

## Knowledge Portal for Slow Learner Community (K-Portal)

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### Abstract

*Knowledge Portal for Slow Learner Community (K-Portal) develop to prepare a communication platform for the community of slow learner that can give them a better environment to share their knowledge about slow learner. Knowledge Portal for Slow Learner Community is a portal that will deliver knowledge to the community, there are four objectives for this project, which are to identify the requirements of the community, to identify the available courseware that can be used to educate the slow learner, to identify the component that can be used to support the Knowledge Portal and to develop a Knowledge Portal for Slow Learner Community (K-Portal). The method that used to develop the project is a Rapid Application Development (RAD) Model, and the software used in the development process is Microsoft Visual Studio 2015 with SQL Server. The overall objectives successfully achieved through all the data gathering method and the development of K-Portal is done using all the data and methodology studied.*

**Keyword:** Knowledge Management, Knowledge Portal, Slow Learner.

### 1.0 Introduction

The slow learner is a term used to describe a child with the ability to learn all necessary academic skill but not at the same rate as the average child. They tend to take a longer time to understand things and need more repetition of facts before they get specific concepts. In psychometric terms, slow learners have a measured intelligence quotient (IQ) between 70 and 85 (Cooter & Cooter, 2004). They cannot concentrate for a very long time since they have a short attention span, at the same time they also cannot memorize what they have been learning. Besides that, they easily get bored and have no interest in the study. Other than studying, the slow learner may also have a problem with handwriting, sports and life skills. They often have poor, both oral and writing skills, as a result of being quiet and shy, they are having trouble in making friends.

All parents think that their kids are growing healthy physically, mentally and emotionally, but despite their normal appearances, sometimes there is something wrong with them. A slow learner is usually normal in appearance and is able to function satisfactorily in many situation (Cooter & Cooter, 2004). Almost all the slow learner possesses the same

common sense as the average kids, but they do not have the same ability for school work. Some characteristic of the slow learner are they have consistently low score on the test, tend to have an immature interpersonal relationship, lack of confidence, like to play with younger kids, they do not hang out with peers of the same ages since they do not have the same interest. These characteristics are regularly to be seen at the age where this child began to class, setting up special schools for kids in this classification is not handy furthermore not prudent (Krishnakumar, Geeta & Palat, 2006).

Parents with slow learner child are struggling to help their children, they need to do more research to understand about the slow learner. They are assigned to special education class or rehabilitation class. There are many ways that parents and teachers can do to educate the slow learners, some are, teachers can limit the lesson period into several parts since slow learner can easily lose their focus, parents should be encouraged to have a conversation with their kids, and they also can use an interactive and attractive method to teach the slow learner. This problem and suggestion does not only apply in special education class, but it is also applicable for rehabilitation classes.

The slow learner needs more attention to make them understand a single subject. Teachers play an important role to make the slow learner keep on trying to learn new thing without hesitation. Other than that, the teacher needs to attract their attention to keep them with the class. To have multiples initiatives to teach the slow learner can become a big help for their future. Teachers nowadays have many options to choose other than indoor class they can also have an outdoor class to give their students exposure. Another initiative that educator can apply is to use the educational courseware during teaching and learning session to develop the slow learner skills. There are numerous educational courseware's that are available online and can be installed and used.

Multimedia courseware is good choice to be used to teach the slow learner as it is very attractive and can entertain them. Multimedia involves the combination of multiple media elements; text, audio, graphic, video and animation that are utilized for certain purposes (Abdollah, et.al, 2010). This will encourage the slow learner to learn as they are having fun during the session. . Knowledge Portal for Slow Learner Community (K-Portal) is proposed to overcome the problem faced by the slow learner community, with the development of the portal which can help both parents and teachers to educate the slow learner through sharing of knowledge in the portal.

Knowledge Portal are a sort of Knowledge Management System (KMS) that endeavor to give a 'one-stop information shop', that is, a solitary purpose of access to the learning accessible in an association (or even beyond),reprocessed in a manner that it is valuable and appropriate for a learning knowledge-seeking user (Shrivastava , & Vyas, 2014). The purpose of the K-Portal development is to ease both parents and teachers of the slow learner to educate them. The K-Portal will become a platform for the slow learner community to communicate and share their thoughts and experience. Teachers and parents of the slow learner are the community of practice (CoP) that involve for this study, according to Wenger (2011), communities of practice (CoP) are groups of individuals who share a concern or a passion for something they do and figure out how to improve as they communicate consistently.

