

URBAN DEVELOPMENT
AND INFRASTRUCTURE

Wayan Suparta, PhD
Editor

Urban Development and Lifestyle

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URBAN DEVELOPMENT AND LIFESTYLE

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URBAN DEVELOPMENT AND LIFESTYLE

WAYAN SUPARTA
EDITOR



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Additional color graphics may be available in the e-book version of this book.

Library of Congress Cataloging-in-Publication Data

ISBN: 978-1-53618-560-7

Names: Suparta, Wayan, editor.

Title: Urban development and lifestyle / [edited by] Wayan Suparta,

Universitas Pembangunan Jaya Tangerang Selatan, Banten, Indonesia.

Description: Hauppauge : Nova Science Publishers, 2020. | Series: Urban

development and infrastructure | Conference proceedings. | Includes bibliographical references and index. |

Identifiers: LCCN 2020039650 (print) | LCCN 2020039651 (ebook) | ISBN

9781536185607 (hardcover) | ISBN 9781536186314 (adobe pdf)

Subjects: LCSH: Sustainable urban development--Congresses. | City

planning--Congresses. | Community development--Environmental

aspects--Congresses. | Intelligent transportation systems--Congresses.

Classification: LCC HT241 .U6973 2020 (print) | LCC HT241 (ebook) | DDC

307.1/416--dc23

LC record available at <https://lcn.loc.gov/2020039650>

LC ebook record available at <https://lcn.loc.gov/2020039651>

Published by Nova Science Publishers, Inc. † New York

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As Professor at the Universitas Pembangunan Jaya, with daily activities in lecturing, doing research, as well as water resources development planning, I really praise the Nova Science Publishers for publishing selected papers from “2020 International Conference on Urban Sustainability, Environment, and Engineering (CUSME 2020)”. Hence, this publication would be useful for professionals, researchers, scholar, policymakers, and NGO. I believe that currently, many professionals would like to give more attention on development of sustainable urban. In addition, this publication could be used as reference for City authorities to make appropriate policy choices to protect the provision of equitable housing, health, and transportation services.

Prof. Ir. Frederik Josep Putuhena M.Sc., Ph.D.
Center for Urban Studies – Universitas Pembangunan Jaya



Urban Development and Lifestyle are trend issues for the cities around the world. Learning from experiences is the most effective way to support the cities to be sustainable developed. This book offers the knowledge sharing among countries which covers variety of cities’ issues. It also provides the great lessons for researchers, officers and policy makers on coping with several urban problems.

Associate Professor Sarintip Tantanee, Ph.D.
Director
Center of Excellence on Energy Technology and Environment
(CETE)
Faculty of Engineering, Naresuan University, Thailand

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PREFACE

One of the issues of urban development and urban lifestyle, which can be studied from the sea to space, has posed important challenges for humanities, environmental management of cities and urban areas, and the economy. This field is one of the pillars of sustainable development from urban studies towards sustainability welfare. Research and development (R & D) in this part plays a crucial role where urban problems are always alive and increasing every year because of changing customer preferences and needs. City authorities must make appropriate policy choices to protect the provision of equitable housing, health, and transportation services in the future. The megatrends 2030 triggered by the Industrial Revolution 4.0 estimates urbanization will increase sharply, massive move from rural to urban areas, and the land is getting narrower, especially in Asia. New directions and developments in this field and discussion of future priorities must be well anticipated, meticulous, dignified, and innovative.

This book highlights the latest views and solutions to technological innovations adapted to achieve prosperity in urban sustainability. For instance, adapting new buildings for urban needs with low-cost and modern design materials, the housing environment and the layout of city space, weather changes to disaster, and smart transportation systems are also taken into account. It also involves electricity, environmental management, and ways to use agricultural land to increase income. The ease of technology produced will change the business model.

This contributed volume presents solicited selected papers of the 2020 International Conference on Urban Sustainability, Environment, and Engineering (*CUSME 2020*) with the theme “Urban Life and Technology”. The book covers the point of view in urban architectures with green technology, sustainable environmental, management, agrotechnology, and smart transportation systems. The impact of urban development such as psychological and cultural influences, communication and social complexity, information systems and technology is also discussed with various solutions offered. The outcomes of the conference will certainly support government policy, stakeholders, policymakers, scientists, and engineers by bringing together their latest findings towards achieving a sustainable economy, improved quality of life, and protecting the environment. The findings of this study will create opportunities for further collaboration and are expected to improve the welfare of humanity.

The conference committee and all our contributors wish to pleasantly thank for their efforts and cooperation in finalizing this volume. We wish to acknowledge and gratitude

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Nova Science Publishers Team for supporting our book proposal and for granting the opportunity to publish these conference proceedings and for their cooperation and support.

