

Model Orientation of Social Mobility and Communication Based on Problem-Based Learning Concepts for Environmental Understanding on Visually Impaired Students

by Sri Joeda Andajani

Submission date: 25-Aug-2020 06:13AM (UTC+0700)

Submission ID: 1373633213

File name: 13._ICSE_2019.docx (214.27K)

Word count: 5481

Character count: 31975

Model Orientation of Social Mobility and Communication Based on Problem-Based Learning Concepts for Environmental Understanding on Visually Impaired Students

Sri Joeda Andajani, Pamuji

Department of Special Education, Faculty of Education

Universitas Negeri Surabaya

Surabaya, Indonesia

sriandajani@unesa.ac.id, pamuji@unesa.ac.id

Abstract—This study aims to produce a prototype product of the model orientation of social mobility and communication based on problem-based learning for understanding environmental concepts on visually impaired students. This development research uses the Educational Research Development (R & D) design models from Gall, Gall and Borg (2003). The result of prototype products, as follows: 1) practical guide books on braille and alerts access to in-outdoor environments and roads to various campus environment, 2) audio program application in android as part of problem based learning, 3) authentic assessment tool for measuring success in social mobility and communication orientation.

Keywords—social mobility orientation and communication; environmental concepts understanding

I. INTRODUCTION

Visually impaired students as individuals who have abnormalities in their visual senses are going through issues that interferes their activities on daily basis. As a result of this impairment, the understanding of the outside world is not obtained as a whole. Krech, Crutchfield, and Ballachey (in Depsos, 2002: 35) [1], states that visually impaired individuals experienced abnormalities in their physiological structure and rely to other senses to perceive the environment. Lowenfeld in Lydy Reidmiller, [2] states that visual impairment could cause three forms of limitations, namely 1) the limitations of the concept and the diversity of experience, 2) limitations in the interaction with the environment, 3) limitation in orientation and mobility. This means that students with visual impairment often have limited motion on their environment. This happens since visually impaired students have less mastery on concept of building layout of their surrounding.

In conjunction to the orientation model of social mobility and communication as a compensatory for visually impaired students in doing their activities such as mobility, socialization and communication in both indoor and outdoor environments, they must understand the layout of each environment as the

second closest part from house after family for visually impaired student [3]. 8 hours in a day or approximately 33% of the time spent by the students are at the university environment. Even visually impaired students who participate in the student association regarded the university environment as their main environment for daily activities [4].

There are many rooms in the university used for learning activities. Therefore, the arrangement of rooms on every level, lecture halls, lavatories, and other facilities require in the learning process must be comprehend well for students with visual impairment. When they do not comprehend the concept layout of the building, they will experience difficulties moving from place to place. Furthermore, Physical Education learning requires them to do activities outside the building where it takes time to provide a comprehensive concept of the surrounding [5].

Giving a good comprehensive concept of their environment will help them to become more independent in social mobility orientation and communication. In understanding indoor environment, visually impaired students need to find landmarks and clues or signs as their direction for walking. One effective way in the social mobility orientation and communication for visually impaired students is to develop a model.

Supported by the observation of professors who teach students of 2017, that visually impaired students like to sit side by side with the hearing impairment student, touching and talking with one using visual sign language and the other using auditory language. Visually impaired students are usually slow in their movement and seems hesitant. Rooms that are supposed to be disabled-friendly are still underutilized. Guiding tile on the pathway is also set to minimize obstacles to travel from place to place. These complex problems cause difficulties for visually impaired student to do daily activities [6].

The mastering level of visually impaired students in environmental concepts for social mobility orientation and

communication regarding university environment is low, compare to the broad landscape of such environment. In addition, they usually obtain direction verbally from other student. Such information could be understood incorrectly by visually impaired students. It is also discovered that visually impaired students are still having problems in understanding an object that is too broad such as a university environment.

To overcome these problems, there are two ways that need to be conditioned, 1) provide provision orientation skills of social mobility and communication that can be used as a basis for students with visual impairment to perform various activities in a university environment, 2) develop a media that can give a depiction of university environment. Therefore, the development model of social mobility orientation and communication are packed through the use of technology which is based on the problem based learning as one of the solutions [7]. Learning technologies (instructional technology) in the design, development, utilization, management and evaluation of processes and resources for learning [8] Utilization of technology for learning strives to design, develop, and utilize a variety of learning resources, making it easier for someone to learn everywhere, whenever, whoever, and in any way and resources adjust to the conditions and needs.