The overall purpose for this paper is to identify the knowledge requirements for the slow learner community, to identify the available courseware that can be used to educate the slow learner, to identify the components that can be used to support the Knowledge Portal for Slow Learner Community (K-Portal) and to develop a Knowledge Portal for Slow Learner Community (K-Portal).

## 2.0 Methodology

The Knowledge Portal for Slow Learner Community (K-Portal) implements three primary data collection methods to gather the information. They are by distributing the questionnaire to the targeted community of practice via online, observing the students in their class in Sekolah Kebangsaan Taman Desa Skudai, and having a discussion with the Courseware Research Group, the questionnaires was composed using Google forms and distributed into a targeted Facebook group which is "Info Anak ADHD/Lambat bercakap/ Slow Learner / Hiperaktif", the questionnaire has been shared in the Facebook since May 2015 till February 2016.

The second method used is, observing the students in their classroom, on the 14th of April 2015, an observation session has been held in Special Education Class at Sekolah Kebangsaan Taman Desa Skudai. Several number of educational courseware's had been installed into 10 tablets. Students are allowed to try the courseware and they were observed while using the courseware. Lastly, discussion session with the Courseware Research Group, the discussion took place in Faculty of Computing, UTM on 7th of May 2015, in the discussion session several of the appropriate courseware's was presented and evaluated. The purpose of the discussion is to verify the type of courseware that suit different type of learning problem that the students had faced.

Apart from Primary data collection method, this paper also used secondary data collection method which is the studies of journal, case study, books and google play to achieve the objectives. Journal, case studies and book are used to identify some functionality of the portal and to study the project for further understanding. Some studies that performed are the study of similar portal and study of methodologies to develop K-Portal. The studies of a similar portal compared three available portal that we have nowadays, which are i-CARE UTM (<http://www.syerilmu.com/icare/home.php>), Climate Change Knowledge Portal (<http://sdwebx.worldbank.org/climateportal/>), and I-sayang Portal (<http://pmspk.moe.gov.my/index.php/utama>). Each and every feature of all the three portals is studied to understand and to identify whether it can be applied to the K-Portal component.

Other than observation and discussion, list of available courseware was identified through studies of available mobile courseware in Google Play in order to achieve objectives. Since the slow learner is quite slow in mastering something, it is important to evaluate appropriate courseware that will be used during class. Not all the courseware is suitable for their range of ability. Wrong choice of courseware may give impact that is not expected such as easily give up or they will lose interest in using any future courseware. Before deciding which courseware to be used, it is important to know what other user think about the courseware and what are the rate that given by the user for that specific courseware.

A study on available courseware was performed to identify suitable courseware for them. The studies used Google Play as the source of available courseware. The level of courseware indicates which courseware is suitable with students' ability. The level of this courseware identified by studying the courseware, the first step for this study is by visiting the Google Play websites (<https://play.google.com/store/apps>). After viewing the list of courseware given, select appropriate courseware and install to the device and start exploring the application in term of the courseware interface and level of difficulties that the courseware have. The courseware studied is categorized accordingly to its feature and level of difficulties. Table 1 shows the explanation for courseware level.

**Table 1** Courseware Level

Level:	Explanation
1.	Weak in reading, numbering and mathematics operation.
2.	Moderate in reading, able to recognize alphabet, shape and numbers, Master simple mathematical operation (summation and subtraction).
3.	Master all the alphabet, numbers, shape, colors, and good in mathematics operation (summation, subtraction); able to read and understand the content.

### 3.0 Results

Every objective in this project is successfully achieved through all data collection and methodological studies performed during requirement analysis till to the development process of Knowledge Portal for Slow Learner Community (K-Portal). Each element of K-Portal is identified based on the studies performed before the development process takes place.

