Maths Village as a Community-Based Education for Primary School Students in Bandardawung Village, Karanganyar, Indonesia

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This study aims to describe the role of the community in the maths village towards providing a community-based education for primary school students in the Bandardawung Village. This type of research was descriptive qualitative research. The data collection methods used were observation, interview, and documentation. The data collection was taken directly from the field. The results of this study indicate that the participation of the community in the Bandardawung Maths Village is following the concept of community-based education from the community, by the community, and for the community. Meanwhile, the role of the community has been identified, starting from the planning, implementation, and evaluation of the community-based education program in the Maths Village of Bandardawung.

Keywords: Community-based education, maths village, role of community.

Introduction

Education is an intended expectation for improving the quality of human resources (HR), especially for the Indonesian nation. An excellent quality of education is directed as a benchmark in determining the progress of a nation. The key to success in the education of a nation is if education is supported by all parties, one of which is the support of the community. The society is an essential component that can realise the goals of education quality. This support can be realised through the gradual and continuous cooperation between communities for the development of education, for the better. Community involvement in the development of education will support a more optimal education.
The communities in Indonesia generally impart the education problems only to formal institutions, such as schools. Actually, non-formal education can be utilised as a reference to support solving educational problems, viewed from Law No. 20 of 2003 in article 26 paragraph 1, which states that non-formal education is held for citizens who need educational services that function as substitutes, additions, and complementary formal education in order to support lifelong education. One realisation of non-formal education is community-based education (CBE); education that is applied from the community, by the community, and for the community. In this case, the community has an active role in the administration of education and contributes to solving educational problems.

In Government Regulation Number 66 of 2010 article 1 paragraph 38, it has been stated that community-based education is the implementation of education based on religious, social, cultural, aspirational, and community potentials as an embodiment of education from, by, and for the community. Galbraith (1995) defines community-based education as an educational process where individuals (in this case, adults) become more competent in their skills, attitudes, and concepts, to live and gain more control over the local aspects of their community through democratic participation. Mark K. Smith (Zubaedi, 2005: 133) argues that community-based education is a process designed to enrich the lives of individuals and groups by involving people in geographical areas, or various public interests, to voluntarily develop a place of learning, and action and reflection opportunities determined by their personal, social, economic and political needs. Based on these statements, it can be concluded that community-based education (CBE) is an educational model developed from a community’s thought, by the community and for the community, so that an educational goal can be achieved and realised in accordance with the expectations.

The implementation of community-based education must involve the participation or active role of the community. In Law Number 20 of 2003, the community’s participation in education is stated in Article 54 paragraph 1, that community participation in education includes the participation of individuals, groups, families, professional organisations, employers, and social organisations in the administration and control of the education quality services. In this case, the concept of organising community-based education emphasises an educational model developed from the community’s thought, by the community, and for the community. Furthermore, the community is considered as a source, implementer, and user of educational outcomes (article 54 paragraph 2). Meanwhile, Baldrige, Beck, Medina, and Reeves (2017) in their research reveal that community-based education spaces are vulnerable in many of the same ways as public schools.

Therefore, the community has the right to participate in implementing community-based education. Participation in English is called “participate”, so it is also called participation. Made (2005) argues that participation is the involvement of a person or several people in an
activity. Involvement can take the form of physical, mental, and emotional involvement in using all abilities possessed in all activities. Another statement is from Huneryear and Hecman (1992), which reveals that participation is an individual’s mental and emotional involvement in a group situation that encourages him to contribute to the group’s goals and share their responsibilities. Meanwhile, Dwiningrum (2011) argues that participation is the mental and emotional involvement of a person in a group situation that encourages them to support the achievement of the goals of the group and takes responsibility for the group. Based on several views about participation, it can be concluded that participation is an activity that involves the physical, mental and emotional aspects of a person in a group with responsibility to achieve the group’s goals. While society etymologically comes from the English “society or community”, society has the meaning of “public” and the community has the meaning of “local community or community”. Thus, it can be concluded that community participation is an activity that involves the physical, mental, and emotional aspects of a community group with responsibility for achieving the goals of the community group.