2
According to Tooze (1991) orientation is the ability to understand the relationship between one object with another object; the creation of a mental pattern of the environment . Mobility training covers the acquisition of skills and techniques that make people who have visual impairment can travel more easily in their environment. In the orientation mobility, the concept of direction and distance are two important things that must be understood by a person with visual impairment. Once they understand the concept of direction and distance, visually impaired students will be able to travel promptly and effectively, in the sense that they can reach the desired destination. While effectively means that they can get to the desired destination safely and in a short time.

Social understanding and communication are built based on the relationship between two or more individuals that interact to express their opinion. In addition, understanding the concept of the wind direction is very useful for visually impaired students to build self-reliance in conducting orientation and mobility on FIP faculty building. This concept gives understanding to students about the eight direction of the wind and how to determine the angle formed by a certain direction of the wind. Direction of the wind for the visually impaired students is considered very important to know and understand through direct practice.

OMSK model selection through the use of appropriate technology for visually impaired students need to pay attention to the characteristics and needs. Visually impaired students use more feeling and hearing for observations. The use of technology presented should be able to be optimized for the visually impaired students through palpation and hearing. Then the use of the selected technology can be controlled directly by visually impaired students and they may also create

interactions to objects or other learners. Therefore, the right OMSK model based on problem based learning for visually impaired students in order to instill mastery of concepts of social environment is interactive audio program. Interactive audio program has been widely used by educators to improve the achievement of learners, and the results are very positive.

[9] in a study says that the use of teaching materials in the form of audio support print instructional materials in learning Braille. Visually impaired learners can interact with the instructional materials to obtain information. Heinich, Molenda, Russell and Smaldino (1999: 229), said multimedia refers to various combinations of two or more media formats that are integrated into the form of information or program instructions [10]. The program is a multimedia interactive audio equipped with a controller that can be operated by the user, so the user can choose what is desired for further processing. The most important characteristic of interactive audio program are students not only pay attention to media or objects, but also expected to interact socially during the process.

This interactive audio program designed in android to provide guidance for visually impaired students to help them travel to various places on FIP faculty building. Furthermore, this interactive audio program equipped with directions to each building, making it easier for visually impaired students to identify each space at faculty environment. Interactive audio programs for visually impaired students set as a guide to get to various places available on FIP faculty environment, and will be recorded and memorized as their knowledge. Such knowledge will be confirmed by visually impaired students through interactive audio program in android and available for use with Braille-incorporated guidebook.

These conditions shows that visually impaired students have difficulty in mastering the concept of the university environment, resulting poor ability of orientation of social mobility and communication. Social environment that is too large and spacious make it very difficult to be oriented by visually impaired students. The complexity of the access pathways and building orientation often perceived falsely by visually impaired students and make them often hampered. These problems arise because visually impaired students are lack of imagery / mapping to the social learning environment. Therefore the development of OMSK model which supported by audio program media can represent the existence of social learning environment that can be observed through auditory and palpability of visually impaired students [11]. OMSK model on problem-based learning with interactive multimedia will be an alternative to deliver the concept of building layout on social learning environment and communication for visually impaired students.

The purpose of this research is to produce a orientation model and social mobility communication based on problem-based learning of environmental concept comprehension for students with visual impairment.

II. METHOD

This research using research and development (R & D) approach model of the Borg and Gall (2003) [12]. This study will produce social mobility orientation model and communication of in-outdoor environment concept for visually impaired students majoring in undergraduate PLB FIP Faculty UNESA. The research procedure can be seen schematically in the following drawing.

