

# **A Conceptual Knowledge Management System for Managing Knowledge of Youth Development Programs within a Collaborative Environment**

**<sup>1</sup>Rusli Abdullah, <sup>2</sup>Siti Zobidah Omar, <sup>2</sup>Hayrol Azril Mohamed Shaffril**

<sup>1</sup>Faculty of Computer Science Universiti Putra Malaysia

<sup>2</sup>Institute for Social Science Studies, Universiti Putra Malaysia

## **Abstract**

The Youth Development Program (YDP) is the concept on how the programs are developed and managed for the purpose of youth towards eco-friendly development system by members of community of practice (CoP) in sustaining the impact economically especially in related to the YDP knowledge (tacit and explicit) called 5 Kx's Model which consist of knowledge collection (KC), knowledge transfer (KT), Knowledge Exchange (KE), Knowledge Utilization (KU), and Knowledge Recommendation (KR). In order to ensure this concept is working based on the user requirement and its program, there are many people who are working together collaboratively (synchronously and asynchronously) as the members of community to promote the lessons learnt and best practise knowledge. The CoP in YDP environment includes the youth administrator, youth agency, youth partner, and youth organizer as well as the youth individually. Based on this scenario of working collaboratively in order to promote knowledge sharing of YDP knowledge among the CoP, there is a need for a tool called conceptual knowledge management system (KMS-YDP) in managing and sharing the knowledge about YDP activities. The combination of these topics will be discussed based on the conceptual and its modelling on how the KMS can offer KM processes as well as its capabilities through knowledge life cycle which starts from knowledge acquisition, knowledge storing, knowledge dissemination, and knowledge application for the benefits of the CoP in YDP environment to work collaboratively. Therefore, by using the KMS-YDP model in managing knowledge of YDP, it can utilize the knowledge in sustaining the environment impact economically. Besides that, they can also deliver as a good platform to enhance the quality of service among the CoP.

**Keyword:** Knowledge Management System, Knowledge Life Cycle, Youth Development Program, Collaboration, Service Quality.

## **1.0 Introduction**

The use of Information Technology (IT) in relation to the Youth Development Program (YDP) is very important nowadays. These concepts of IT together with the YDP are developed and managed for the purpose of providing youth environment learning curve towards eco-friendly development system by members of community of practice (CoP) in sustaining the impact economically called 5 Kx's which consist of knowledge collection (KC), knowledge transfer (KT), knowledge exchange (KE), knowledge utilization (KU), and knowledge recommendation (KR) of YDP in promoting time saving, cost and effort reduction in organizing the YDP activities based on a particular purposes (Ken, 1985; Linda, 2015).

Besides that, in order to ensure those concepts are working based on the youth programs requirement, there are many people who are working together collaboratively (synchronously and asynchronously) as members of the community that can promote and facilitate the knowledge of lessons learnt and best practise especially related to YDP environment.

The CoP members' of YDP environment include the youth administrator, youth agency, youth partner, and youth organizer as well as the youth individually. Based on this scenario of working collaboratively (synchronously & asynchronously) in order to promote knowledge sharing among a CoP, therefore, there is a need for CoP to have a tool called knowledge management system (KMS) in managing the knowledge about YDP environment. The combination of those topics also will be discussed based on the conceptual and its modelling on how the KMS can offer its processes as well as its capabilities through knowledge life cycle which starts from knowledge acquisition, knowledge storing, knowledge dissemination, and knowledge application for the benefits of the CoP in YDP environment. Furthermore using the KMS model in managing knowledge of YDP can utilize the knowledge in KM as a system to for sustaining the environment impact. Besides that, they can deliver a good platform to enhance the quality of service among the CoP.

## **2.0 Knowledge management and Youth Development Program**

In ensuring the Knowledge management (KM) and YDP can work towards supporting the community of practise (CoP) collaboratively, the discussion for both of them should be done separately at the beginning, and then combined so that they can support each other especially in promoting best practise and lesson learnt for the purposes of decision making of CoP requirement.