Education is called community-based if the responsibility for education, starting from planning to assessment are handled by the community. If the community has the authority in making educational decisions related to determining educational goals, curriculum, funding, etc., then education is truly community-based, as expressed by Suharto (2013:61). Meanwhile, according to Galbraith, as explained by Zubaedi (2005:127-139), the CBE principles include as follows: 1) Self-determination; all citizens and community members have the right and responsibility to be involved in determining the community needs and identifying the community resources to meet those needs; 2) Self-help; being part of the solution and building independence is better than depending on the assumption that responsibility is for their welfare; 3) Leadership development; local leaders must be trained in their skills to solve problems, make decisions, and process groups to develop sustainable communities; 4) Localisation; the most significant potential for creating high community participation occurs when various services, programs, and opportunities for community involvement are made so close to the places where they live; 5) Integrated delivery of service; the community and agents in the community work together to serve the public in order to achieve the goals; 6) Reduce the duplication of service; the community needs to fully coordinate the physical, financial, and human resources to avoid the duplication of services; 7) Accept diversity; society as a whole is required in the development, planning and implementation of programs and services and community activities; 8) Institutional responsiveness; public institutions are responsible for serving the community; 9) Lifelong learning; opportunities for formal and informal learning are for each member of the community. Based on the principles related to the CBE, it is realised that each community member has the right to be actively involved in organising the CBE. The community, as a whole, has the right to participate and has the authority to determine its educational future. It also needs to be emphasised that the fate of education that exists and is managed by the
community is not determined by the government but rather, by the provisions of the community itself.

The public participation component of environmental management often provides opportunities for non-formal education, such as transformative learning (Sinclair, Collins, & Spalling, 2011). The active role of the community in CBE has been identified in the holding of the Maths Village in the Bandardawung Village. The Maths Village is one of the CBE development models aimed at primary school students in the Bandardawung Village, Tawangmangu District, Karanganyar Regency. This area has implemented the CBE model for the education of primary school-age children, with a focus on helping and facilitating primary school children to learn mathematics.

According to Cobb (in Suherman, 2003: 71), mathematics learning is a learning process that involves students actively constructing mathematical knowledge. The Maths Village can be concluded as a model of community-based education that is managed by the community through an organisation within the community that facilitates mathematics learning that is implemented outside of school hours and is managed by the local community in order to achieve the learning objectives of mathematics. Almerino, Etcuban, De Jose, and Almerino (2019) reveal that mathematics anxiety among students is mainly calculated by their belief that learning is complicated and has an impact on emotional anxiety. There is also Villani and Atkins (2000) who examined community-based education in general with the finding that CBE can transcend cognitive capacity and encompass social and emotional aspects of learning and centre on the ability of students to recognise and support the needs of the surrounding community. Meanwhile, Rakhmawati (2016) investigates learning activities based on the culture, but less involving the existence of existing communities.

Based on the various studies above, research related to the community-based education that focusses on learning mathematics is still very minimal. The existence of the CBE Maths Village interests the researchers in conducting a study of the participation of the Maths Village community on the Community-Based Education (CBE) of primary school students in the Bandardawung Village, Tawangmangu District, Karanganyar Regency. It is expected that the results of this study can create a positive contribution to the implementation of CBE in the Maths Village in particular, as well as material for evaluation and development of CBE in Indonesia, and can be used as a scientific reference for further research. This study aims to describe the participation of the Maths Village community on the Community-Based Education (CBE) of primary school students in the Bandardawung Village, Tawangmangu District, Karanganyar Regency.
Research Methodology

This type of research was a qualitative case study. The case study is an empirical investigation that investigates phenomena in real-life contexts when the boundaries between phenomena and context do not appear explicitly and where many sources of evidence are used (Yin, 2014). The data collection techniques regarding the Maths Village learning activities conducted by students were generated through conducting interviews with expert sources, creating descriptions of field notes during the observation, and collecting the document of supporting activity. In this study, the researchers were the principal instruments since the researchers acted as a planner, executor and conclusion drawer.

