

Garbage Bank in Elementary Schools for The Clean Life and Love the Environment Education

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Abstract. Garbage is one of the problems in creating a clean and healthy environment. This research develops a Garbage Bank in Elementary Schools for clean living and environment-friendly education. The Garbage Bank in elementary schools manages waste to be of economic value. The object of this study was elementary school students in the Rancabolang Village, Gedebage Bandung. Clean life education and environmental love for elementary school students by applying the 3-R principles, namely: Reducing, Reusing and Recycling Waste. The development of the Garbage Bank in Elementary Schools is made based on the Waterfall method, object-oriented modeling, web-based, and PHP programming language. The stages of this research include the study of literature, needs analysis, system design, implementation, testing, analysis, and conclusions. The application of the Garbage Bank software in elementary schools can improve clean living education and environmental love for elementary school children in Rancabolang.

Keywords: Clean Life, Garbage Bank, Software, Object-Oriented

1 Introduction

Rancabolang Urban Village is a new sub-district of the East Bandung region. The development and layout of the city will be centered in the area of Gedebage. Lots of new construction of residential housing and public facilities in the area Gedebage. Public facilities that have been built are the Sports Turf Gedebage, Stasium Gedebage, Gedebage Main Market, and many more that will be realized. The issue of garbage and workarounds sooner or later it will be a big problem in the area Gedebage.

To correct mindset and behavior regarding the handling of this waste, it is necessary to attempt to make people aware from an early age. For this reason, PKM activity is targeted at elementary school students. However, in view of the elementary school students more confidence in their teachers than others, even their own parents, the socialization and demonstrations will be given to primary teachers in Sub Rancabolang. Learners at the level of primary school is an important goal and main to apply Love the Environment in the form of 3 R, namely Reduce (reducing waste), Reuse (reuse) and Recycle (recycle). The cleanliness of the environment, a shared responsibility today and in the future. By applying the 3Rs we expect to participate preserve nature for future generations to come.

Garbage Bank Unit School is a business entity belonging to the student who aims to reduce landfill waste to be processed and utilized schools into something useful and

economically valuable. The concept of school in the trash Bank meant that manage independently trash to be recycled into semi-finished goods that will be sold. Sources of waste bank savings are from clients who come from the bank bins school unit, and where the customer is the owner of the account number in the name of the classes under the garbage bank unit that school. These types of savings are received by the bank bins are non-organic types of waste or dry waste. With details of goods that can be accepted include paper, cardboard, bottles plastic, plastic, tetra pack, glass bottles, duplex and metals.

Savings are deposited to the bank will be converted into cash, where the price of these items will be adjusted to the market price. Then the price of goods will be updated in accordance with the price of goods on the market every two weeks. One of the information required by the Bank Garbage is garbage bank information saving unit.

To simplify the process, the Waste Bank needs a computerized system to facilitate the collection, processing and storage of data and information. The information system is a very important saving for the company to support the business running. Saving information systems in the company with the computerized system is expected to accelerate in completing the work of firms and produced accurate data with a faster time.

PKM activity targets are elementary school teachers in the village Rancabolang. Selection is based on the consideration that the main objective is to establish a clean character who understands and is able to manage waste properly and appropriately and can recycle waste into items that are useful or marketable. The formation of this character needs to start early when starting formal education is in primary school (SD). SD disciples in order to understand new things, then the delivery is most effectively done through elementary school teachers in each. Therefore, PKM activity is more targeted at elementary school teachers than elementary school students. PKM activity is targeting teachers in Sub Rancabolang and not in the other sub-district in Bandung, with the consideration that the village Rancabolang is a breeding ground for future integrated city. Thus, any waste generated is increasing and management is also increasingly difficult.

Of the entire population of primary school in village Rancabolang, only to be taken of the villages along with an elementary school for the formation of the Bank's business incubation Elementary School, Village Waste Bank, and Bank Trash Districts.

Target outcomes are expected from the activity of PKM entitled "Character-Based Education and Environment With Garbage Bank Formation School in the Village Rancabolang" are:

1. Ability to enhance the understanding of the teachers towards integrated waste management.
2. Provide creative ideas on elementary school teachers to engage students in their schools active in waste management.
3. The formation of character-based education and the environment at the elementary school students, urban villages and sub-districts.

Establishment of the Bank's business incubation School Trash, Trash Village Bank, and Bank Trash Districts.