Wayan Suparta

Chairperson of CUSME 2020

The Editor-in-Chief

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Chapter 8

**THE SUSTAINABLE COMMUNITY DEVELOPMENT
IN LEARNING ACTIVITIES FOR CHILDREN
AT SUBURBAN AREA**

Fitriyah Nurhidayah^{1,}, Johannes Hamonangan Siregar²
and Chaerul Anwar²*

¹Department of Accounting, Jaya Launch Pad,

²Department of Information System, Center for Urban Study,
Universitas Pembangunan Jaya, Tangerang Selatan, Indonesia

ABSTRACT

The purpose of this research is to develop achievement in Mathematics and English for children's activities while studying at Community Service in suburban areas at Jakarta city. This is the initial stage activity of a sustainable community service program for financial management with the application of information systems. The problem comes from children who are living around the Community Service Area, they have learning difficulties in Mathematics and English. The collaborative learning method is implemented in this research that carried out by holding peer tutoring in groups. The results are measured from the aspect of knowledge by quantitative measurement and the aspect of attitudes of participants is measured by direct observation. The participants have increased their achievement in different categories. By direct observation of their attitudes, the results are, first, the children showed a good attitude in the learning process. Secondly, there was a motivation for children to gain a higher knowledge of the material provided. Third, the children can complete the related material study given in the subject lesson. This activity also had a good impact on students to develop their potential in terms of sharing knowledge in simple language with participants.

Keywords: study guide, collaborative learning, community service, suburban area

* Corresponding Author's Email: fitriyah.nurhidayah@upj.ac.id.

INTRODUCTION

The development of urban areas comes from which society can change their activity as a generation by generation. This change will start from the childhood environment that prepared by the government where the children feel safe and enjoy doing their activities in their favorite places. There are many issues about activities for children in urban environment development raises compared with youths. In the previous study cases, the issues focus on the need to protect the children from real and perceived worst impact, while the youths' case concern about the need to minimize the worst impact [1]. In cases of infrastructures growth in urban areas, the developers tend to ignore the need of children as the resident of those areas. Because of financial and distance reasons, the children's needs are not important things to consider in urban development. To find a solution to that problem, the child-friendly city concept has been proposed [2]. The children need space to interact, play, make friends and hang out with friends in their area, so they can continue constructing their places for fostering creative experience, they will continuously build a special which is difficult for adults to understand [3]. The children's special places rarely get attention to the urban development project. The City Government's efforts to ensure the rights of children and youth through urban development processes problem has been studied. The collaboration work of city government, school, university and several community organizations in achieving a solution, reflects on how to most effectively involve youth in the culture of city planning [4].

Jakarta as the capital city of Indonesia is rapidly increasing with the amount of land used to build physical infrastructure such as office buildings and shopping, which has resulted in a lot of lands that already used for children to play has been reduced. Concerning this situation, Jakarta City Government has also serious attention to the importance of a place where children can have fun and safe to do their activities. The Child-Friendly Integrated Public Space, in Indonesia language "Ruang Publik Terpadu Ramah Anak" with abbreviation RPTRA, is a program formed by the Jakarta Province Government since 2015 [2]. The child-friendly integrated public spaces – RPTRA (Ruang Publik Terpadu Ramah Anak) are small public urban parks that are built-in densely populated areas. They aim to provide a place that integrates various public functions and activities, such as playing and learning for children, social interactions for citizens, family consultations and information centers, evacuations areas and economic activity spaces managed by Family Welfare Movement (PKK) groups. RPTRA was one of the programs initiated by the former governor, Basuki Tjahaja Purnama and was regulated through the DKI Jakarta Provincial Government Regulation No. 196/2015. RPTRA parks are an essential place for children to make friends, spending time with families, playing and learning. RPTRA has the purpose to increase activities for the public that can be used by all levels of society, especially as a place for children's activities outside school. Children's activity programs held at RPTRA are quite varied, with the main emphasis on moral education and non-academic abilities.

In this research, one of the RPTRA is considered as an example of a sustainable development study for University (UPJ) participated with the urban community in Jakarta, which is RPTRA Asthabrata located in Bintaro Village, Pesanggrahan District as part of South Jakarta City, as shown in Figure 1. The RPTRA Asthabrata has interesting playground equipment that attracts children to play together that makes them feel happy, as shown in Figure 2. However, some children come to RPTRA to study independently with their friends

when they have difficulty in understanding school lessons. When they are unable to resolve difficulties from the subject matter, they ask the RPTRA management who manages the existing facilities. The learning difficulties faced by these children could be overcome by some RPTRA administrators. However, the differences between the current curriculum and the previous curriculum experienced by the RPTRA administrator, makes it difficult to provide guidance.