The validity of the data was obtained by the triangulation process. Triangulation was done by checking the validity for the comparison of one data with other data. The type of triangulation that was used in this study was the triangulation of sources and methods. The source triangulation was completed by comparing and checking the level of trust of information sources and sources related to the achievement of competencies by the children of the Maths Village, obtained by students through mathematics learning activities at different times and different tools in this study. Whereas, in the triangulation of methods, the researcher compared the obtained results with the different methods; namely interviews, documentation and observation. The data analysis techniques were conducted interactively. Therefore, it was often called interactive data analysis so that it continues to completion, and the obtained data were saturated. In this data analysis, the activity was conducted in several stages: data reduction, data presentation and data verification.

Results and Discussion

The community is a component that is very instrumental in Community-Based Education (CBE). Without a community, a community-based education program will never exist and run smoothly. Suharto (2013:61) reveals that if the community has authority in making educational decisions, related to determining educational goals, curriculum, funding, etc., the education is genuinely community-based. As in the implementation of CBE for elementary students in the Maths Village, the Bandardawung Village community is viewed to be very instrumental in it. The Maths Village community’s participation in the implementation of Community Based Education (CBE) in the Village of Bandardawung, Tawangmangu District, Karanganyar Regency, has been seen as the principle of CBE:

Self Determination

In this principle, the people of the Bandardawung Village already have and conduct their rights and responsibilities to be actively involved in the implementation of the CBE Maths
Village to realise the challenges of education in the local village. The awareness of the Bandardarung Village community in supporting this program is manifested in the CBE Maths Village program. It starts from the organisation management, the provision of a place by community leaders as a base camp, socialisation to parents who have primary school-age children to join in these activities, and communities who have competence involved in the teaching and learning activities.

**Self Help**

The community of Bandardawung has been able to help themselves by being part of the solution and building independence through CBE. The Maths Village is utilised as a solution to improve children’s understanding of mathematics to help them in learning mathematics and real life. A community with this activity, considers this activity as a source of learning for children.

**Leadership Development**

Local leaders, concerning the village head and village officials, have leadership skills. This can be evidenced from how to solve mathematical problems with the formation of the Maths Village; the decision made is very good for developing a better community-based education. The leader also plays a role in determining the direction of educational development following the educational objectives to be achieved.

**Localisation**

The community of Bandardawung has a considerable role. In this case, they created the CBE Maths Village program close to where the community lives. The role of the community is fulfilled by providing their place of residence for a place of study for the Maths Village study groups. Besides that, the provision of a place is chosen based on the location of the house that is close to the central lane of the road, which can later be easily seen by the sign of the study group.

**Integrated Delivery of Service**

The community of Bandardawung has been seen working together to serve the public. They work together to help to organise the CBE Maths Village. In this case, the community is referred to as a volunteer, since they do it without coercion and payment. The division of society consists of educator volunteers and non-educator volunteers. Both of them carry a crucial role. Volunteer educators are tasked with teaching and managing learning
management in the Maths Village class. Whereas, non-educator volunteers play a role in providing facilities and infrastructure.

**Reduce Duplication of Service**

The existence of the management of the Maths Village makes CBE in the Bandardawung Village able to fully coordinate the existing physical, financial, and human resources. Starting from the provision of facilities, infrastructure, and finance collected from the local community. The Maths Village Administrators, from educators to community leaders, together form management.

**Accept Diversity**

The implementation of learning in the Maths Village does not require students to pay. It enables all elementary school students in the Bandardawung Village community to enjoy learning in a balanced way, and all can participate without thinking about the costs. Besides, the community does not prohibit primary students from outside the Village of Bandardawung from taking part in learning in the Maths Village. From this, it can be seen that the people of the Bandardawung Village accept and try to generalise differences.

**Institutional Responsiveness**

The Maths Village of Bandardawung already has a forum or institution that is responsible for managing and implementing the CBE Maths Village; that is, the management of the Maths Village, which has its members and management. Besides that, the Bandardawung Village Government, including the village head and his staff, are responsible for the CBE Maths Village implementation. Although the education is conducted based on community decisions and managed by the community, the Karanganyar District Government is also responsible for overseeing the implementation of the Maths Village.