2 Literature Study

This chapter discusses the study of literature on character building education, and research on the application of Waste Bank as a media for character education. Character building

education is discussed in chapter 2.1, and research into the application of Waste Bank as a media Character building education in chapter 2.2.

2.1 Character Building

Character education is placed as the basis to realize the vision of national development[1], namely to realize a society that has high morals, ethics, culture, and based on the philosophy of Pancasila. It is both a bid to support the realization of the ideals as mandated by Pancasila and the 1945 Constitution Preamble, In addition, the problems faced by Indonesia today are increasingly encouraging and the government's efforts to prioritize the education of characters as the basis for the development of education. The spirit was implicitly affirmed the National Long-Term Development Plan (RPJPN) 2005-2025, that the Government makes character development as one of the priority programs of national development.

Law of the Republic of Indonesia Number 20 Year 2003 on National Education System (Education Law) to formulate the functions and objectives of national education should be used in developing education efforts in Indonesia[2]. Article 3 of the Education Law states, "national Education serves to develop and form the character and civilization of the nation's dignity in the context of the intellectual life of the nation, is aimed at developing students' potentials in order to become a man of faith and fear of God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible ". National education goals were the formulation of Indonesian human beings that should be developed by each educational unit. Therefore, the formulation of national education goals form the basis for the development of culture and national character education[3].

Character is character or personality are formed from the internalization of virtues (virtues) who believed and used as a basis for perspective, think, act, and act. Virtue consists of a number of values, morals, and norms, such as honesty, courage to act, trustworthy, and respectful to others. An interaction person with another person grows the community character and national character. Therefore, the development of the nation's character can only be done through the development of one's individual character. Humans live in a particular social and cultural environment so that the development of the individual character of a person can only be made in the social and cultural environment is concerned. That is, the development of culture and national character can only be done in an educational process that does not detach education from the social environment, culture, and culture of the nation

Efforts to establish the character according to the nation's culture is not only done at the school through a series of learning activities and out of school but also through habituation (habituation) in life, as there is a value of 18 characters, namely: religious, honesty, tolerance, discipline, hard work, creative, independent, democratic, curiosity, the spirit of nationalism, patriotism, recognize excellence, friendly and communicative, love peace, love reading, environmental care, social care, responsibilities [4]. Habituation was not only taught knowledge about things that are right and wrong, but also able to feel the value of good and bad, and is willing to do so from the smallest sphere like a family up to a wider coverage in the community. Those values need to be nurtured learners who will ultimately be a reflection of the nation of Indonesia. Therefore, the school has a major role in the development of character education for the school's role as a center of cultural development approach civilizing through school (school culture).

Based on the flow chart thought scheme 1, education is one of the basic strategies of building national character in a coherent implementation that should be done with some other

strategies. The strategy includes dissemination and awareness, empowerment, acculturation, and the cooperation of all components of the nation. Character development is done with a systematic and integrative approach by involving the family, the education unit, government, civil society, legislators, the media, businesses, and industry[5].

2.1 Waste Bank as a media for Character Building Education

Research on the activities of previously existing Waste Bank, among others, [6],[7],[8], states that the presence of the waste bank has changed the understanding and behavior of the community in managing waste. Another study revealed that the main problem of implements selected this model is how to change the paradigm of "littering" to "utilize waste"[9]. While research [8] explains that the importance of concern for the preservation of the environment, the importance of awareness of household waste management through waste segregation independently, as well as independent waste sorting donations for the preservation of the environment.

3 Research Methods

Problem-solving framework that will be done is to implement the measures as follows:

1. Establish primary teachers in SD Rancabolang to follow the dissemination and demonstration of waste management.
2. Provide an invitation to the primary teachers are to be given a demonstration of socialization and waste management.
3. Provide socialization and demonstration of waste management to the elementary school teachers, with the following material:
 - a. Material one: the socialization of the garbage, the types of trash and garbage hazard.
 - b. Material 2: socialization waste management.
 - c. Material 3: demonstration of creative art waste recycling.
 - d. Lesson 4: Garbage Bank School, and Waste Bank village.
4. Determination of the sample and the Bank's business incubate maker Schools Garbage, Garbage Village Bank, and Bank Trash Subdistrict

Chart hierarchy of Garbage Bank in SD Rancabolang, depicted in **Figure 1**.