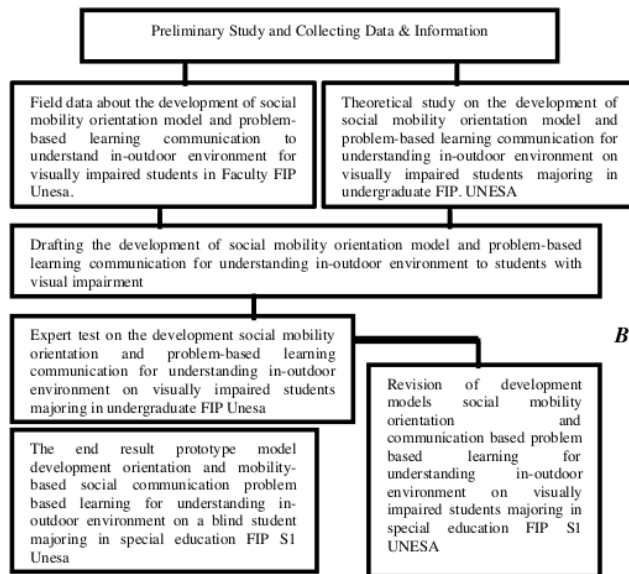


Fig.1. Schema of Social Mobility Orientation Model And Problem-Based Learning Communication for Understanding Environmental Concept

A. Trial Product

The product test on research development includes:

1. Draft Test Validation

Social mobility orientation model and problem-based learning communication for understanding in-outdoor environment on a visually impaired student developed in this study is expected to have a high level of eligibility [13]. Therefore it is necessary to do a series of validation tests of products produced and at the same time make revisions based on test validation. Validation test conducted according media expert reviews and visual impairment expert reviews.

2. Subject Tests

Subjects testing the product in two stages, namely:

a. Experts review Stage

Subject test product evaluation by 1) instructional technology specialist, and 2) PLB visual impairment expert.

b. Product test by subject

After obtaining correction and input from experts, social mobility orientation and problem-based learning communication for

understanding the concept of the campus environment visually impaired students tested at the Undergraduate PLB Department FIP faculty of UNESA.

3. Data types

The types of data in this study are quantitative and qualitative data. The quantitative data is in the form of information obtained by using assessment instruments. Assessment instrument used to obtain data from the test product validation by experts specialized in media technology learning and PLB experts. While the qualitative data is in the form of (1) information about condition of students with visual impairments in social mobility orientation and communication obtained through interviews with professors and peers, (2) information regarding the orientation and mobility ~~course~~ that have been given to students, (3) input, feedback, and suggestions for improvements based on the results of expert assessment [14].

B. Data collection technique

Data collection techniques in this study are:

1. *Observation techniques*
2. *Mechanical questionnaire*
3. *Interview techniques are used to:*
 - Obtained information about the social mobility orientation and problem-based learning communication program of learning environment from OM course lecturer.
 - Obtaining a product assessment of university orientation instructional media using a model of social mobility orientation and problem-based communications learning from PLB experts and Learning Technology experts specialized in media. Instruments such as observations, questionnaires and interviews, are used to obtain information about the needs of students with visual impairments, learning program of social mobility orientation model and problem-based communication learning for visually impaired students in understanding environmental concept.
4. *Performance tests*

Performance tests are used to determine the performance results of the program for visually impaired students at the Undergraduate Department of PLB UNESA.

C. Data Analysis Techniques

The qualitative descriptive technique of data analysis is used to process the review result from experts. This analysis is done by classifying information from qualitative data in the form of input, comments, criticisms and suggestions for improvements that have been provided through a questionnaire [15].

III. RESULT AND DISCUSSION

1. *Process of Social Mobility Orientation Model and Problem Based Communication Learning for Students with Visual Impairment on Environmental Concept at the Department of PLB FIP UNESA.*

In order to produce a model of social mobility orientation and problem-based communication learning there are stages or development process that requires compliance with the rules of the existence of the theory and field observations. Initial stages of product development done in preparation of the prototype model of social mobility orientation and problem-based communication learning for understanding the concept of university environment at undergraduate department FIP faculty UNESA. Reference for model developmental stage requires supporting references both from journals or books regarding visual impairment. Besides, the direction of this development refers to Borg and Gall (2003:775) model in product manufacturing preparation, as follows.

a. *Research and Information Collecting (Preliminary Study and Information Collection)*

In this stage, as the initial execution for searching and collecting information can be developed through:

1. *Literature review*

Literature review conducted to obtain theoretical references in developing models of social mobility orientation and problem-based communication learning, for understanding environmental concepts in visually impaired students. Literature review activities are carried out by reference to various kinds of books and journals about information and communication technology and interactive audio program software [9].