**Lifelong Learning**

The community of Bandardawung already has opportunities to learn informally or informally through the existence of the Maths Village, which is free, and there are no fees to participate. It all depends on the local community in its implementation.

Community participation in CBE, as stated by Zubaedi (2005:131), who explains conceptually that community-based education is a model of education implementation that must rely on the principles of the community, by the community and for the community. The principle of education from the community is education that is formed based on the
community’s thought that is intended for the community and also organised by the community. This statement is confirmed by the existence of Law No. 20 of 2003 in article 54 paragraph 2, which states that the concept of organising community-based education emphasises an educational model developed from the community’s thought by the community and for the community. The community is considered as a source, implementer, and user of educational outcomes. Therefore, the participation of the Maths Village community in the implementation of Community Based Education (CBE) in the Bandardawung Village, Tawangmangu District, Karanganyar Regency, has been identified starting from the planning stage to implementation to evaluation of the program. The following highlight the role of the community in organising CBE Math Village:

Planning Phase of CBE Math Village

The community is a significant component of CBE planning. In the Bandardawung Village community, active community participation is viewed in the planning process for the formation of the Maths Village. As it is known, that Maths Village is a village that organises education, especially regarding mathematics learning. The Maths Village is formed starting from the mathematics learning outcomes of SDN 03 Bandardawung students, who were satisfying. Then, ideas emerged to form the Maths Village. The formation was initiated by the community and supported by the Village Government to the district. The community, in this case, prospective volunteers from Bandardawung, conducted socialisation and meetings to make decisions on the formation of the Maths Village. It did not take long to approve the formation of the Maths Village. After it was formed, the activities in the Maths Village were carried out by the community. The role of the community in this planning is as the initiator, decision-maker, and has full control over the decision to form the Maths Village. The community is divided into two forms of volunteers, namely educator volunteers and non-educator volunteers.

They are referred to as volunteers since the people have the awareness and desire to do something without coercion and payment. Volunteer educators are those who have expertise in the field of education, especially educating, having a diploma of educators, both Civil Servants (Pegawai Negeri Sipil or PNS) and non-Civil Servants (Non-PNS), starting from early childhood education, kindergarten, elementary, junior high, high school educators, to lecturers and retirees who can educate well. Meanwhile, non-educator volunteers are those who are not from the world of education, such as village officials, village heads, village officials, Neighborhood Association (Rukun Tetangga or RT), Citizens Association (Rukun Warga or RW), Youth organisation (Karangtaruna) and other community leaders. Besides the local village, a community that supports the existence of the Maths Village is the Karanganyar Regency Government. Research conducted by Astuti (2017) entitled “Community Participation in Building Non-Formal Education in Saman II village,
Bangunharjo, Sewon, Bantul” (Masyarakat dalam Membangun Pendidikan Nonformal di Dusun Saman II, Bangunharjo, Sewon, Bantul), states that the success of non-formal education in a country requires collaboration between the government and the community. In this case, the community of Bandardawung collaborated with the Karanganyar Regency Government to inaugurate the Bandardawung Village as a Maths Village. The inauguration of the Maths Village was held in conjunction with the commemoration of the National Education Day, which was held on 2 May 2016. At that time, the Regent of Karanganyar, Yuliatmono, inaugurated the Maths Village.

Stage of CBE in Village Mathematics

After the inauguration, the task of the Bandardawung Village community was to participate in the CBE Maths Village implementation. The concept of CBE Maths Village is tutoring that is open to local and outside communities. In its implementation, the Maths Village does not stand alone, but there is a correlation with the primary schools in the Village of Bandardawung, namely SDN 1 Bandardawung and SDN 3 Bandardawung. This tutoring is divided into 12 study groups, and the distribution is adjusted to the number of classes from two schools, totaling 12 classes and starting from class 1 to grade 6. The location of study groups is spread throughout the Bandardawung Village with placement in residents’ houses, meetinghouses, and halls that are located around the central lane. Therefore, when passing the road of the Bandardawung Village, a post or group marker will be seen. Villani and Atkins (2000) in their research entitled “Community Based-Education”, state that in the idea of creating a community-based education system, students go beyond basic core academics and develop the values and freedom to express, develop, and solve problems or problems they have for their communities. The main aim of the CBE Maths Village in the Bandardawung Village is to better enable local primary students to express, develop, and solve problems regarding learning Mathematics. Although, the goal of the Maths Village is not meant to exceed the education offered by formal schools. The role of the community in implementing the CBE Maths Village activities is as educator volunteers and non-educator volunteers.

