

PERSONA DEVELOPMENT: ANALYZING VARYING CHARACTERISTICS OF SLOW LEARNER CONTEXT IN RELATION TO READING ABILITIES

Marzita Mansor¹, Wan Adilah Wan Adnan², and Natrah Abdullah.³

¹Universiti Teknologi MARA (UiTM), Malaysia, marzita@fskik.upsi.edu.my

²Universiti Teknologi MARA (UiTM), Malaysia, adilah@tmsk.uitm.edu.my

³Universiti Teknologi MARA (UiTM), Malaysia, natrah@tmsk.uitm.edu.my

ABSTRACT. Designing personalized interface for reading purpose to fulfill the needs of children with reading disabilities, especially the slow learner, is not an easy task. It requires indepth knowledge of the children and their ability to read as well. Realizing that the basis for user-centered design is the knowledge of users and task, this study take an initial step by developing the slow learner persona. Better understanding of the slow learner persona and reading scenario enable the designer to develop suitable personalized solution that can cater slow learner reading difficulties. This paper presents the development of slow learner persona in accordance with the principles of human-centered design (HCD). Data collected through interviews and observation of slow learner reading activity are analyzed and transformed into slow learner persona to be used as a reference in developing personalized reading application for slow learner children with reading difficulties. In particular, the slow learner persona presents as context templates to derive information needs of users in relation to reading ability to be used as vital elements for developing personalized reading application.

Keywords: user centered design, personalized, interface, slow learner, persona

INTRODUCTION

Recently, personalization has been regarded as important aspect for development of teaching and learning material. Personalization is preferred due to its capability of improving efficiency and its ability to suit with individual need (FindLater, 2010). Providing personalized learning is crucial aspect in ensuring learning material match with the children needs and ability especially for slow learner children. Slow learner, due to their inability to read, require personalization which can reduce complexity and improve interaction efficiency in order to make reading material looks easy for them. Nevertheless, the slow learner children are unfamiliar with personalized learning material although the need for them to use personalized reading material is crucial. However, it seems that providing personalized material for slow learner children is a tough task due to the definition of slow learner children are debatable among previous education practitioners. Although the definition of the slow learner are varies, the characteristics of the slow learner children are quite similar. Slow learner is one of categories of children who have difficulty in literacy (especially in reading) (Borah, 2013) and a bit slow compared to their friend at the same age group (Sugapriya & Ramachandran, 2011; Pujar, 2006). In order to motivate them to read better the right approach need to be

introduced. Recently, the boost of the use of technology especially in the personalization of learning provides a good opportunity to be introduced to these young children. This paper presents a result of a data collection conducted in a primary school in Malaysia using HCD process in order to gather knowledge on slow learner profile and the reading context. The outcome of this study, the persona then is presented in a context template form to make it easy to be used as design reference.

IDENTIFYING SLOW LEARNER READING NEED THROUGH HCD PROCESS

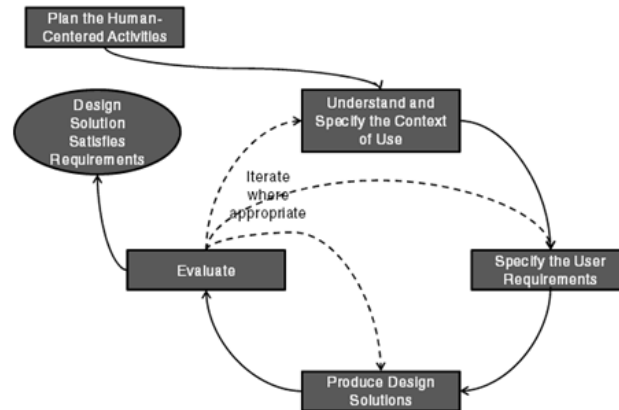


Figure 1. The HCD Process Model in ISO9241-210 (1999)

Human Centered Design (HCD) methodologies have common characteristics that have positive impact on the education and practice of researcher and designers. By definition, (HCD) is a methodology that formulates a design process to support researcher conducting research to design a novel personalized interface solution (Botta, 2011). HCD is a design process in which it is a purposeful focus on the end users throughout the design process. HCD also provide a clear picture on the explicit technique and practice on developing design solution to users.