2. *Field studies*

Field studies determine the initial place to conceptualize a product prototype, by choosing a college institution from the campus that is representative of accepting blind students. Undergraduate PLB major at UNESA is an institution that accommodate students with special needs as a place to prepare for creating a model.

Then make observations, interviews and review of documentation in the form of landscape conditions of the Faculty of Education building. To obtain information on the condition of the field objective to the place chosen, information was obtained from the Head of Equipment at the Surabaya State University. The observation process began when visually impaired students arrived at the PLB department until they entered the lecture building. The results of data collection interviews with visually impaired students (even semester 2017/2018), shows that not all of them dare to be self-oriented when they arrive on university. This means that they still require assistance to enter the university towards the lecture building.

Affirmation of the results of the literature review and field studies provide information that visually impaired has

three limitations, namely 1) environmental and the diversity of experience limitations, 2) limitations in interacting with environment, and 3) limitation in orientation and mobility [16]. Thus visually impaired students often have limited motion in the environment. The weakness of the concept of direction and distance are the constraints experienced by visually impaired students. The observation result obtained the fact that visually impaired students often get lost during their mobility in the university environment. A description of the position or layout of each building on university are not embedded in their minds. In addition they have less guidance for direction.

The finding of the interview deliver to one of PLB professor to examine the mobility of students with visual impairments who often hesitant and lack of courage to walk out by themselves in new environment. Besides, visually impaired students are usually less able to comprehend directions and require a good listening skill. Social mobility orientation model and problem-based communication learning is developed with attention to the rules based on the actual needs of the visually impaired. This model is in form of *talks back* audio program, packed in every android mobile phone of visually impaired students majoring in undergraduate Faculty of Education. Field study obtained the concept of the building and direction used in the process of social mobility orientation and communication and will be introduced to visually impaired student as follows.

- a) Enter PLB building and go up from the 1st floor to the 4th floor
- b) Go down from 4th floor to the 1st floor
- c) Heading into the Personnel Office (ADMINISTRATIVE OFFICE) Faculty of Education
- d) Return to Education Personnel Office (ADMINISTRATIVE OFFICE) Faculty of Education
- e) Heading into FIP Library
- f) Return to FIP Library
- g) Heading into FIP cafeteria
- h) Return from the cafeteria to PLB Department building

b. *Planning*

Planning is required to describe the initial product prototype model of social mobility orientation model and problem-based communications problem learning to determine the sort order for the systematic development [17]. This plan consists of:

1. *Formulating objectives.*

The objectives formulated in this plan are the first step in developing a product prototype, beginning with an overview of the landscape of students with visual impairments. Reference to an overview of the condition of building and land area owned by Surabaya State University, especially the PLB FIP Department environment.

2. Arrange the budget for the purchase of materials for the manufacture of product prototypes of social mobility and communication orientation models, which are packaged in software programs on Android. Funding

needed in the development of prototypes began with designing through discussion with information technology experts, learning technology experts and blind PLB experts, namely a) practice of mobility orientation pathway guides in the campus of the PLB undergraduate, canteen, library and Administrative office FIP office, b) recording sound for audio programs, c) making applications that can be downloaded on the internet, and d) transfer applications to android mobile.

3. *Determination of the experts.*

This development requires experts who are competent in their fields to make the initial, revision, and final product. It takes experts in the field of electrical engineering, learning technology experts and PLB experts. Electrical engineering experts are needed in producing audio programs for Android mobile applications that contain pathway search guides.

5. *Planning travel time by route.*

Time based on the route depends on each students position from beginning to the destination. In producing social mobility orientation and problem-based communication learning, the routes have been determined to be frequently needed by visually impaired students in the university environment, through instructions that are included in the android application.

6. *Qualifying product prototype model.*

Products developed require the participation of people who are competent in the field of information technology, learning technology and Special Education especially in the field of visual impairment.

c. Develop Preliminary Form of Product (Design Development or Initial Product)

This phase is to develop products social mobility orientation model and problem-based communication learning, through the following steps:

1. Determine the design for product prototype of model orientation social mobility and communications.
2. Determine the distance (s) between one place to another on the various university buildings
3. Making draft for access road guide in the university area of PLB FIP UNESA, this in the form of manual guidebook for prototype model orientation social mobility and communications.
4. Making the android application program.

