactive learning where they can share the knowledge with their peers actively in a relaxed and funny atmosphere.

Dissemination to the fourth grade parents of Muhammadiyah programme Khusus Primary School Surakarta

This activity was conducted three times in a routine meeting that took place every third week on Saturday of November, December 2012, and January 2013. All of the parents of the fourth grade came to the meeting. The main agenda was discussing child rights and the pilot project. The parents welcomed this project mainly because it can promote their children's achievement. They suggested change agent Ali who is the principal of this school to materialize the program, and they would monitor the result of the project.





4.3.3 Giving Training on CRC Principles and Child Friendly School

This activity was to the fourth grade teachers of the project school. This kind of training was conducted on November 18, 2012 in order that the teachers as the most important element in the teaching and learning process are aware of child rights. Some agenda of the training include handling bullying, arousing empathy, and positive discipline. In this meeting, the team didn't find significant problems since the teachers already understand the concept of bullying and the reasons why they should pay attention to the issue of child rights.

4.3.4 Revitalizing the model of learners class council and school rules Basedon CRC

Identifying and giving questionnaire in line with CRC Principles (protection and participation) to the learners, the teachers, the staff and learners' parents ofthe project school.

The activity was done by distributing questionnaire to the teachers, and the administration staff at the beginning of December 2012 and to the learners' parents at the third week of November 2012. The questionnaire consists of 15 questions about their opinion about children's protection and participation in the project school. Especially for the fourth grade learners, the team considered to hold a special meeting with the learners. The meeting was done by having a discussion on the learners' perspectives about protection and participation.

Analysing data collected through questionnaire as a basis to design a model of class council and school's regulation based on CRC.

After the data were collected, the team analyzed them and took a conclusion as follows: (a) the teachers should respect the learners' opinion, (2) to avoid harassment from the teachers to the learners, the teachers can implement positive discipline. In this case, the strategies to handle the learners who break the rules should be changed, (c) maximizing the roles of guidance and counseling, (d) learners should be involved in making decision, (e) developing the roles of class council, (f) revitalizing the use of Captain's Diary. Once, the captain diary functioned only to find the learners who didn't pay attention to the teacher, make noise, or the peers who bullied the others. On the basis of the report, the classroom teacher would invite the learners who were not disciplined and gave punishment. However, in our project now, this diary is revitalized to promote participation and protect the learners from bullying. For example, related to participation, the teachers who identify that some students do not like the teaching strategy or they do not understand the material, the teacher can discuss with the learners their planning strategy or they can discuss more intensively how to make the learners more understand. While in protection, the teachers can find what actually happen among the learners, so that they can handle bullying as soon as possible. In addition, the teachers can find the material to teach them how and why they should treat their peers.

Revitalizing the model of class council and school rules based on CRC in order that bullying toward students is eliminated.

In relation to model of class council, the team decided not to change the existing model. In this case, the school only needs to revitalize the existing class council. Regarding the rules, it was agreed to: (a) involve the learners to make a decision, (b) maximize the roles of class council that not only to help the teachers managing the class, but also have a chance to share and give opinion to the others and to the teachers.

4.4 Outcome 2:

Model of teaching mathematics through Child Friendly Realistic Learning Approach at the fourth grade in Primary School

4.4.1 Designing a Teaching Model

The design of a teaching and learning model was held on November 20 to 23, 2013 at the project school and Teacher Training and Education Faculty in Muhammadiyah University of Surakarta. In making this model all team members

and colleagues from the Mathematics Department of Teacher Workshop and Education Faculty were involved. This activity was focused on discussing lesson plan based on a child friendly realistic learning approach.

4.4.2 Workshops on Child Friendly Realistic Learning Approach (CFRLA)

These workshops were held three times, on the 5th, 18th and 27th of December 2012 at the project school and the micro teaching laboratory of Teacher Training and Education Faculty in Muhammadiyah University of Surakarta. The participants are all teachers the project school. The material includes active learning method and CFRLA.

The first workshop was conducted on December 5, 2012. It was focused on (1) discussions and reflections on the teaching method that the teacher had implemented in the classroom and (2) introduction of the methods of active learning that are card sort, number head together, jigsaw, two stay two stray ect.

The second workshop was conducted on December 18, 2012. This activity was focused on (1) discussing of the child friendly realistic learning approach and (2) coaching of how to make a lesson plan that consists of the goals of learning, the activities of learning and assessment based on CFRLA.

The third workshop was conducted on December 27, 2012. The participants were teachers from the fourth grade. This activity was held at the micro teaching laboratory of Teacher Training and Education Faculty in Muhammadiyah University of Surakarta and was focused on training of teaching based on the lesson plan made.

