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Detection Learning Style Vark For Out Of School Children (OSC)

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Abstract. Learning style is different for every learner especially for out of school children or OSC. They are not like formal students, they are learners but they don't have a teacher as a guide for learning. E-learning is one of the solutions to help OSC to get education. E-learning should have preferred learning styles of learners. Data for identifying the learning style in this study were collected with a VARK questionnaire from 25 OSC in junior high school level from 5 municipalities in Palembang. The validity of the questionnaire was considered on basis of experts' views and its reliability was calculated by using Cronbach's alpha coefficients ($\alpha=0.68$). Overall, 55% preferred to use a single learning style (Uni-modal). Of these, 27,76% preferred Aural, 20,57% preferred Reading Writing, 33,33% preferred Kinaesthetic and 23,13% preferred Visual. 45% of OSC preferred more than one style, 30% chose two-modes (bimodal), and 15% chose three-modes (tri-modal). The Most preferred Learning style of OSC is kinaesthetic learning. Kinaesthetic learning requires body movements, interactivities, and direct contacts with learning materials, these things can be difficult to implement in eLearning, but E-learning should be able to adopt any learning styles which are flexible in terms of time, period, curriculum, pedagogy, location, and language.

1. Introduction

From the data published by UNESCO Institute for Statistics (UIS) in 2011, there were 122 million children and teenagers who have never gone to school. But in the year of 2013, the number has been increasing to 124 million children and teenagers. Their ages were between 6 and 15 years old, and around 65 million of those live in Asia [1].

According to UIS Indonesia was the 5th of the countries that had large numbers of children and teenagers who had been dropped out of school and rest of them were children who never attended to school, its estimated around 1.3 million (figure 1).

The increasing number of OSC in Indonesia becomes a serious problem, since children and adolescents are the future generation has the right to access proper education. Education and Sport departments had attempted to reduce the OSC number by 13%, but the target was achieved only 1%[2]. Nowadays is the Internet (multimedia) generation, where there are many internet based applications for various purposes, the problem of OSC can be reduced by providing Internet-based learning applications (E-learning). E-learning is internet application that can be accessed anytime and anywhere, so out of school children can still have the access to education.

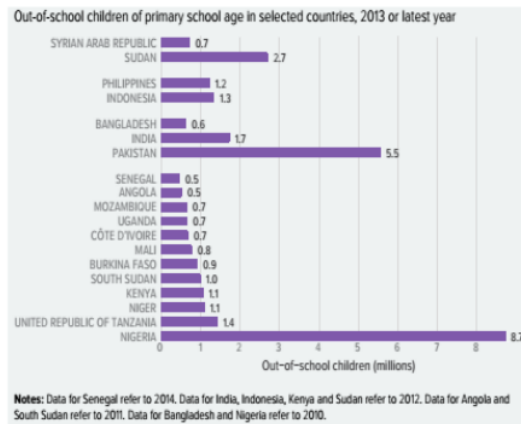


Figure 1. Number of Out of School Children in the World [1]

E-learning is established as all forms of electronic support from the learning process, which is oriented toward the user's character and aims to build systems that refer to the reference contraction of knowledge, experience and training of the user or learner [3]. An E-learning should have instructional contents and provide a learning experience through electronic technology [4].

However, the development of E-learning is not quite enough to think about how to design websites and what are website content. The development of ELearning so far is deficient in providing the proper materials, especially for OSC. OSC do not have teachers as an assistant in process of learning, so it should be considered which learning style that fits OSC individually. Learning style is defined as the various types of signals of different students. The differences are sometimes referred to as a "lifestyle" and is sometimes interpreted as a type of personality, so learning style called as a part of Intellectual styles [5]. Learning styles also often means the differences of academic ability, skills and interests [6]. Learning style is also interpreted as an individual's preferred method for approaching learning and obtaining knowledge [7]. The interesting approach to observe the learning styles that is proposed by Fleming and Mills is VARK (Visual, Aural, Read / Write, Kinaesthetic) [8]. VARK has been used widely in many current studies [8]–[14]. The concept of this approach is to consider the type of student interest in receiving the provided information's.