As an educator volunteer, of course, the role of the community is to provide time and educational services in the Maths Village. An educator volunteer can also be called a teacher who provides subject matter to students. The role of educator volunteers or teachers is significant because teachers are the primary key to the success of education. Without an educator volunteer, CBE goals can never be achieved. In line with this research, Ismail (2010) conducted the study of “Performance and Competence of Teachers in Learning” (Kompetensi Guru dalam Pembelajaran). He states that even if it has the best curriculum, facilities, and learning infrastructure but the quality of the teacher is low, then it is difficult to achieve high-quality educational outcomes. Therefore, the volunteer educator has a critical role in the implementation of the Maths Village.
In the implementation of the CBE Maths Village, mathematics educators have the task of providing mathematics learning material, helping students improve their understanding of mathematical material, solving problems, or problems regarding the level of understanding of Maths Village students towards mathematical problems. In order to achieve the task of completing the tasks in Mateamtika Village, educators in the Maths Village have tricks to teach. Every educator has his tricks because everyone has a different teaching style. The similarity in teaching in the Maths Village is with active learning and more practice. Also, the use of instructional media can help students be more eager to learn mathematics. Hidayatullah (2018) argues that the media plays an essential role in learning; the better the media used, the more students will be interested in learning mathematics. Similar to students in the Maths Village who like learning with learning media, this means educator volunteers in the Maths Village are required to be able to use learning media and even create their own media learning materials.

Non-educators volunteers in the village community of Bandardawung also have a significant role, just like educator volunteers in the CBE Maths Village. The role of non-educator volunteers in the Bandardawung Village is to provide support in the form of moral and material or also physical and non-physical participation. The following is a form of community support in the implementation of the Maths Village in the Bandardawung Village: 1) Providing facilities and infrastructure in learning is an obligation that must be fulfilled. With the supporting facilities and infrastructure, the learning will be better. The community of Bandardawung plays a role in providing facilities and infrastructure for the implementation of learning activities in the Maths Village. Facilities and infrastructure are provided in the form of a place of learning. The availability of learning places are mandatory because if there is no place to learn, then the learning activities will not be carried out correctly. The community provides a place of learning in the form of residents’ houses designed for learning, as well as the use of a building or hall that gains permission from the community. 2) Supporting funding is funds that support the implementation of an activity. The community of Bandardawung also provides financial support for the holding of the Maths Village. The funds are collected from RT meetings which are held every 35 days. All areas in the Bandardawung Village do the same thing, that means they have been coordinated to help fund the Maths Village. The amount of assistance from the local community is an average of IDR 20,000 or following the abilities of each resident and the desire to help carry out the activities. 3) It should be noted that in addition to the educators, the primary key to the success of education is the presence of students. Here, the role of the community is to invite and deliver their children to attend learning in the Maths Village.

Meanwhile, the provision of learning support facilities for the management of the Maths Village is the budget in the Village budget and income (Anggaran Pendapatan dan Belanja Desa or APB des). Correlations between the community and village officials are also seen in
terms of funding assistance. Meanwhile, the Karanganyar Regency also assists in the form of facilities, such as a whiteboard that is used for learning, folding children’s desks that are used for each child, mats, and other assistance. From this, it can be viewed that the correlation between the society and the government in developing education is already good.