### **1.1 Knowledge Management**

Knowledge Management (KM) can be managed as a system called KM System (KMS) can allow people or member in a community of practice (CoP) to work together collaboratively especially in managing and sharing knowledge among themselves for a specific goal of mission (Alavi, M. and D. Leidner, 2000; Beckett et al. (2000).

### **1.2 Youth Development Program**

Youth Development Program (YDP) is commonly categorized into 5Kx's which include knowledge transfer (KT), knowledge exchange (KE), knowledge collection (KC), knowledge utilization (KU), and knowledge recommendation (KR) that handle all complicated parts of YDP.

The components in handling the system which would be able to collect the data that generated by real time events which streams coming in the rate of hundreds of events per seconds to produce a report for the CoP (Humphrey and McDowell,2013;Bertziss, 2001).

### **1.3 The roles of KM and YDP in a Collaborative Environment**

The role of KM was created so as to support the YDP knowledge (tacit and explicit) program environment. This scenario of KM and YDP can be classified as a new knowledge sharing in working collaboratively of best practice for eco-friendly computing resources that need to be well managed in a proper way as a system so called as knowledge management system-YDP (KMS-YDP). These capabilities of collaborative KMS such as communication,

discussion through virtual forum and meeting, can be done and viewed in supporting the CoP to work at anytime and anywhere.

Furthermore, it can also promote the business economically and sustain best practice and lesson learnt based on the YDP knowledge environment towards efficiency and effectiveness of its services within the YDP activities.

### 3.0 A Proposed Conceptual KMS Model as a Tool for managing YDP knowledge in a collaborative environment

In ensuring the knowledge of KMS-YDP is managed in a proper way, the model is proposed and it needs to be translated or developed into system prototypes based on KMS-YDP services and its processes for the CoP in promoting knowledge sharing among them through knowledge life cycle (KLC) of KM processes.

This KM processes started from knowledge acquisition, knowledge storing, knowledge dissemination, and knowledge application which can be beneficial for its CoP to work collaboratively using the synchronously – real time and remotely; asynchronously – different time & different place. These collaborative technologies include the portal or blog, mailing system, video conferencing, chatting system, and bulletin board system (BBS).

Figure1 shows how the KLC of KMS-YDP is working collaboratively in supporting CoP to share knowledge in a form of tacit and explicit knowledge among the CoPs (Rusli et al, 2005a; 2005b) especially in related to YDP knowledge environment.

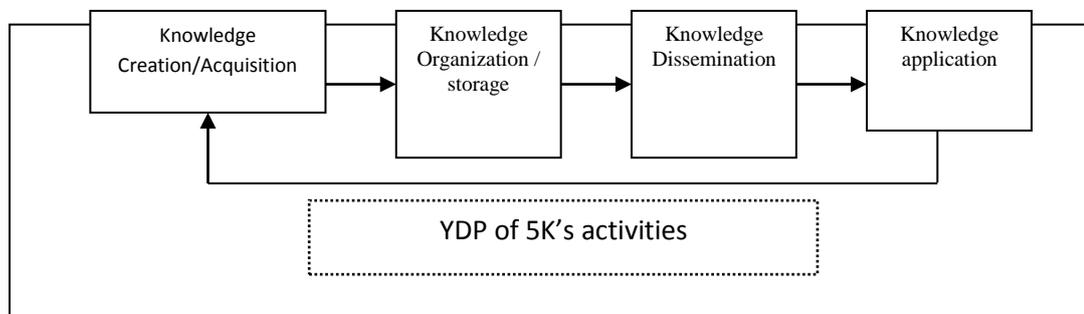


Figure 1: Knowledge Life Cycle for managing YDP knowledge Environment

In the context of KLC, the knowledge that need to be created by the CoP should follow and use the knowledge mapping (K-map) rules such as knowledge ontology, so that it can be easily be stored and accessed as well as to be shared and discovered or generated of new knowledge by the CoP for future purposes.