Pedagogical agents are typically designed to take on a single role: either as a tutor who guides and instructs the student or as a tutee that learns from the student to reinforce what he/she knows. While both agent-role paradigms have been shown to promote student learning, we hypothesize that there will be heightened benefit concerning students' learning and emotional engagement if the agent engages children in a more peer-like way-adaptively switching between tutor/tutee roles [5]. For asking assistance to the parents of these children is not possible, because of the level of education their parents are not able to teach the children. This situation is related to research that analysis a survey on national scale data that investigating the relationship between children's achievement with multiple variables from parents. There are factors from parents that influence the academic and learning achievement of their children, those are parental involvement, parental level of education, and parental physical limitations [5]. If parents cannot involve in their children's education, the children's achievement could be down to lower-level academic. For some parents, it is possible to pay for tutoring from a paid tutor rather than the parent's involvement. In this research case, the parents' economic condition cannot pay tutoring fees for their children because of the low-income.

The influence of family economic problems for the implication of children's achievement, there has been some research attention that considered in this research. The research about children's academic achievements is influenced by parental socioeconomic status, which presented findings to the potential of brain structure and cognitive skill associated with the environmental conditions [6]. The poverty's effects on children's mental health prevention strategies have been evaluated, that consider poverty reduction through programs and policy have positive impacts on the mental, emotional, and behavioral health which focus on cognitive skill, academic achievement, and physical health [7]. To achieve the Sustainable Development Goals on equitable quality education for children, the major challenges are to create programs that concern the children's right to get a good education without being limited by economic conditions [8].

Socioeconomic condition and learning difficulties that experienced by children in RPTRA Asthabrata is related to the Sustainable Development Goals. These problems must be handled by Universitas Pembangunan Jaya (UPJ), which has been arranged in the Science and Technology program for the community. For people with low socioeconomic levels, UPJ has conducted a study on financial assistance for small business development through consulting services in terms of its management [2]. Good and correct financial management is needed by the community to achieve a good socioeconomic level. In line with these needs, at present the required mastery of information technology that supports financial management and economic activities of the community. Based on the above, a community service activity planning program has been carried out in terms of financial management with information system applications.

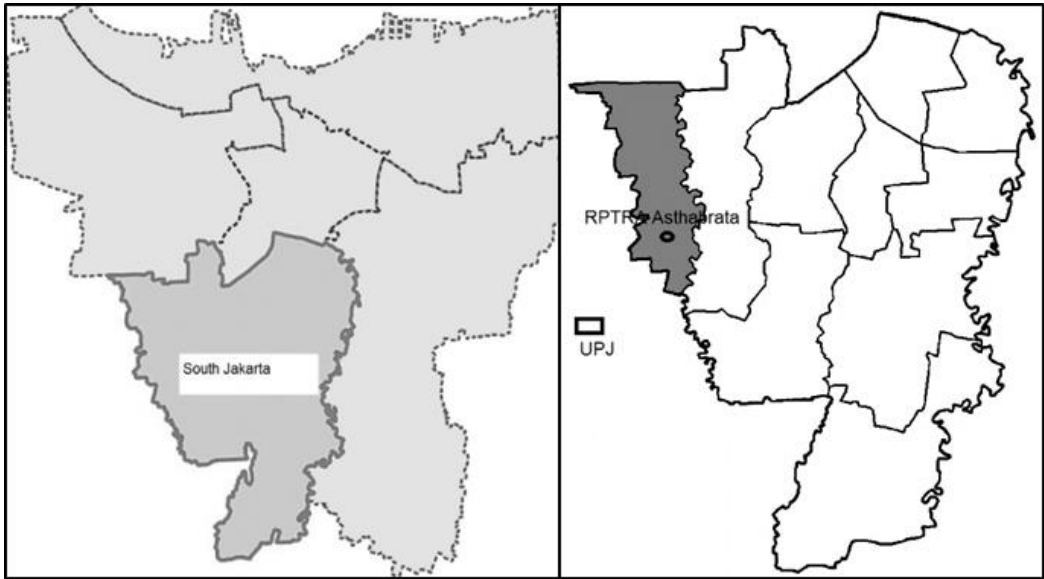


Figure 1. Jakarta City, South Jakarta, RPTRA Asthabrata, and UPJ Location.