Based on the above, the role of the community refers to the role concerning individuals or groups. Professional organisations in this connection are educators and other social organisations such as RT, RW, Karangtaruna, etc. As stated by Pound (2008: 104), confident practitioners can help parents to be more confident in supporting the mathematical development of their children. Working together, parents and practitioners can ease the burden on children, making the maths experience safer and more consistent. The role of practitioners, parents, teachers and the community is very influential on children’s learning experiences. Looking further at the role of the community in terms of its relation to parents’ success in children’s education or learning, children are the primary responsibility of parents. Umar (2015), in his research entitled “The Role of Parents in Improving Children’s Learning Achievement”, states that parents play an essential role in determining the educational success of their children. Nevertheless, in recognising the limitations and opportunities they have, parents ask other outsiders to help educate their children. The outsider in question is the teacher. Therefore, teachers become a stepping stone for parents to educate their children. Likewise, the task of educators in the Maths Village, in addition to students studying mathematics in primary school, is that they choose to study in the Maths Village in order to deepen the mathematics that parents cannot teach at home.

**Evaluation Phase of CBE Maths Village**

Each of the educational programs will have a problem or obstruction that will emerge. Therefore, it needs evaluation. In organising the CBE Maths Village, the community of Bandardawung also evaluates the program. As already explained, there are regular meetings every 35 days in the form of RT meetings. In addition to raising funds, this routine meeting is also intended to evaluate the CBE Maths Village program. The evaluation is carried out together with the local public. After holding a meeting, then the management of the Maths Village determines the decisions agreed by the community. Whereas, the internal evaluation is carried out with the management of the Maths Village, that is undoubtedly discussed with the Bandardawung Village Government.

An example of the CBE Maths Village evaluation is when there are problems in funding, the community is ready to help fund the Maths Village. Based on this, the community has an active role in the evaluation program according to Law Number 20 of 2003 in article 54 paragraph 1, which states that community participation in education includes the participation of individuals, groups, families, professional organisations, employers, and community
organisations in organising and controlling the quality of education services. In this case, the
concept of organising community-based education emphasises an educational model
developed from the community’s thought by the community and for the community. The
community is considered as a source, implementer, and user of educational outcomes (article
54 paragraph 2). It can be said that the community has a full share in determining the CBE
Maths Village program, starting from the planning, implementation, to evaluation stages, all
managed and carried out by the local community.

The Role of the Maths Village Against CBE Primary School Students

The Maths Village in the Bandardawung Village, which has a vision of “being a non-formal
organisation that is able to encourage educational development in Karanganyar through the
implementation of measured and dynamic mathematics education services”. It is well known
that the community of the Maths Village, Bandardawung Village has a role starting from the
planning stage, the implementation stage, to the evaluation of the program. The role of the
community is inseparable from the mission of Kampung Mathematics as follows:
1) Building and developing education.
2) Building and strengthening education in the field of mathematics studies.
3) Developing the potential of children and the community in the field of mathematics and
the level of public education in general.
4) Raising the community economy with the Maths Village.

While the benefits derived by students from these community roles are:
1) Students become more understanding of mathematics.
2) Students get tutoring at no charge.
3) Students have positive activities.
4) Not only play directed but students can also learn.
5) Reducing child delinquency in the Bandardawung Village.
6) Students obtain manners education and manners during learning.

From the discussion above, in actuality, the community already has an active role in
developing the Maths Village as an excellent community-based education for primary
students in the Bandardawung Village. However, all communities do not have the same role,
and this cannot be used as a base to see how significant the overall role of the Bandardawung
Village community is to the CBE provided to primary school students. It occurs since the
community has its portion in developing the CBE in the Maths Village.
Conclusions and Suggestions

The community in the Village of Bandardawung has played an active role in organising CBE in the Maths Village, starting from the stages of planning, implementation, and to evaluation. In particular, educator volunteers play a more active role than non-educator volunteers. There are still people who do not play an active role in the learning that is carried out in the Maths Village. The active role of the non-educational community is limited to the provision of infrastructure and facilities as well as funding. Volunteer educator communities play a role in providing services to primary students in the Maths Village and have a more significant role. However, the overall community of Bandardawung has its active roles in supporting the CBE Maths Village program. A suggestion that can be undertaken by the Maths Village community, is to provide mathematics teaching training to the young people of the Bandardawung Village, both among high school age students or equivalent, in order to be able to help the course of the Maths Village program.
REFERENCES