The questionnaire had been distributed to collect the requirement needed. The feedback stated that it's not easy to find reference regarding to their slow learner children, they also have to communicate to each other through social media or directly calling for the people who are facing the same situation with them to ask for their opinion and another requirement that gathered is that they want to share notes regarding the slow learner that can help them. Thus, from this method, the knowledge requirements needed for the slow learner community is they want to have a platform to find reference related to slow learner, they want to communicate with the community through single platform and there should be a place that they can share notes and any other materials about the slow learner. They need references about their slow learner children that can ease them to help their kids, it is true that any reference can be found online, but not all the knowledge about the slow learner is recorded. Tacit knowledge about the slow learner is really important as different people experience different situation, and not all of it is recorded. Tacit knowledge involves emotion, unwritten or unspoken knowledge that acquired through joint activity, this type of knowledge really helpful for the community. The requirement collected can be simplified as follow:

- Getting references about the slow learner.
- Communicate with other parents.
- Sharing notes and experience.
- Sharing Tacit Knowledge.

The next objective is to identify the available courseware that can be used to educate the slow learner, from the observation method that's run at Sekolah Taman Desa Skudai. It is stated that the courseware to be selected must be interactive and game based courseware to attract the students. Other than that, discussion session with the Courseware Research Group had also conducted to discuss about what are the appropriate courseware to be introduced to the community, studies of courseware for slow learner also have been performed to achieve this objective. As a result a list of suitable courseware that are suitable and recommended is identified as shown in Table 2.

Courseware can be evaluated into three levels, which are, weak user (1), moderate user (2) or advance user (3). Weak user referring to the students that still cannot read or calculate numbers. They should use courseware that will teach them to recognize the alphabets or number such as Educational games for kids. As for the moderate students, they are able to recognize and remember the alphabet or numbers, which makes them easier to use level 2 courseware. Advanced level, is when they can read and calculate, this level enables them to play courseware from level 1 to level 3.

**Table 2** Suitable Courseware for Slow Learner

No.	Courseware	Name	Developer	Language	Level	Rate
1.		Educational games for kids	AppQuiz Bizkaia	English	1	3.7
2.		Belajar ABC	Didik Manja Malaysia	Bahasa Malaysia	2	4.2
3.		Learning colors for kids	Stork Studio Limited	English	3	3.7
4.		Marbel Belajar Shalat	Educa Studio Indonesia	Bahasa Indonesia	1,2,3	4.5

The third objective of this paper is to identify the component that can be used to support the Knowledge Portal for Slow Learner Community (K-Portal). Studies of similar portals have helped to achieve this objective, the studies are comparing three different portals that are

available online which are i-CARE UTM, Climate Change Knowledge Portal and i-Sayang. Through the studies, the knowledge delivered by i-Sayang portal is the most closest to the Knowledge Portal for Slow Learner Community. i-Sayang purpose is to provide various Knowledge information relating to Persons with Disabilities (PWD), this portal helps parents, employer and teachers get details of PWD. As for PWD themselves, they will get complete details of welfares list available for them to have. The studies of i-Sayang Portal is limited due to the registration problem. While the features of i-CARE portal is the most ideal component to be used in the Knowledge Portal for Slow Learner Community (K-Portal). i-CARE enable user to create groups for activity purpose, they can search material that uploaded for reference, they can join the forum and give comments and rate the forum. I-CARE users can create activity and all the details will be posted on the home page. The features provided by i-CARE is the most appropriate features that can be used as part of the K-Portal's component.

**Table 3a** Feature adopted to K-Portal

Portal	Purpose	Feature	Feature adopted to K-Portal
i-CARE UTM	Creating a platform for integrating the various programs and activities related to education towards sustainable development of rural education through the use of information and communication technologies in the field of informatics education.	<ul style="list-style-type: none"> <li>-Create a group</li> <li>-Search for materials files</li> <li>-Forum</li> <li>-Replies Forum</li> <li>-Rating</li> <li>-Create activity</li> <li><b>-Knowledge deliver</b> <ul style="list-style-type: none"> <li>• workshop activity that handles by Lembaga Kemajuan Johor Tenggara (KEJORA)</li> <li>• Materials about the activity perform and file from user that shared in iCARE.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-Create a group</li> <li>-Forum</li> <li>-Replies Forum</li> <li>-Rating</li> <li>-Create activity</li> </ul>