VARK questionnaire was developed by Lincoln University of New Zealand in 1998. The questionnaire was based on three principles, which are as follows: 1., everyone can learn academic issues; if not, everyone has their own style of learning 2. Learners' Motivation increases when the learning styles of students are adopted to the learning content and 3. The educational concept of learning through the use of different senses and different perceptions [4], [16].

Based on this perspective, people gain knowledge of the environment through four modalities sensory: visual, auditory, reading / writing and kinaesthetic [16]. Four models of the sensors has been described by Fleming on VARK. V (Visual) students prefer to obtain information in the form of images, making them easier to learn by using maps, graphs, charts, and more. A (Aural) students are more easily adopt information from the hearing. R (Reading/Writing) students who can assimilate new information by reading and writing. K (kinaesthetic) students take advantage of the physical experience to learn new things using many sensory modalities like the somatosensory, auditory, smell, taste and visual [17]. Some individuals may have more than one modality learning style, they can be unimodal or multimodal [17], [18].

The purpose of this study is to find the learning style of out of school children, in order to enhance the education of OSC. E-learning help OSC to learn like in the classroom, even though there are no teacher or tutor who help and accompany them. This study took 25 out of school children from five municipalities in Palembang.

2. Research Method

1. Data

Data for this research were gathered with VARK questionair from 25 total respondent of OSC in junior high school level. Data was taking place in five OSC shelters in the area Rambutan, plaju, Jakabaring, Sukajaya and Gandus district in Palembang. Respondents were just taken for children who had attended school before. The difficulty of this sample is the data cannot be categorized according to age or sex. Because there were just 4 number of girls and 21 number of boys.

2. Instrument for Data Collection

Data were collected using interviews and questionnaires. This study used VARK 7.8. questionnaires. This questionnaire consisted of 16 questions where each question had four possible answers. respondents could choose more than one answer according to their needs.

3. Data Processing

at this step, the reliability of the questionnaire with the obtained data would be tested using Cronbach alpha. If the results of Cronbach alpha coefficient was reliable, then data would be processed in accordance with the rules of VARK. if the result wasnot reliable, the data would be taken over by adding the number of respondents

4. Conclusion

The conclusions was based on the results of questionnaires processing and interviews to determine the learning styles of OSC.

3. Discussion

Everyone has different learning styles as well as for OSC in Indonesia, out of school children dropouts can still attend formal education by following an equivalency test in accordance with their education level for elementary school level, they can take the equivalency test for package A, for junior high school level can follow the package B, and Senior High School level can take the packet C. The equivalence test results can be used as formal evidence that the student has successfully completed their formal education. The faced problems OSC is the lack of learning facilities for them. OSC should be able to learn independently without teacher or assistant because they did not attend formal school like formal student, although there have been several shelters that provide learning facilities for OSC, but it is inadequate because their capacity, teacher and learning facilities are limited.

One of the alternative solutions is E-learning, that can be accessed anytime and anywhere. But to develop an e-learning is not easy because ELearning is not only intended to store and provide a variety of learning materials, but also E-learning is able to increase the interest of children to study especially for OSC. So e-learning can help to enhance learning ability of OSC. A good E-learning is it should be able to accommodate the various learning styles of each person who uses the e-learning.

To optimize the development of E-Learning, this study took several samples of OSC in Palembang. Data were collected by visiting several shelters in the some district of Palembang. The problem is in data collecting. Data collecting is difficult to trace the children who did not attend to school, and determine areas in Palembang which has a greater number of OSC. So This study only took 25 respondents in five district in Palembang. These districts were area Rambutan, Plaju, Jakabaring, Sul⁴³ya and Gandus.