#### 3.1 KMS-YDP System Architecture

The proposed system architecture of KMS model which consists of three layers can be used to support the CoP in managing YDP knowledge is shown in Figure 2. The system architecture and its layers starts from the community *Application Interface* that include tacit and explicit knowledge of YDP, followed by *KMS functionalities* or services which include the KM processes that consists of knowledge acquisition, knowledge storage, knowledge dissemination,

and knowledge application. Lastly, the layer of KMS-YDP is ended by *KMS technology* such as network technology, intelligent system technology as well as the *KMS Repository*.

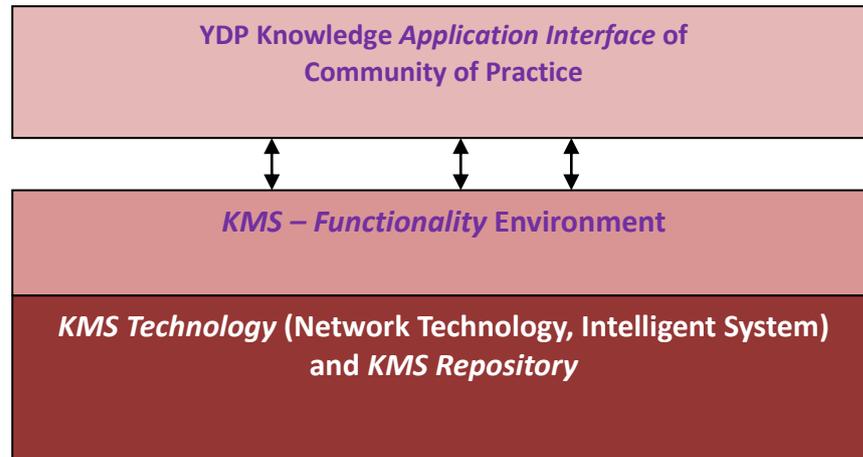


Figure 2: The System Architecture of KMS in managing YDP Knowledge environment

### 3.2 Knowledge Management System Functionalities or Services

YDP is considered as the main programs that is having a lot of knowledge. Furthermore, the CoP can make use of the Conceptual KMS-YDP model which can be translated into system prototype and become a tool in managing knowledge of YDP that can reduce the mistakes or errors especially in handling the program, so that they can provide a good platform as well as to enhance the quality of service of the particular members of CoP. The functionalities or services for managing knowledge of YDP that are served by the KMS can be viewed based on the following features or characteristics of YDP Knowledge or 5K's as shown in Table 1.

Table 1: The Knowledge Characteristic of YTD

| The 5 K's Performance Characteristics   | YDP Characteristics   |
|---|---|
| Knowledge Collection (K-Collection) – to perform in gathering the YDP knowledge   | <ul style="list-style-type: none"> <li>- Program Profile</li> <li>- Program Outcome</li> <li>- Program Schedule</li> <li>- Program Costing</li> </ul> |
| Knowledge Transfer (K-Transfer) – to perform in transferring the knowledge between members of YDP   |   |
| Knowledge Exchange (K-Exchange) – to perform in exchanging knowledge among CoP of YDP   |   |
| Knowledge Utilization (K-Utilization) – to apply or utilize the knowledge of YDP of lesson learnt   |   |
| Knowledge Recommendation (K-Recommendation) – to recommend or alert of new coming knowledge of best practise based on community profiling |   |

### **3.3 Knowledge Management System and Its Non-Functionalities**

On the other hand, the system administrator of the CoP shall also promote the best KMS-YDP that is not just including the functionality (Eri, et al., 2012), but also its non-functionality requirements of knowledge of YDP of KMS such as:

- Usability & Learnability
- Performance & Maintainability
- Reliability & Availability
- Safety & Security

From these system requirements, the CoP can get the access and make use of the particular knowledge of YDP which involves 5Kx's (KC, KE, KT, KU and KR) by using collaborative technology such as portal or blog, mailing system, video conferencing, chatting system, and bulletin board system (BBS) at anywhere and anytime.