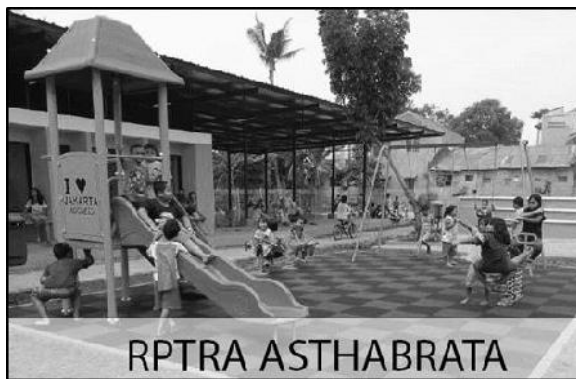


Figure 2. Children play at RPTRA Asthabrata (Source: Prolansekap Indonesia).

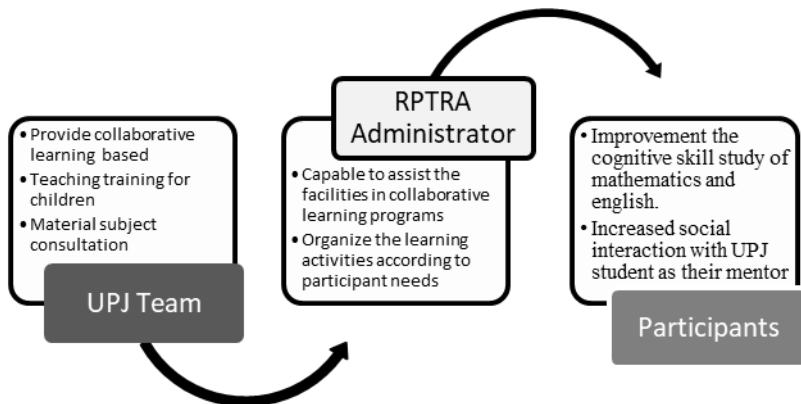


Figure 3. The activity design for children' sustainable development program.

According to observations made by the RPTRA administrators who already taught and helped the children, they found the children have difficulty in learning Mathematics and English subjects. The children bored and desperate when they cannot solve the problems. Regarding students' learning difficulties in Mathematics, the research described the case where teachers were performed not well understand for students' learning difficulties, only focus on mathematics topics [10]. By implemented guided discovery learning in teaching, the results find the improvement of student achievement [11]. The design of collaborative works for a student doing mathematics makes the learning process become easily [12]. The easy way of learning mathematics to understand and remember can make children eager to learn more without pressure, the skill is increasing naturally [13].

Based on the previous study, UPJ lecturers and students formed a team (UPJ Team) to prepare material and prepare students to support this activity. The administrator of RPTRA Asthabrata becomes UPJ's partner in finding solutions to the needs of children for study guides. From the results of a situation and problem analysis study conducted by UPJ lecturers and the RPTRA Administrator, it was agreed to carry out tutoring activities as an initial stage of a sustainable program of activities. The activity is to provide tutoring in Mathematics and English to support children's activities in RPTRA Asthabrata. The program's research is designed for the purpose to achieve Sustainable Development Goals for the children's activities, as shown in Figure 3.

METHODS

The planning of this activity of research was initiated by a meeting between UPJ Lecturers, students and administrator of RPTRA Asthabrata in Juli 2019. The meeting discussed the role of administrator of RPTRA Asthabrata, the children and the activities conditions of children for the study. Plans of leaning programs, technical implementation and training materials are proposed from UPJ. The methods activity explained as follows:

1. The UPJ team visit to the partners, administrator of RPTRA Asthabrata conveying the purpose and objectives of the implementation of this activity, after knowing the need for tutoring as children activities in RPTRA.
2. The results of the meeting were followed up by the UPJ Team by drafting a program of guidance and materials to be given to the participants of the activity.
3. Tutoring activities for elementary school-aged children in RPTRA Asthabrata are started on August 10, 2019. This activity was attended by participants consisting of elementary school-age children in Bintaro Village, around 15-30 children participate.
4. The evaluation of material study that has been given to participants, can change direction if the children already mastering of the material.
5. To measure the quantitative results of this research activity in terms of cognitive achievement, pre-test and post-test were conducted. Participants get a score in percent (%) for the correct answer from the question given. Quantitative data analysis using the formula Gain [3],
$$= \frac{\text{post test score} - \text{pre test score}}{100 - \text{pre test score}}$$
, indicates the score has or not gain values that will increase knowledge from participants. Based on

the gain values, there are 3 categories of acquisition gains that indicate an increase in the test scores, namely High ($g \geq 0.7$), Medium ($0.3 \leq g \leq 0.7$) and Low ($g \leq 0.3$).

Substantially this activity besides providing the basics of knowledge cognitive inefficient learning to achieve the objectives to be achieved, this guidance is very useful especially for elementary school children in mastering lessons in school. In this activity, Partners participated with the UPJ Team from planning to program evaluation. Many partners are directly involved with the target audience, conducting preliminary studies to see the interests of the target audience of this tutoring activity.