VARK questionnaire was used to detect the learning styles of the OSC. Questionnaires VARK¹⁵ sents 16 questions where each respondent can give more than one answer depends on their answer. The validity and reliability of the questionnaire were calculated using the Cronbach alpha. In this study, Cronbach alpha coefficient is $\alpha = 0.68$, which means VARK questionnaire could be used as a reliable tool for collecting data and were able to reveal the actual information of data. Overall it can be concluded there were 55% of respondents have one learning style (uni modal), where 33.3% prefer kinaesthetic learning styles, 27.76 prefer audio learning styles, 23.13% chose a visual learning style and 15.78% selecting learning styles Reading and writing (fig 2). There were 45% of respondents chose more than one learning style, where 30% they chose two learning styles at once (bi-modal) and 15% they choose 3 styles of learning styles (trimodal).

From the data processing, it could be concluded that the most dominant learning styles for OSC was uni modal learning. The first thing should adopt in e-learning was kinaesthetic learning style, the second was the learning style and the third was audio visual learning style, and the last were reading and writing style.

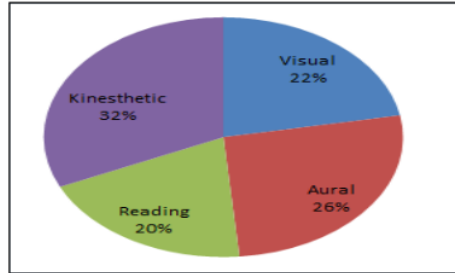


Figure 2. Unimodal Learning Style Of Out Of School Children (OSC)

Bimodal learning style showed in Fig.3, where the dominant learning style was still kinaesthetic even it combined with another learning style. The first learning styles in bimodal were kinaesthetic combined with aural, the second was kinaesthetic and reading, the third were visual and kinaesthetic, the last were combination of visual and aural

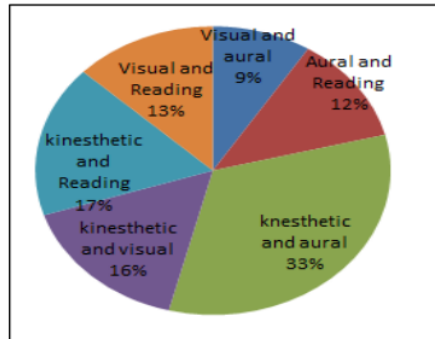


Figure 3. Bimodal Learning Style Of Out Of School Children (OSC)

In trimodal learning style, there were consist of three combination of learning styles. The first combination were Kinaesthetic, Aural and Visual learning style, the second place were combination of Kinaesthetic, aural and reading learning style, and the third were kinaesthetic, visual and reading (Fig.4).

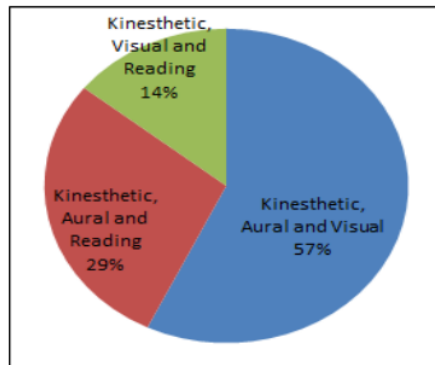


Figure 4. Trimodal Learning Style Of Out Of School Children (OSC)

From [3] obtained results, there were several points to be considered in developing an e-learning for OSC. E-learning should be able to adopt four learning styles to meet the needs of OSC, especially for kinaesthetic learning style. But this is not easy because kinaesthetic learning require movement, interactivity, and direct contact with the learning materials, so e-learning needs some strategies in order to Kinaesthetic learning can be adopted in e-learning.

4. Conclusion

In the development of e-learning is not only concerned with technology. But it has to be able to provide various needs of users with different characters and ways of learning that called learning styles. Based on the data processing, it can be concluded that the most suitable method for OSC are kinaesthetic learning style, even there were some respondents chose other learning styles such as audio and visual. It means E-learning should be as a medium of learning for OSC that flexible in terms of time, period, curriculum, pedagogy, location, and languages, so they can still learn and study according to their learning styles, especially kinaesthetic learning style which is quite difficult to be adopted directly into an e-learning

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