### **4.0 KMS-YDP System Implementation's Issues and Challenges**

There are many issues and challenges to ensure these concepts of KM as a system and YDP can be utilized in contributing efficiently and effectively in order to enhance the quality of service to the CoP (Chatfield, et al.; 2013).

These issues and challenges can be categorized into two components. The first component consists of functional requirements and non-functional requirements. These include:

- Functionality or services
  - The system features in serving the CoP for the specific job or task
- Usability
  - To ensure ease of use;
- Performance
  - To ensure a quick time in responding/ feedback
- Security Control
  - Registration and role based access control
- Legality and Governance
  - To administer and protect the programs
- Accessibility and its sustainability
  - To reduce cost, time, effort and to promote eco-friendly environment

The second component is related to human being such as CoP's awareness and incentive or reward system in encouraging the CoP to manage and share their knowledge of YDP environment which involves 5Kx's, (KC, KE, KT, KU and KR).

### **5.0 Conclusion**

As a conclusion, KMS model is a very important tool to support the CoP of YDP in obtaining and sharing the best practice and lesson learnt knowledge among them in a collaborative environment. The KMS-YDP model can be implemented collaboratively by using the component that involves KMS functionality and its related infrastructure through network computer capabilities either directly or remotely.

As YDP is considered as a youth program of knowledge environment, CoP can use YDP in acquiring, storing, disseminating and applying the knowledge for future purposes. Besides that, in order to ensure 5Kx's of KMS in YDP can be done smoothly with a very minimum mistakes so as to enhance its quality of services, the administrator should consider related issues, like performance, reliability, availability and security to be in a good manner. This will help CoP members to access and utilize the particular knowledge at anywhere and anytime.

## References

1. Alavi, M. and D. Leidner, (2000). "Knowledge Management Systems: Issues, Challenges, and Benefits" *Communication of AIS*, Vol. 1, Article 14
2. Beckett A. J., Wainwright, C. E. R., and Bance, D., (2000). "Knowledge management: strategy or software?," *Management Decision*, vol. 38, no. 9, 2000, pp. 601-606.
3. Bertztiss A. T., (2001), "Dimensions of the Knowledge Management Process," *IEEE*, 2001, pp. 437-441.
4. Chatfield, A. Shlemon, V. N, Redublado, W. and Darbyshire, G. (2013) Creating Value Through Virtual Teams: A current literature review. *24th Aust. Conf. Inf. Syst.*, May, pp. 1–11.
5. Eri Z D, Abdullah R et al.(2012). Virtual Communities model using ontology of group classification for research communities, *International Conference on Information Retrieval & Knowledge Management (CAMP)*, 2012. 126–130.
6. Humphrey K. and McDowell A., (2013),"Sense of coherence as a predictor of risky health behaviours amongst teenage girls on a targeted youth development programme", *Journal of Public Mental Health*, Vol. 12 Iss 3 pp. 146 – 152
7. Ken A, (1985),"Developing Youth Training", *Industrial and Commercial Training*, Vol. 17 Iss 6 pp. 12 - 15
8. Linda, C. (2015). The importance of audience and agency for representation: A case study of an urban youth media community" *In Children and Youth Speak for Themselves*. Published online: 10 Mar 2015; 205-231.
9. Rusli Abdullah, Shamsul Sahibudin, Rose Alinda Alias and Mohd Hassan Selamat. (2005a). Collaborative Knowledge Management System for Learning Organizations. *Journal of Information & Knowledge Management*, 4(4). 2005a. pp: 1 -9.
10. Rusli Abdullah, Mohd Hassan Selamat, Shamsul Sahibudin, and Rose Alinda Alias. (2005b). A Framework for Knowledge Management System Implementation In Collaborative Environment for Higher Learning Institutions. *Journal of Knowledge Management Practice*. 2005b.