This activity was carried out in 16 learning meetings between the UPJ Team and participants. Each meeting has completed an evaluation to see to what extent this guidance is truly useful and can be used well by the participants. For the next meeting, the UPJ Team coordinated with Partners regarding the implementation of the next guidance based on the evaluation results of the meeting that had been held, the following material for this tutoring was determined. The UPJ team always maintains a good relationship with Partners so that they will always inform the UPJ Team about the process of implementing other activities that are needed.

For the implementation of this activity, learning material is determined based on observations on the learning process carried out and the participants' requests for guidance on the certain subject matter which are still difficult to understand. In this case, the UPJ Team has agreed with Partners to provide the time and place of implementation, so that the facilities needed for tutoring can be prepared. Tutoring and accompanying material prepared by the UPJ Team. The activity has been held for 16 learning meetings, every Saturday in one semester with the material studies are provided by the UPJ team.

At the beginning of the meeting, the guidance is given general learning material that is easy and interesting for children to want to learn. In this meeting, English subject matter was given at the basic level for the topic "to be." After completing the lesson, an evaluation is carried out on the material that has been provided with the participants and the RPTRA Asthabrata management. Because there is a request for guidance on learning material other than English and Mathematics, it is prepared to be given at the next meeting.

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Table 1. Material study at 16 learning meetings

NO	MATERIAL STUDY AT LEARNING MEETINGS
1	English learning topics to be
2	Story Telling “Indonesian Unity and Unity”
3	English learning “Simple Past Tense”
4	Learning Mathematical story problems
5	Simple multi-digit learning of numbers.
6	Learning to use Simple Present Tense
7	Story Telling “Clean and Healthy Life”
8	Self-Introduction in English
9	The norms of daily life
10	Learn and play using English words
11	Simple advanced multiplication learning
12	Advanced Mathematics story learning
13	Mathematical story problems in English
14	Practical “The Importance of Clean Living”
15	Practical “Respecting Parents”
16	Practical “Clean and Healthy Life”

For the implementation of this activity, learning material is determined based on observations on the learning process carried out and the participants’ requests for guidance on a certain subject matter which are still difficult to understand. In this case, the UPJ Team has agreed with Partners to provide the time and place of implementation, so that the facilities needed for tutoring can be prepared. Tutoring and accompanying material prepared by the UPJ Team. The activity has been held for 16 learning meetings, every Saturday in one semester with the material studies are provided by the UPJ team.

At the beginning of the meeting, the guidance is given general learning material that is easy and interesting for children to want to learn. In this meeting, English subject matter was given at the basic level for the topic “to be.” After completing the lesson, an evaluation is carried out on the material that has been provided with the participants and the RPTRA Asthabrata management. Because there is a request for guidance on learning material other than English and Mathematics, it is prepared to be given at the next meeting. The second meeting given was Story Telling “Indonesian Unity and Unity.” Then, for the next meeting, the material will be given based on the results of the evaluation and the request of the participants, so that the activities carried out in each meeting with tutoring material can be seen in Table 1.ond meeting given was Story Telling “Indonesian Unity and Unity.” Then, for the next meeting, the material will be given based on the results of the evaluation and the request of the participants, so that the activities carried out in each meeting with tutoring material can be seen in Table 1.

RESULT AND DISCUSSION

The results of this research have considered in two aspects, cognitive knowledge aspect from quantitative measurement by using pretest and posttest calculation and development of attitude aspect of the participants by observation. For quantitative measurement, 12

participants are selected to observe, as shown in Table 2. The number of participants is determined because of that participants always present at the learning meeting, continue to follow the instruction from the mentor. Many participants have increased their achievement on their learning in this program, as we can participant no 4 and no 8, they increase their achievement well than others. At the first learning meeting, they have barriers because of the financial problem for the textbook equipment, by supporting book facilities that prepared from UPJ students, that children feel friendly and easy to study.

From the graphical presentation result that we can be seen in Figure 3, the achievement of a participant who left behind with a score of less than 6 is found in participant number 12. This participant still struggling to have time for study and practicing the homework, must help their parent for doing business, and has no time for study.

In the quantitative measurement overall, the results of the cognitive knowledge aspect were shown by the number of participants getting improved. All participants (100%) which were continuing this activity program increased their knowledge with different categories. As shown from Table 3, the participant who received an increase in knowledge in the low category was 8%, this participant has already known well the material and continue learning because of his own interest. Participants in the medium category amounted to 25%, these participants knew the material. Participants in the high category were 67%, those participants were not yet active in the material learning, then by exercise and mentoring with UPJ students, the ability to develop their achievement.