In this activity, it can be seen that the teachers were interested in this forum, which was indicated from their enthusiasm during the discussion. This workshop improves the understanding of the active learning and the ability in making lesson plan that consists of the goals of learning, the activities of learning and assessment based on CFRLA.



4.4.3 Implementing the learning model based on Child Friendly Realistic Learning Approach in the fourth grade

Before implementing this model starting on January 3, 2013, the team designed a questionnaire to measure the learners' empathy. In this process, the team invited some psychologists to help them design the measurement. After that, the learning model was implemented focusing on mathematics subject of the fourth grade through Child Friendly Realistic Learning Approach (CFRLA). So, the participants of this activity are learners and mathematics teacher of the fourth grade.

The result of this activity is the implementation of the mathematics learning model of fourth grade based on CFRLA. An example is the implementation of the lesson plan about introduction of fraction. The activities of this material are (1) The class is divided into groups, each group with a different number of learners (the group consists of two learners, three learners or four learners), (2) the teacher explained that each group got a piece of bread and they had to share it to all members the same size, (3) each group discussed how to divide the bread based on the members of group and

(4) the teacher asked the group to present their answer in front of the class and the other group gave opinion or comment. After that, the teacher gave assessment to learners to be discussed.

The learners' parents who were curious with the project commented positively on the implementation of the learning model. They confessed that their children can easily understand the concept of mathematics.





5. Results

5.1 A model of class council and school rules based on CRC principles formulated in cooperation with principal, and the fourth grade learners and teachers.

The environment that is safe, joyful, and free cannot only be achieved by conducting a fun and cooperative teaching approach. The other ways to achieve it are by having a class council and school rules. There are some efforts done to design a class council and modify the school's rules. The first, the class council is revitalized. This council consists of the captain, the co-captain, secretary, treasure, and public relations. Each of the persons in the council has a responsibility. They are all elected by the learners

in the class and the vote is conducted once a month. All learners in the class have a right to choose and to be chosen as the captain of the class. The teachers make an agreement with the learners about the way to choose the personnel and the tasks. The tasks of the class council are: a) Captain: managing the others in order to be disciplined; one of the ways is by writing everything in the diary, b) Co captain: supporting the captain's task, c) Secretary: writing a teaching journal, d) Treasurer: reminding the peers to save the money, e) Public relation: calling the teachers if they are late, and preparing the teaching and learning kits every day.

Even though it is not stated clearly that all of the learners also participate in the decision-making, however the teachers, especially the classroom teachers involve the learners in making decisions, such as in the making contract learning, voting for the class council, choosing the games, and making a group work. The council not only educates the learners that they have the same right to express their ideas but also brings positive effect. One of the tasks of the class captain is writing about everything happen in the class, especially the class situation in *Buku Kejadian* (translated into *Captain's Diary*). Through this diary, the teacher can reflect himself of the class situation when he is busy teaching and find the information if bullying happens. Based on the information he takes from reading the diary, he can find better ways to teach and find the solutions of problems happening in the classroom.

The second, the change and awareness of the children rights automatically change the school rules. Even though the rules has not been documented formally, but the concept is seen from the decision making, which can be seen from the teachers' way in teaching, the learners' freedom to talk, and the interaction between the principal and the teachers. The teachers involve the learners in making the class rule and learning contract. This is a good decision since when the learners involve in making the rule, they are more responsible in keeping the rule. Besides, the learners also have a chance to express their opinion in the process of the making the learning contract. The change in the interaction between the principal and the teachers can be seen from the principal's way in having a meeting with the teachers. During lunch and breakfast time, the teachers are only allowed to have the meal together with the principal and the teachers in the same table. While they are having a meal, they are discussing the problems happen in the classroom and finding the ways to solve them. In addition, the principal also supports the teachers to write an article on the school magazine named PK Media.

5.2 Child Friendly Realistic Learning Approach (CFRLA) to build learners' empathy

The output of this activity is the learning model based on CFRLA that consists of five steps as follows : (1) using real-life contexts as a starting point for learning; (2) connecting to other disciplines, and to meaningful problems in the real world; (3) using models as a bridge between abstract and real, that help students learn mathematics at different levels of abstractions; (4) using student's own production or strategy as a result of their doing mathematics; and (5) interacting as an essential for learning mathematics between teacher and students, students and students .