**Table 3b** Feature adopted to K-Portal

Climate Change Knowledge Portal	Provides an online tool for access to comprehensive global, regional, and country data related to climate change and development.	-Custom Analysis Tool -Climate Information MicroSITES - Comparisons Tab <b>-Knowledge deliver</b> <ul style="list-style-type: none"> <li>• Learn about climate</li> <li>• Increase your knowledge on climate change related actions</li> <li>• Map, download, and use resourceful data</li> </ul>	-download materials
i-Sayang	Provides various knowledge information relating to Person With Disabilities. (PWD)	-Bulletin -Notice -language option -link connecting to other websites. <b>-Knowledge deliver</b> <ul style="list-style-type: none"> <li>• Learn about people with disabilities (blind, low vision, color blindness and dyslexia.)</li> <li>• List of information about PWD</li> </ul>	-List of information about slow learner Link connecting to application in Google Play websites.

K-Portal enables the user to initiate the forums and involve in all the forum that's available on the portals. In addition they also can create an activity that they have performed. Users can respond and give rate both forum and activity that posted in the portal. Further morethat, registered user also can invite other people to register with K-Portal. As for i-Sayang, its knowledge delivered is the main reason why it is similar to K-Portal. It delivers knowledge about people with disabilities to the community of practice while K-Portal deliver the knowledge about slow learner and their education method to its community of practice. Thus, component identify for K-Portal is Registration module, forum module, activity module, invite module and addition of courseware module to help the community to decide which the best courseware to use. Courseware module also can be rated and user can give feedback to help other user. Table 3a and Table 3b shows the summary of feature adopted to K-Portal

Last but not least, the fourth objective is to develop a Knowledge Portal for Slow Learner Community. This objective achieved through methodological studies that performed. The methodology used in the development of K-Portal is a Rapid Application Development (RAD), this method is the better version of the waterfall model. Other than that the hardware and software specification also helps in achieving the last objectives. Knowledge Portal for Slow Learner Community (K-Portal) is successfully developed. The hardware specification used is Intel (R) Core (TM) i5-3210M CPU @ 2.50GHz with 8.00 GB RAM and 500 GB hard drive, while the software specification is using Windows 10 as the operating system, database is using Microsoft SQL Server, web developer used is Microsoft Visual Studio 2015. Figure 1 shows the interface for K-Portal that had been developed.



**Figure 1**

#### **4.0 Discussion**

Slow learners can be successful if being thought with appropriate method inside and outside the classes. They need a different approach as they are slower than their peer, slow learners master reading skills only after massed and distributed practice over time (Cooter & Cooter, 2004). To have a platform for parents and teachers to communicate with each other can become a big help for slow learners. Parents and teacher can exchange knowledge in educating the slow learners, with this sharing of knowledge, slow learners' performance can be improved.

Knowledge Portal for Slow Learner Community (K-Portal) provide information related to the slow learner, the module develop is to ease the community with the knowledge that shared among them. Some of the modules available is forum, activity, courseware and invite people. This portal suggests the best courseware to the user, which can save their time in searching and they also can suggest or share any courseware that they think suitable. Other feature that K-Portal support is creating school and students profile for user references, next is the ability of the user to rate the forum and courseware that they think well and can help the community. The K-Portal is developed to use for special education class, which also can be used for rehabilitation classes. Up to this date, the portal is not own by anyone yet, the organization that suitable to own the portal is Ministry of Education Malaysia for national level, and Education District Office by location.

K-Portal provides the link to appropriate educational courseware which is suitable for their child or students' educational purpose. Since K-Portal is specializing in the slow learner

community, the user can start forum to share their experience, knowledge and thought regarding on issues related. K-Portal is the center for the community to gain knowledge with people who have the same problem as they had. On the contrary, limitation of the portal is that it has just been developed only as a web based and have limited file that can be uploaded within a single upload.

## 5.0 Conclusion

In conclusion, the overall objectives are successfully achieved through all the studies and data gathering apply during the research executed. K-Portal is the solution for the slow learner community problem, they can get benefits from the portal and help their children with the knowledge that they gain from the portal. The portal enables the community to communicate and share experience to each other and it also recommends the appropriate courseware to be used.

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