Table 2. Pretest and Posttest score of the 12 participants

No	Pretest	Posttest
1	4	8
2	5	7
3	6.5	8.5
4	5.5	8
5	5	7.5
6	6	8
7	7	7
8	4	8
9	4	6
10	6	7
11	5.5	7
12	4	5

Table 3. Participant Achievement in learning program

CATEGORY	GAIN	NUMBER OF PARTICIPANT (%)
HIGH	$g \geq 0.7$	8 persons (67%)
MEDIUM	$0.3 \leq g < 0.7$	3 persons (25%)
LOW	$g < 0.3$	1 person (8%)

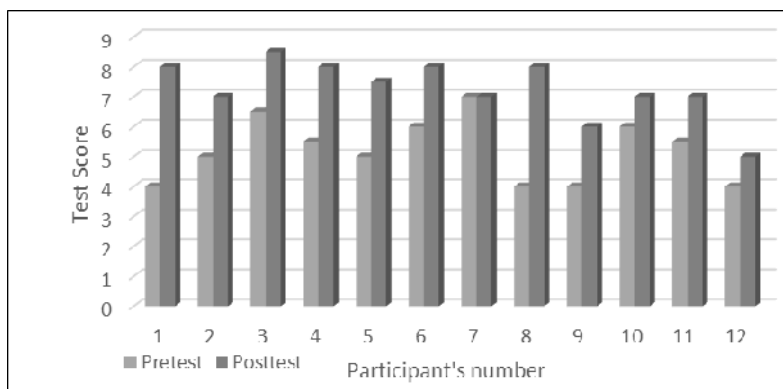


Figure 4. Pretest and Posttest score comparison of the participant achievement.

For the qualitative measurement through observation and interviewing the participants, the results are achieved as follows:

Participants Show a Good Attitude to Follow the Learning Process

This can be seen from the attendance of participants at each time the tutoring meeting. Participants are active in completing assignments and can discuss topics from questions given by lecturers and students. In providing learning and mentoring, coaching is done by motivating to learn to participants so that they are interested in material subjects that are considered difficult. The material of the subjects given by the supervisor always adapted to the needs of the participants present at this activity. In tutoring students are involved in a lot of discussions to hear first the participants' needs for material that is considered difficult. Then discuss ways to resolve the difficulties faced by participants. In this discussion, it takes patience and creativity from students when communicating with participants in making questions, interesting illustrations and interlude discussions so that participants do not become bored or reluctant to talk. When this activity is carried out there are also other activities that can be done besides learning such as playing futsal. Participants who follow the guidance are not required but follow it because there is a need for participants to solve material problems in school. So that the motivation of participants has been selected from themselves because there is a desire to learn. Learning is based on the participants' needs, not to complete the target material from the curriculum but on their interests and desire to know a topic. In Figure 5 shown participant who follows the guidance with enthusiasm in discussing in following the questions from the companion, namely students who provide learning material in mathematics. At the same time, there was a futsal play activity carried out by a group of other children in the RPTRA, but this participant had chosen to take part in a tutoring activity so that it looked active and had a curiosity that was more than the material provided.



Figure 5. The participants actively discussed with UPJ students.

Participants ask students to solve math problems, students direct how to solve them by discussing what is known by the participants. In this tutoring process, assistance has been carried out to direct participants to the way they know the solution by emphasizing which parts the participants must understand. From the steps he had learned, participants discussed to get the solution to the problem according to his understanding. In the discussion, the facilitator did not give a direct answer but gave guidance with directions that attracted participants to learn and made participants interested in increasing their knowledge.

Generating Participant Motivation to Learn

This tutoring activity is not limited to certain class levels. Children who can attend at the time specified by the RPTRA can be free to ask directly to the UPJ team individually or in groups. Many children of early age are learning to come for guidance. The need to be able to learn by understanding deeply at the age of starting learning needs to get a good and clear direction so as not to confuse the child with the understanding obtained from the school or teacher who teaches it. Assistance is carried out following the lessons that have been given from the school, from the books they have, following the flow of understanding and knowledge that the participants have. So that participants do not find other understandings that conflict with the teacher at school.

Guidance is given by the companion by showing and explaining the part that must be learned by participants after which participants will be interested in learning individually to complete the subject matter that has been directed earlier. Interest in learning individually can be seen to have been running by a friend of the participant.

Participants Were Able to Complete the Material Provided

From this activity tutoring, participants are expected to be able to carry out learning activities independently or in groups. In the implementation of grouping or independent activities are not shared by the UPJ team. Participants are given the freedom to study according to their liking. Participants who attended consisted of students in different schools

and different classes. If anyone wants to study in groups or independently, they can do so in the tutoring activities.