During the process in teaching mathematics, it showed that the teacher tend to teach Mathematics using conventional approach. It means that the teacher dominated the teaching and learning and the learners just sat down, listening and writing what the teacher explained and wrote on the white board. Only a few learners were active in the class. Those who were brave to ask questions to the teacher about and discussing their idea understood more compared to those who didn't. So, they felt that they were cleverer than the others. Such a condition inflicts bullying in which some learners shouted stupid to those who can't answer the teacher's question.





After using CFRLA, there has been a good change for the teacher in teaching mathematics and learners in receiving the material. In teaching Mathematics, the teacher presents the materials by providing the contextual problems, and supporting the learners to actively participate in solving the problems to be done in group. Hence, the teacher is more creative and innovative in teaching process and the learners are more active and critical in solving problem and giving opinions. Besides, there is a change in the learners' behavior, in which they are more empathetic and care to the others. It is caused by the fact that the phases in the teaching and learning process required the learners to work together and listen to the others.





There are three phases in teaching and learning process for mathematics teacher through CFRLA, namely the introduction phase, the exploration phase and the summarize phase. In the introduction phase, the teacher gives a contextual problem and lets them try to solve the problem by themselves. At this time, the teacher also reviews the concepts and helps the learners to relate the problem with the learners' experience. In the second phase, the learners work in a group. When the learners are discussing the problems, they try to model the problem situations, share idea, and make conjecture and develop problem solving strategies based on their knowledge of informal or formal experience. The last phase begins after the learners show the progress in solving the problem. The role of learners in this phase is very important to summarize the concept of mathematics given.

The teaching and learning process using CFRLA indeed create positive effect on the teacher's and learner's interaction. The teacher is eager to listen the learners' problems because it is easier to talk with the learners in a small group. The shy learners are also confident to ask questions in a smaller group. Since the learners have easier to learn mathematics, they can solve the problems given easily, so bullying will be reduced and empathy is easily built.

6. Discussion and Reflection

From the activities which were done step by step, it can be seen that the teachers, the staff, the parents of the fourth grade learners in Muhammadiyah programme *Khusus* Primary School Surakarta showed positive response toward the project. They support the implementation of the project. The parents support the program, which can be seen from their involvement in monitoring the results. The learners also welcome the programme in which they enjoy the learning and participate actively in discussion.

The teachers as the first target also show positive manner, which can be indicated from their enthusiasm in joining the workshop, openness to the change, and implementing the Realistic Learning.

In the first outcome, that is the model of class council, it is designed by revitalizing the previous model in which the class council is chosen each month and everybody has a right to be chosen to the class council. One of the tasks which they have to do is writing about everything happening in the classroom in *Captain's Diary*. The diary gives some benefits, namely providing information of what happen in the classroom, becoming input for the teachers to make reflection, and helping teachers to overcome the problems faced by the learners. The awareness of the teachers about the importance of *Captain's Diary* automatically changes the school rules in which there are an agreement to involve the learners in making decisions. Even though it has not written formally, but the teachers agree to add the rule that they involve the learners in making decisions.

In the second outcome, the difference is seen from the implementation of Realistic Learning. At first, most of the teachers base their teaching on teacher-centered instead of learner-centered learning. Especially in mathematics teaching, teacher spent most of the time for explaining and solving mathematics problems, while learners were like an empty vessel, which were ready to be filled in with water. In this situation, the learners did not learn to understand and take the concept by solving problems with their own strategies. Attending the workshops have changed the teachers' perspectives that learning can be fun and easy. Step by step, the teachers can change their teaching method from teacher-centered learning to student-centered though active learning. Based on the questionnaire given to the learners about implementation CFRLA in mathematics teaching, it can be found that the learners are very happyas they learnt Mathematics by discussing with their peers in a group, using media, and connecting the material they learnt with daily life. The result can be seen in Diagram 1.

Diagram 1. The Percentage of the Learners' opinion about the implementation of CFRLA