This paper will discuss user requirement study using Human Centered Design (HCD) process; which involves two important activities; “understand and specify the context” and “specify the requirement”. In particular, this paper will only discuss on two activities in the HRD process to focus more on the user requirement study and the development of slow learner persona. The first activity “understand and specify the context” involves data collection process of slow learner personal information and reading ability, needs and preference. The data collection activities in this process involve document analysis, interview with school teacher and observation on slow learner children in the classroom while performing reading task in the classroom. This activity captures user personal information and user reading activities which describe on the way knowledge on user and reading task are captured. After the data collection process, the “specify the requirement” activity involves the development of slow learner persona to be used in the design process.

Activity 1: “understand and specify the context”

This activity involves clarifying slow learner characteristics through interview with the slow learner teacher, analysis on slow learner related documents and observation on slow learner reading activities performed in the classroom setting. During the data collection activities, a group of slow learners was gathered in a remedial session located in a classroom to teach them reading intensively. During this session the slow learner shows that each of them have unique characteristics. The slow learner children, nevertheless of their ability to read, have similar characteristics like a normal children of the same age group. They shows their

potential to successfully become a good reader and eager and enthusiast to use technology for reading purpose. On the other hand, each slow learner unique characteristics that show the need to provide personalized reading material for slow learner children are captured for future design reference. The data gathering process involves two-hour-session with a teacher and 8 slow learners which involve the following activities:

1. Get-to-know session with the children

Introductory or get-to-know session with the slow learner children starts with each of the slow learner children introduce him/herself by giving information on their name, hobbies, sibling and families, location of his or her house. The purpose to make the children comfortable during the observation and interview session conducted.

Read-aloud session with the children using eBook application using Ipad.

Read-a-loud session with the children provide an opportunity to participate and interact with the children during the reading activities. For the purpose of the study, an eBook application which comprises of storybooks stored in a bookshelves online were introduced to the children. The reading activities of the children were captured by observing the slow learner reading style stimuli using Reading style inventory manual by Marie Carbo (1981). The result then will be used as design reference in the development of slow learner persona.

2. Individual reading session

The purpose to interact individually with each of the slow learner children is to understand reading problem of the slow learner and to gather information on each slow learner reading ability, reading style and preference.

Other than that, the observation was conducted in order to confirm result of LINUS on the reading ability and identify whether repetition make the children read better. By referring to the result of LINUS, the slow learner reading ability was tested and each slow learner reading activities was observed. The data then documented for future design reference.

3. Closure session

The interview and observation session with the slow learner and their language teacher refining perception that the slow learner children are categorizes as children with special needs. In fact as mentioned by previous study on slow learner, they are normal children. Their inability to read can be changed into personalized reading materials suit with their need, reading ability and preferences.

Table 1. Data Collection Process: Data Captured During the Data Collection Activities Conducted

Data Collection Activity	Respondent/Material	Data Captured
Interview	1 School Teacher	1. Slow learner reading activities 2. Slow learner performance 3. Slow learner characteristics 4. Slow learner family background

Document Analysis	<ol style="list-style-type: none"> 1. Birth Certificate 2. LINUS Examination result 3. Reading material 4. LINUS Teaching material 	<ol style="list-style-type: none"> 1. Slow Learner Profile 2. Reading ability (determine by LINUS examination result) 3. Screen captured material provide by ministry of education
Observation/ interview on reading activities	8 Slow Learner Children	Reading Style Stimuli <ol style="list-style-type: none"> 1. Environment stimuli: sound, light, temperature, formal/informal design 2. Emotional stimuli ;motivation, persistence, responsibility and structure 3. Sociological stimuli; preference (peer, self ,pair, with teacher) 4. Physical stimuli;read best with (visual modality, auditory modality, tactual modality, kinesthetic modality, multisensory) (*Reading style inventory manual by Marie Carbo (1981) User Interface design elements (Font, Animation, Audio, Graphics, Personalized experience)

Activity 2: “specify the requirement”.

This activity involves the development of slow learner persona using the specific requirement collected from activity 1. Basically, the development of slow learner persona is adopt from child-persona framework from study conducted by Antle (2007). Antle in her study on child persona has developed child-persona framework which covers theories on children and the design aspect important to fulfill the need of the children (Antle, 2007). This systematic way of building a persona then is adapted in the development of slow learner merely to suit the research needs. The adaptation of child-persona framework in the development of slow learner persona is discussed in the following session.