If they encounter difficulties, they can ask directly to the lecturer or UPJ students who accompanied this activity. Seen from one side of informal learning can provide freedom for participants to determine their choice to learn. This awakens the participants to have the motivation to learn with fun. After frequently meeting with UPJ students, communication has become more intimate and open in expressing the difficulties of the subject matter being faced. With an independent or group study guide, participants will feel comfortable with themselves to be able to master the lessons of interest.

UPJ Students Can Develop the Potential for Teaching

This activity involves students to assist participants in getting tutoring. The opportunity is given to students to teach participants in an informal setting, not only giving benefits to participants, but students also get benefits. Students prepare themselves for how to explain their knowledge in a language that is understandable to participants. An interesting explanation will make participants interested in the topic of the lesson being given. When giving explanations to participants, students do it in groups with their peers, so that the learning atmosphere takes place by interesting discussions and questions and answers.

By assisting this activity, students have the opportunity to prepare for teaching, determine learning materials by solving problems and communicate with tutors. From the discussion in preparing the material and making the question material that requires time to arrange according to the ability of the participants, then this activity becomes part of preparing themselves for students who are interested in working in the world of education. The implementation that has been carried out in RPTRA Asthabrata, attracted the interest of other RPTRA administrators to conduct tutoring activities like this.

CONCLUSION

This research successfully developed the achievement of the children in learning Mathematics and English at Community Service in suburban area. From quantitative results indicate the possibility of increasing the achievement of children from the family with low socioeconomic condition. The achievement is increased if these children have learning guidance to understand the difficult subjects. The participation of university students and its impacts on the children attitude are considered in the qualitative measurement. The results show the good attitude and respect of the children to their tutor, would make the learning process more effective and freindly communication. Integrating the university students knowledge with activities to teach the children, would make them try to provide the best from the knowledge they have gained during previous learning. Further suggestion for how the sustainable development of community may be achieved, the more attention to children is needed for the children to pursue their objectives, this could change the way of their activities related with the community activities in suburban area.

ACKNOWLEDGMENTS

The authors would like to thank the Department of Accounting and Department of Information Systems at Universitas Pembangunan Jaya for facilitating this research, especially the students who participated in this activity. Special thanks to RPTRA Asthabrata Administrator who gave their time for consultation and cooperative work to find the solution for our children.

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ABOUT THE EDITOR

Wayan Suparta

(Chief Editor)

Associate Professor
University of Malaya



Wayan Suparta, PhD has experience as a high school teacher, lecturer, and researcher for over 25 years. His latest position is Associate Professor at University of Malaya, Kuala Lumpur, Malaysia, where previously it was a principal lecturer in the Department of Informatics, Universitas Pembangunan Jaya Tangerang, Indonesia (6 Feb 2019 – 5 Feb 2020), lecturer at the Dept of Electrical Engineering, Sanata Dharma University, Yogyakarta (Feb 2018 - Jul 2018). Previously, he was an Adjunct Professor in the Department of Civil Engineering at the Yogyakarta University of Technology (Sep 2017 - Jan 2018). He is also an associate faculty member at the Doctor of Computer Science (DCS), Bina Nusantara University (BINUS) Jakarta. Before returning to Indonesia, he worked at Universiti Kebangsaan Malaysia (UKM) as a lecturer and researcher from the rank of Senior Lecturer to Associate Professor from July 2008 to April 2017. He began his career as a teacher of Physics, Electronics, and Computers in high school from SMUK Cor Jesu Malang (1994-1997), and a teacher at SMUK Santo Aloysius Bandung (1997-2000). Appointed as a Lecturer in Electrical Engineering at College Legenda Group, Malaysia (2000-2004). After get a Ph.D. in March 2008, he was appointed as a Post-Doctoral Fellow (2007-2008), subsequently appointed as a Senior Lecturer (1 July 2008 - 3 April 2012). His teaching area is electronics/electrical engineering, informatics, physics, and statistics, while his research is focused on GPS/GNSS Technology, Communication Systems (Remote Sensing), Smart Systems, and Artificial Neural Network and Data Mining Applications for Meteorology and Climate Change.

MEMBERS OF THE EDITORIAL TEAM

Johannes Hamonangan Siregar, PhD is currently a lecturer of Information Systems Program Study at Universitas Pembangunan Jaya, Tangerang, Indonesia. He is also Scientific Coordinator for Information Systems, member of the Board of University Senate and the Board of Widayakala University Journal. He teaches Foundations of Mathematical Logic, Database Systems, Knowledge Management, Information Security and Network Administration. He considers his students to find smart solutions for Information System challenges that can be overcome through understanding mathematics. In the past, he was mathematics lecturer at Surya College of Education, Indonesia in 2013. He also has work experience with Japanese industry. In 2006, he was a system analyst to develop mobile phone at NEC Company Projects. Then he joined the University of Tsukuba e-learning project in 2010. Based on his educational and industry experiences, he has research interest in algorithms for database systems, mathematical modelling in information systems and mathematics education.