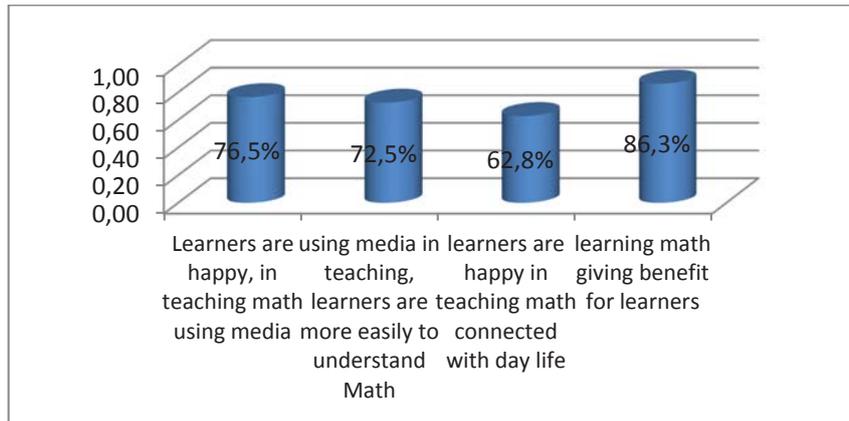
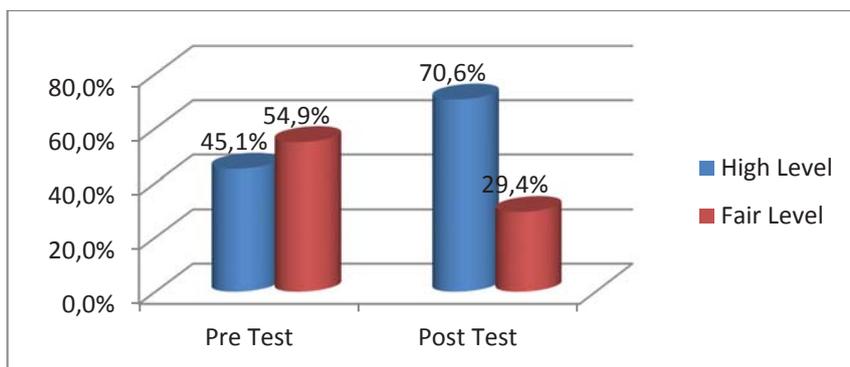


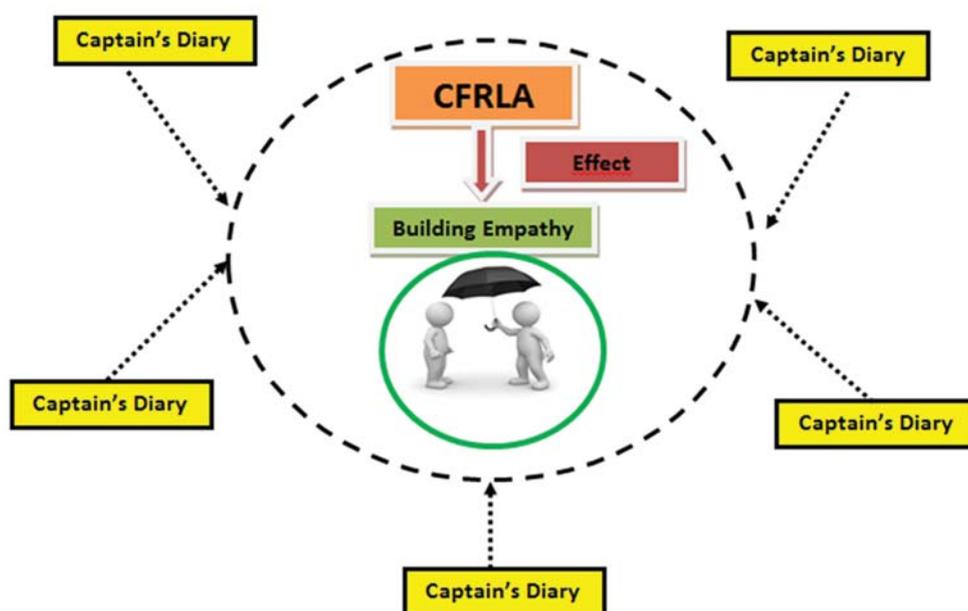
Diagram 1 shows that (1) 76,5% learners agree using media in teaching mathematics, (2) 72,5% learners agree using media in teaching because it makes them easier the to learn mathematics, (3) 62,8% learners agree if the teaching material is related to the use of mathematics in daily life, and (4) 86,3% learners agree that learning mathematic is fruitful.

The effect of CFRLA is that the learners' empathy increases. This method requires the learners to do the assignment cooperatively with their peers in a group. They face and listen to each other to solve the problem given. The process trains them to be aware of listening and understanding others. The increasing of the learners' empathy is shown in Diagram 2.

Diagram 2. The percentage of learners' empathy in pre-test and post-test



From the diagram above, it can be seen that the learners' empathy increases, that is the empathy categorized as high 45,1% becomes 70,6%. Meanwhile the empathy categorized as fair is decreasing from 54,9% becomes 29,4%. To support the effort of building the learners' empathy, training the teachers to implement the teaching approach is not enough. The teachers can observe the classroom and find the way the learners interact. The efforts are done through reading *Captain's Diary* where the teachers can find what happen in the classroom, especially their behavior during the teaching and learning process. Based on the information, the teachers can identify the learners' empathy development. To find the development of empathy, the captain should write both good and bad things happen in the class. The role of *Captain's Diary* to achieve the teaching and learning goal is illustrated in the following picture.