2. Product Development Result Social Mobility Orientation Model And Problem Based Communication Learning for Environmental Concept On Visually Impaired Students

The product prototype model of social mobility orientation and problem based learning communication is used for understanding environmental concepts in visually impaired students. In this development, mainstreaming is placed on the

landscape of buildings in the campus of Undergraduate FIP department UNESA. The social mobility orientation model and problem based communication learning is programmed to make it easier for visually impaired students to interact in various places on university. The results or products of social mobility orientation models and problem based communication learning can be viewed from two aspects, as follows.

a. The physical aspect of the prototype model of social mobility orientation model and problem-based communication learning

The physical aspect of the prototype models OMSK consists of the design, the form of preparation, hardware and software, audio components guide for pathway, and the user guide manual.

1. **The product design orientation model of social mobility and communication-based problem-based learning**

This product is designed for students with visual impairment. For the design model of social mobility orientation and communication is made according to the needs and characteristics of the visually impaired students. This design consists of:

- a) Audio programs. For easier orientation for visually impaired students, the program narrator provides hints that sound melodious intonation and pronunciation.
- b) Android applications. Packaging is one of the priority scales that will be used to position the software programs in every mobile phone brands. Beside the storage of audio program application for social mobility orientation model and communication.



Fig.2. Mobile Android in Audio Program Orientation Mobility Model Social and Communication

- c) Practical handbook braille writing and alert. This is as a support to help students when their phone in low battery condition, practical shapes with A5 size makes it easier to carry. Below is the practical guide book covers of orientation model social mobility and communication



INSTRUCTION
MANUAL FOR
SOCIAL MOBILITY
MODEL
ORIENTATION AND
PROBLEM-BASED
COMMUNICATION
LEARNING IN
ENVIRONMENTAL
CONCEPTS FOR
VISUALLY
IMPAIRED STUDENT

by:
Dr. Sri Joeda Andajani, M. Kes

SPECIAL EDUCATION DEPARTMENT
FACULTY OF SCIENCE EDUCATION
RESEARCH INSTITUTIONS AND
COMMUNITY SERVICE
SURABAYA STATE UNIVERSITY
SEPTEMBER, 2018

Fig.3. Practical Handbook Cover of Model Orientation Social Mobility and Communications.

2. The content of the product aspect of social mobility and orientation models based communications problem based learning

Aspects of content on a prototype product model product orientation and social mobility based communications problem based learning is associated with the route guidance voice clarity, clarity of instructions and clarity clue that will be directed.

- a) *The narrator voice clarity.*
Narrator voice on the audio program guide route was recorded on computers equipped with special software for recording and in a soundproof chamber, which results in a good quality audio.
- b) *Instruction clarity*
In these guidelines the audio program is using simple language that is easily understood and comprehend by visually impaired students. Instructions for directions using terms left and right. While the instruction for distance using the term footsteps.
- c) *Clarity of clue or sign*
Audio program for route guidance equipped with signs or instructions that can be used as a indicator clue for visually impaired students mobility. Sign or clue contained in the university environment for mobility in the PLB-Early Childhood Educational Program, Administrative office Faculty of Education, Library and Canteen FIP is in form of stairs, garden edges, and road surface. The following picture of the sign or clue within

6
the campus Faculty of Education, State University of Surabaya.



Fig.4. Environmental Campus Faculty of Education, State University Surabaya

B. Discussion

Product model of social mobility orientation and problem-based communication learning for environmental concept to students with visual impairments, resulting in a product prototype based on the study of theoretical and field studies on the limitations, visually impaired students on environmental concept. Limited understanding of environmental impact, especially on the ability to the orientation of social mobility and communication, negatively affect the familiarization of the surrounding environment [18]. When visually impaired students have problems in mastering the concept of the environment, then automatically the orientation of social mobility and communication can be interrupted. The trend for the visually impaired students is to be passive in moving because of fears of getting lost or hurt, when walking in the neighborhood. This is confirmed by Lowenfield in LydyReidmiller, Lauri (2003), states that visual impairment can lead a person into three forms of limitation, that (1) the limitations of the concept and experience diversity, (2) limitation in interacting with the environment, (3) limited in orientation and mobility [2].