SLOW LEARNER CHILDREN READING FRAMEWORK

Child-persona framework by Antle (2007) concerned on two aspects before creation of any child persona; the theories related to the children and the experience of the children has on the related activities involved. Similarly with the study conducted, the consideration of the children related theories and design is then mapped into three relates dimensions of the framework; childhood needs, developmental abilities and experiential goal. The first two dimension focus on the knowledge of the slow learner and reading ability while the experiential goal concerned on experience that the children will get when using the end product. Due to the need of the study to focus on the reading activities of the slow learner children and by considering the different needs of the slow learner children, the dimensions that will be used in the creation of the slow learner persona is slightly different. The dimension proposed for personalizing reading applications for slow learner children are the slow learner profile and needs, reading abilities and reading style stimuli and interface design experience.

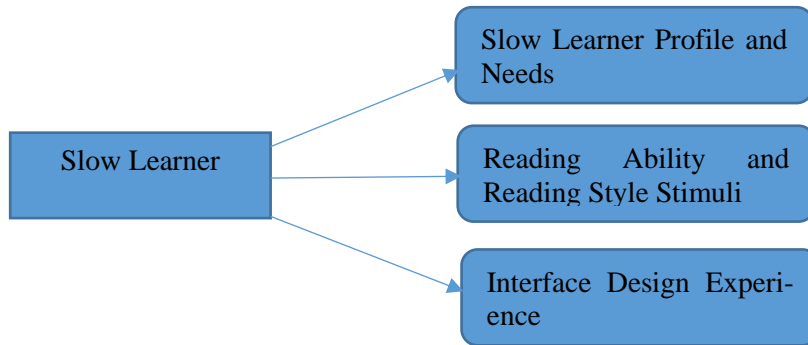


Figure 2. Slow Learner Persona Framework (Adapted from Child Persona Framework Antle (2007))

In brief, the slow learner persona framework consist on the information on the following criteria by considering unique characteristics of the slow learner children compared to normal children at the same age group.

SLOW LEARNER PERSONA

Persona, a model of a user (Blomkvist, 2002) resembles the characteristics of a user and the interaction on the related activities. In relation to build a persona for children with reading difficulties, these important elements, the user profile and reading context such as slow learner reading needs, user experience and reading ability of the slow learner are captured in order to help the designer to include necessary elements in the interface design as a solution.

Summary of Persona for Children with Reading Difficulties



Priscillia Mercy

Priscillia is a 8 year-old sweet Indian girl who adores to be a nurse so much. She is a neat girl and the way she looks \ and smile like a sweet young nurse she loves to be. In her own view nurse is a decent job and nurse looks pretty as well. Her kindness shines when she mentioned that the nurse has her own ways in doing good deeds. Other than that she loves frozen cartoon so much. She loves the strong bonds shown between the two main frozen characters, Anna and Elsa. She has a soft character, always smile and loves pink and purple color. During her ample time she loves to swim.

Priscillia is an enthusiasm child and loves to learn reading. Her hand moves synchronously along with the word as the application read the story which show that she understand the word being read. Now her ability to read at K6 as indicated by her Literacy and Numeracy Screening (LINUS) result. LINUS is a program conducted by Malaysian Education Department for children between 7 to 9 years old in order to screen children with reading difficulty for school action. For being able to read ad K6 scale means that Priscillia able to recognize letters, able to hear and manipulate the sounds in spoken words, and the understanding that spoken words and syllables are made up of a variety of sound units.

In relation to reading activities, Priscillia loves to read with music and

talking character accompany her during her reading activity, guide her reading as her reading ability is quite limited. Priscillia loves to read in formal surrounding for example under a tree and while resting at a beach. Priscillia is a self-motivated young children. In relation to reading, Priscillia prefer to read with her teacher, persistent to learn reading and prefer little direction and many choices of reading material. On the other hand, while performing reading activities, she loves to use reading application that consist of animated character, voice over, short sentences and loves to moves her hand around when communicate with the reading application and interact with the reading activities such as games and puzzles.

CONCLUSION

In conclusion, the idea of personalizing reading material for children with reading difficulties is hope can provide an effective personalized reading material to assist these children to learn according to their reading need and abilities. Personalized reading material gives a new hope to the slow learner so that they can read something meaningful to them and gradually improve their reading skills slowly. This paper presented sample of persona in order to show various characteristics and need of children in regards to reading activities. Moreover, building up slow learner persona able to identify a solution to a common problem in the design process, the characteristics of a potential user. These findings suggest that in general slow learner children have unique characteristics. In relation to identify the reading pattern of the slow learner, this study gather relevant information of a user such as slow learner profiles, reading ability and reading stimuli. Future research should therefore concentrate on the investigation of the impact of providing personalized reading material for slow learner children in order to help them grapple with their difficulties in reading.

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