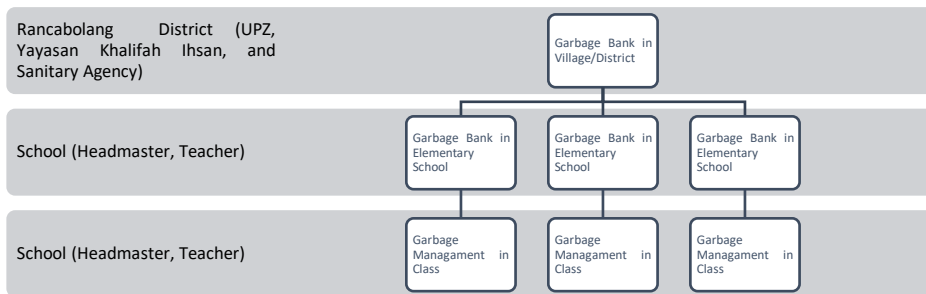


Fig. 1. Hierarchy of the School Waste Bank process.

4 Application Implementation

Garbage Bank SD stages of implementation in the form of application-based Information Systems Information and Communication Technology (ICT) is as follows.

Project management manufacture Garbage Bank.

The general picture Garbage Bank Project management manufacture can be illustrated in **Figure 2**.

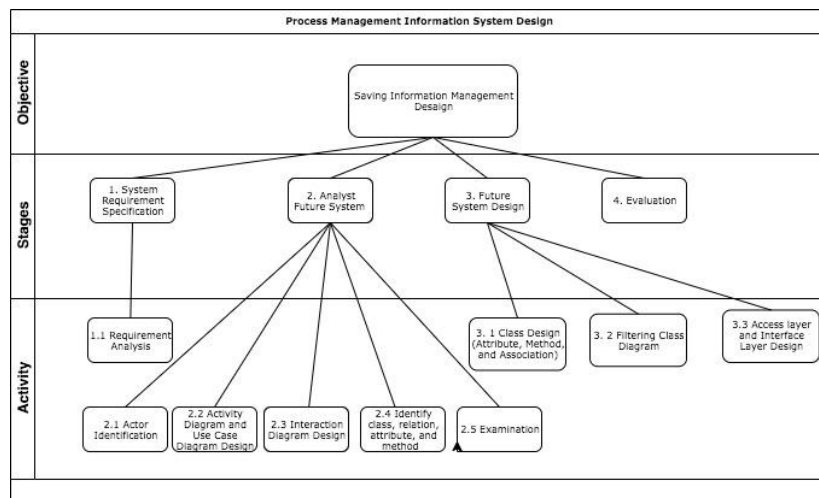


Fig. 2. Process management information system design for Garbage Bank.

Business Process Waste Bank.

The next step is to create a Business Process Waste Bank. Business Process Waste Bank is a business process that is running and will be made a reference in the implementation of the

Waste Bank Information System application. The Business Process generically in the Garbage Bank is as follows **Figure 3**.