Based on this reality, the development of product prototypes and models of social mobility orientation and problem based communication learning to understanding the concept of environment on visually impaired students as a solution in introducing these correct and easy routes from various places. Conformity model Borg and Gall (2003), selected in this study is to develop a product prototype model of social mobility orientation model and problem-based communication learning. This product prototype development process is supported by Smaldino, Sharon E & Russell, James D (2005), product development not only in the form of media, but also in the form of procedures, instruments and the learning process [19]. The following shows that product prototype model of social mobility orientation and problem-based communication learning for environmental concept is

right on target, so as to solve the problems faced by the visually impaired students referring to these cycle steps.

1. *Research and Information* Collecting (preliminary studies and collection of information), through the findings of the fact that visually impaired students often get lost and sometimes wrong towards the desired place when mobility on university. Besides, fear of getting lost and scared of accident resulting in peers' companion requirement. In addition, the weakness of the familiarization the concept of direction and distance are experienced by visually impaired students.
2. *Planning*, as the first step of product development prototype social mobility orientation model and problem based communication learning. Therefore, in preparing the prototype product requires careful planning to achieve perfect social mobility orientation model and problem based communication learning. This mainstreaming begins with searching a storage area of the building landscape in UNESA. This *landscape* reference refer to the condition of buildings and land area as well as the design of the university environmental conditions where visually impaired students can learn together, for developing a product prototype OMSK model.
3. *Develop a preliminary form of product* (Or the initial product design development), this phase develop a product prototype through steps, as follows: a) Searching landscape data of university buildings PLB-PAUD Programs and FIP, b) determining the distance (s) between one place to another on the various university buildings PLB-PAUD Programs and FIP, c) determining product prototype design Model Orientation Social Mobility and Communications, and d) producing draft guide on university pathways at PLB-PAUD Programs and FIP,

Further mainstreaming in education services for children with visual impairment is required to have specific principles [11] including 1) the scale of mental development, 2) the dexterity of the orientation of social mobility and communication, 3) performance, and 4) the repetition in learning. Hadi (2005: 2) argue that education for visually impaired that should be able to make them live independently and move like a normal person is suppose to subject to their potential and needs [6].

Djaja, (1994) which states that there is a learning strategy in the education of visually impaired children based on two ideas, namely: (1) efforts to modify the environment to suit a visually impaired, and (2) Efforts to optimal utilization of the senses that are still functioning, for offset weakness caused by loss of visual function. Make optimal use of the senses that are still functioning are appropriate learning strategies and easy to apply in learning, for optimal utilization and integrated to determine the success in learning.

Based on the above, the product prototype model designed for visually impaired student characteristics are very sensitive to tactile and auditory. Thus, the prototype product that cater to students with visual impairment were developed by combining aspects of tactual and audio programs. That is, the development

of a prototype model of social mobility orientation model and problem based communication learning are packaged based on instructional technology. Learning technologies (instructional technology) in the design, development, utilization, management and evaluation of processes and resources for learning [8]

Learning technologies strive to design, develop, and utilize a variety of learning resources to facilitate anyone to learn anywhere, anytime, by anyone, and the learning resource any way appropriate to the conditions and needs. Lahav, O and Mioduser, D. (2002), said orientation is the ability to understand the relationship between one object to another object; the creation of a mental pattern of the environment. While mobility here includes the acquisition of skills and techniques that make people who have visual impairment can travel more easily in their environment [20]. Mobility training covers the acquisition of skills and techniques that make people who have visual impairment can travel more easily in their environment. In orientation mobility, the concept of direction and distance are two important things that must be understood by visually impaired students. Using the concept of direction and distance, visually impaired mobility will be performing promptly and effectively. Right in the sense that students can reach the destination in accordance with what they pleases.