7. Way Forward

The project constitutes the cooperation between Teacher Training Faculty of Universitas Muhammadiyah Surakarta and Muhammadiyah programme *Khusus* Elementary School. This cooperation becomes symbiotic mutualism for both institutions. The teacher training center provides the experts to design Realistic Learning Approach and measure the learners' empathy. The design of CFRLA

resulted from the project becomes the newest model which can be taught to the prospective teachers who are studying in the teacher training faculty.

In order that both institutions can take its benefits, the first step to do is discussing the result of the project to the lectures and the teachers. The lecturers can see the real implementation of CFRLA in the elementary school, and identify the strength weakness. At the school level, the teachers and the school managers can gain a lot of things. The result can be used to strengthen learners' protection and participation in the school. It protects the learners from bullying and harassment since the learners enjoy and easily learn Mathematics. In the teaching and learning process, the teachers can observe how the learners learn the subject so that they can help the learners those who have problems and how to solve it. *Captain's Diary* also supports the protection since the captain reports what is happening in the teaching and learning process. However, the Captain should write not only the negative things but also the good ones. The positive things can be an input for the teachers to encourage the learners to behave positively. The diary can be a tool for the teachers to identify the learners' empathy development since giving questionnaire to measure their empathy is not enough. The instrument to measure empathy needs to be developed more since it is far from perfect. The instrument used is a questionnaire consisting of 12 questions. An ideal questionnaire should consist of at least 20 questions. In addition, there should be an evaluation on the sentences written in the instrument to make sure that the learners understand it. Hence, there is a need for the team to have more collaboration with the psychologists to develop the instrument.

For the school managers (the principals, and the vice principals), the results of the project become the input to make decisions. In the short run, the decisions are made by involving the learners' voice. The real examples are involving them to choose the menu they like, make learning contract, and choose the extracurricular activities based on their interest.

The project does not end on this final report. The results of the programme show that indeed change take time. The learning model implemented is going on for mathematics subject in the fourth grade, and it will be disseminated to other grades.

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Contact Information

Nining Setyaningsih, ningsetya@yahoo.com

Aryati Prasetyarini, aryati.prasetyarini@ums.ac.id

Mohamad Ali, mohamadalisdmuhpk@ymail.com

Appendix A

An example of lesson plan based on Child Friendly Realistic Learning Approach

Lesson : Introduction to the fraction

Time : 2 x 35 minutes

Grade : the fourth grade primary school Learners

Goals

After the learners follow the lesson, they are able to:

1. Symbolize the relevant mathematics from a contextual problem.
2. Communicate about mathematics during the discussion.
3. Produce a solution in their own strategies.

Activities

1. The class is divided into groups, each group with a different number of learners (the group consists of two learners, three learners or four learners).
2. Teacher explains that each group will get a piece of bread and they have to share it to all members the same size.
3. Each group discusses how to divide the bread based on the members of group.
4. Teacher asks the group to present their answer in front of the class and the other group and give an opinion or comment.

Group A consists of two learners.



Group B consists of three learner.



Group C consists of four learners.



Assessment:



Budi has three birthday cakes to share between his 18 guests. Budi doesn't eat cake, but wants to cut them, so that each guest gets an equal piece.

How should he cut them ?

What fraction is each piece of cake ?

Maria, Peter, Ali and John paid \$ 20 for the taxi. They shared this equally between them.

- How much did Maria pay ?
- How much did John pay ?
- What fraction did each pay ?
- What fraction did Ali and Peter together pay

Appendix B

Leaflet to socialize the program

Child Friendly Realistic Learning Approach

- ◆ Contextual/Realistic
- ◆ Encourage Learners to Solve Problems
- ◆ Cooperative
- ◆ Teacher as the Facilitator
- ◆ Joyful Learning

EFFECT



E : Essential factor to care
M : Model and mirror
P : Put yourself in their shoes
A : Ask if you can help
T : Treat others the way you want to be treated
H : Helpful
Y : You and they feel better

CRC (CHILD RIGHT CONVENTION)

Child Friendly Realistic Learning Approach



Cooperation :

- Muhammadiyah Program Khusus Elementary School Surakarta
- Teacher Training Faculty - Universitas Muhammadiyah Surakarta
- Swedish International Development Cooperation Agency