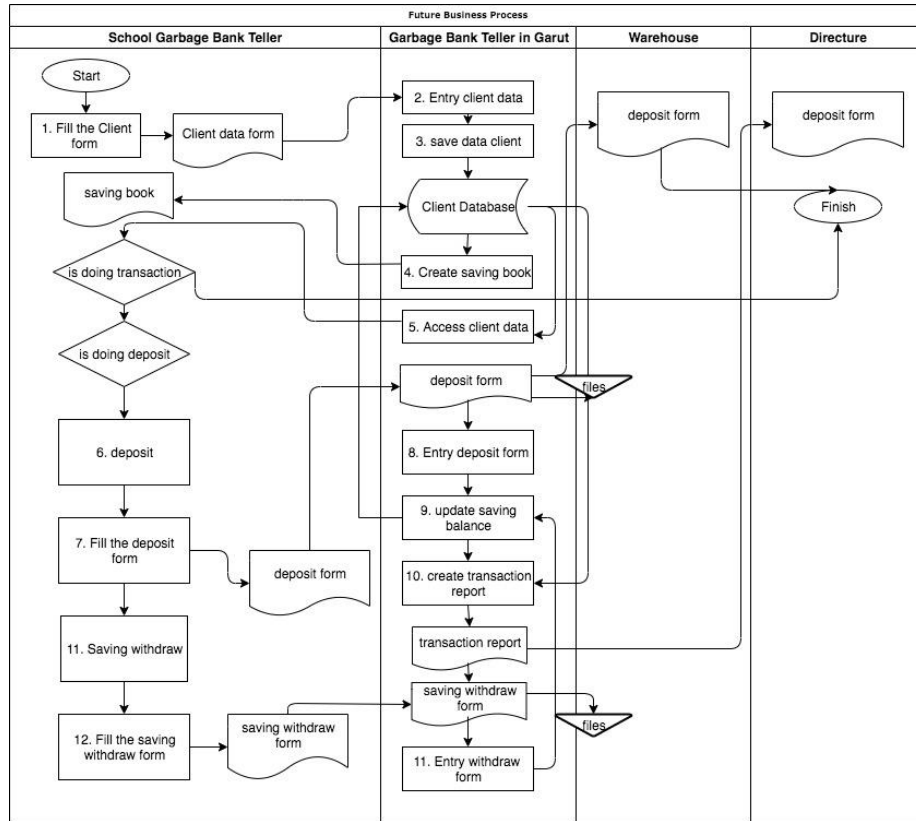


Fig. 3. Business process of Garbage Bank.

Process Design and Development Software

In the process of design and development software using object Oriented Design, the steps to create a Use Case diagram, Class Diagrams, and coding in a programming language.

As a representation in the development of software, below are displayed Use Case Diagrams and Class Diagrams at **Figure 4** and **Figure 5**.

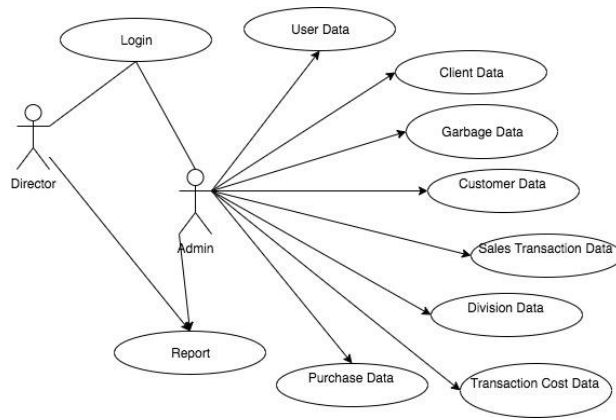


Fig. 4. Use case diagram Garbage Bank.

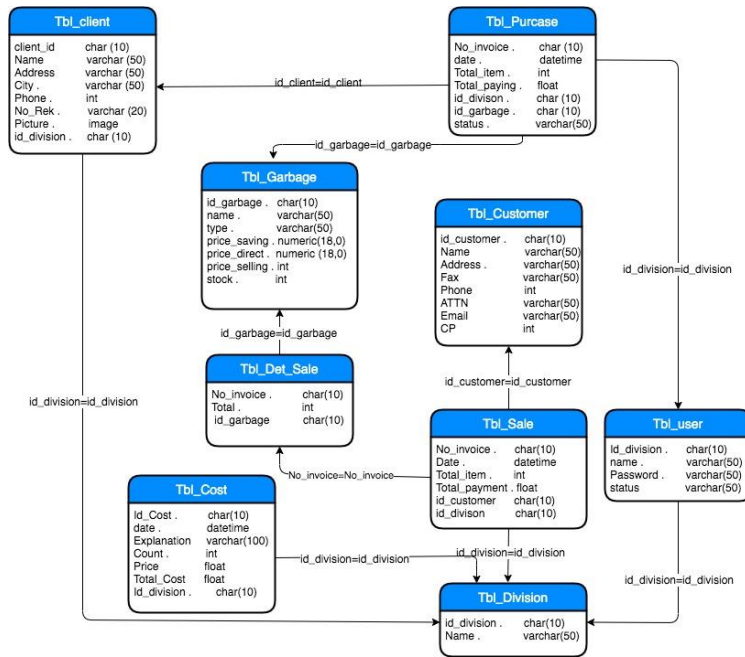


Fig. 5. Class diagram of Garbage Bank.

5 Conclusion

Target outcomes are expected from the activity of PKM entitled "Character-Based Education and Environment With Garbage Bank Formation School in the Village Rancabolang" are:

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2. Provide creative ideas on elementary school teachers to engage students in their schools active in waste management.
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4. Establishment of the Bank's business incubation School Trash, Trash Village Bank, and Bank Trash Districts.

As for suggestions of activities PKM Patronage village are as follows:

1. Program Patronage did PKM village that was only for a moment, so it needs to be evaluated and created a character education program based on Trash Bank in a comprehensive and long-term.
2. The need to follow up with the PKM Bina Desa for the achievement of the Bank's Business Incubation Trash

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