Understanding the concept of wind direction is very useful for visually impaired students to build self-reliance in making social mobility orientation and communication in the campus area of PLB UNESA FIP. The concept of distance should also be well understood by students with visual impairment. The concept of distance is important to understand so that the students were able to estimate the distance which they would take to get to a place they desire. In social mobility orientation and communication, measure of distance in general is using meters, fathoms, and footsteps. In order to facilitate the visually impaired students to the concepts of distance, simply use the footsteps benchmark. However, in addition to the concept of direction and distance, there is one important thing that must be understood by visually impaired students when they want to know the neighborhood. It is the mastery of the concept of the school environment imagined in the minds of students with visual impairment. To instill mastery of concepts in visually impaired students is not easy. Students who acquire visual impairment since birth, they were poor in the concept so difficult to describe an object, particularly when the depicted objects are only informed through verbal language. Similarly, visually impaired students who acquire impairment after seeing the concept, they have not been able to support the creation of their cognition of the object mapping environment that is too broad. Therefore the need for a media in the form of concrete for the delineation of the university environment can be observed directly by

visually impaired students through the hearing and palpation.

The tactile aspect is manifested in the form of road access and other physical components found in the OMSK model. Audio programs contained in the components of the prototype model are equipped with braille writing that can be touched by visually impaired students. Furthermore, the audio program can be played, is in the form of a road route guide contained in the building form to understand the environmental concepts of the UNESA FIP PLB-ECD Department campus. Therefore, the needs of facilities that are adapted to the conditions of today's digital era are one of the solutions that can help visually disabled people [21].

In line with Heinich, Molenda, Russell and Smaldino (2005: 229), multimedia refers to various combinations of two or more media formats that are integrated into the form of information or learning programs [19]. The prototype product of social mobility orientation model and problem based communication learning for understanding university environmental concept at UNESA PLB-ECD FIP Department intended for visually impaired students is a multimedia model equipped with a controller that can be operated by users, so users can choose one place to another desired place for the next interaction process. The most important characteristics of prototype products social mobility orientation model and problem based learning communication for understanding the concept of university environment that is intended for visually impaired students. Therefore, the prototype product model of social mobility orientation and problem based communication learning using the ASSURE model developed by Smaldino, Sharon E & Russell, James D (2005) produces a prototype product for understanding environmental concepts that contain product design realization and its characteristics [19].

1. The practical guide book writing braille and alert in-outdoor environmental access and roads to various places.
2. Audio program application in android based on problem based learning.
3. Authentic assessment tool for understanding the concept of university as a measure of success in social mobility orientation and communication (OMKS) based on problem-based learning.

IV. CONCLUSION

Development of prototype product results of social mobility orientation and problem based communication learning for understanding the concept of campus environment in UNESA's FIP Department has been designed based on collaboration from information and technology experts, learning technology experts and visual impairment-education experts. The process of developing the prototype product of social mobility

orientation model and problem based communication learning through the following steps a) mapping building landscape on university area, b) determining the distance (route) between one place to another place from various university buildings, c) determining the product prototype design of social mobility orientation model and problem based learning communication, and d) making pathways access guideline draft in a practical guidebook for the use of product prototypes of social mobility orientation models and problem based communication learning.

Model Orientation of Social Mobility and Communication Based on Problem-Based Learning Concepts for Environmental Understanding on Visually Impaired Students

ORIGINALITY REPORT

4%

SIMILARITY INDEX

2%

INTERNET SOURCES

2%

PUBLICATIONS

3%

STUDENT PAPERS

PRIMARY SOURCES

1

Submitted to University of New England

Student Paper

1%

2

Submitted to University of Birmingham

Student Paper

1%

3

Submitted to Universitas Negeri Jakarta

Student Paper

1%

4

education.valdosta.edu

Internet Source

1%

5

K Mamonto, D Juniati, T Y E Siswono.

"Understanding fraction concepts of Indonesian junior high school students: A case of field independent and field dependent students",
Journal of Physics: Conference Series, 2018

Publication

<1%

6

Rusijono, K Khotimah. "The implementation of assessment model based on character building to improve students' discipline and

<1%

achievement", IOP Conference Series: Materials Science and Engineering, 2018

Publication



ojs.staituankutambusai.ac.id

Internet Source

<1%

Exclude quotes Off

Exclude matches Off

Exclude bibliography Off

Model Orientation of Social Mobility and Communication Based on Problem-Based Learning Concepts for Environmental Understanding on Visually Impaired Students

GRADEMARK REPORT

FINAL GRADE

/100

GENERAL COMMENTS

Instructor

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8