Nur Uddin, PhD is an assistant professor at Department of Informatics, Universitas Pembangunan Jaya in Tangerang Selatan, Indonesia. He received PhD in Engineering Cybernetics from Norwegian University of Science and Technology (NTNU) in Trondheim, Norway in 2016, master degree in Mechanical Engineering from Gyeongsang National University (GNU) in Jinju, South Korea in 2009, and bachelor degree in Aeronautics Engineering from Institut Teknologi Bandung (ITB) in Bandung, Indonesia in 2002. He has five years industrial work experiences in an oil service company and airlines. He began academic carrier in 2017. His research areas are in system dynamics, control system, robotics, artificial intelligence, and computer vision. His current research is autonomous mobile robots.



Hendy Tannady, PhD - His career as practitioner began in Quality Engineering division at mining shoes manufacturer in 2008, then he worked in Production Planning Inventory Control at one of seafood processing industry and became a Market Research Analyst at Binus university in 2009. Career in academic began in 2010 as Head of the Integrated Industrial Engineering Laboratory at Binus University. During his work at Binus University, he was actively involved in preparing the process of re-accreditation B to A and ABET international accreditation. Since 2013 to June 2019, he was trusted by Universitas Bunda Mulia as Head of Industrial Engineering Study Program, concurrently he was Manager of the Research Department (February 2018 – January 2019). Since July 2019, he has been trusted as the Dean of Faculty of Humanities and Business at Universitas Pembangunan Jaya. His research is focusing on Operations Management, Management Science, Industrial Psychology and Organizational Behaviour.



Yohanes Totok Suyoto, PhD is a management lecture and researcher at Universitas Pembangunan Jaya, South Tangerang, Indonesia. He has also served as a Head of Management Department in the university for almost two years (August 2, 2018 – present) from which he undertook his passion on researching in Marketing. Previously, he was a lecture at Pelita Harapan University, Surabaya, for eight years (August 2010 – July 2018) and Widya Mandala Catholic University, Surabaya, for six years (September 2003 – January 2009).

Since 2012, he also served as a member of professional association, Indonesia Marketing Association/IMA. He obtained his Ph.D in Management science from Airlangga University, Surabaya. As a senior lecture, he has given lectures in Management areas, e.g., Strategic Management, Change Management, Marketing Management, Strategic Marketing, Global Marketing, Consumer Behavior, Creative Management and Customer Value.



Frederik Josep Putuhena, PhD is a full professor and began his professional carrier as Tutor at University of Indonesia, and promoted as lecturer for Water Resources Engineering in 1976. He received British Council Award for study at University of Newcastle upon Tyne, UK, and received Master of Science in Engineering Hydrology. His experience as Water Resources Planner was gained, while conducting various river basins planning projects in Indonesia. In 1991, he received award from Indonesia Planning Board, for Doctoral study in SUNY at Buffalo, USA. Later, he taught at Pancasila

University, Jakarta. Also, assigned as Coordinator for Capacity Building in Water Resources Sector in Indonesia (1997 – 2000). Then (2003 – 2016) he was assigned as lecturer in the Faculty of Engineering, Universiti of Malaysia Sarawak (UNIMAS). Currently, he is teaching at Universitas Pembangunan Jaya, Jakarta. Overall, the courses cover Numerical Analysis, Statistics, Hydrology, Hydraulics, Urban Drainage, Water Resources Engineering, Hydraulic Structures, and Engineering Economics.

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As Professor at the Universitas Pembangunan Jaya, with daily activities in lecturing, doing research, as well as water resources development planning, I really praise Nova Science Publishers for publishing selected papers from "2020 International Conference on Urban Sustainability, Environment, and Engineering (CUSME 2020)". This publication would be useful for professionals, researchers, scholar, policymakers, and NGO. I believe that currently, many professionals would like to give more attention to the development of sustainable urban. In addition, this publication could be used as a reference for city authorities to make appropriate policy choices to protect the provision of equitable housing, health, and transportation services.

Prof. Ir. Frederik Josep Putuhena M.Sc., Ph.D
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Center of Excellence on Energy Technology and Environment (CETE)
Faculty of Engineering, Naresuan University, Thailand


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www.novapublishers.com

ISBN 978-1-53618-560-7



9 781536 185607

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