The Development of Health Communication Support System behind Flood

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Abstract. This research had four objectives: 1) survey of health communication behind flood, 2) to synthesize of health communication behind flood model, 3) to development of health communication support system behind flood, and 4) to study user’s health communication support system behind flood. Mean scores and standard deviations were used for evaluating the model effectiveness and student satisfaction. Participants were divided into four groups: 1) a group of experts (n = 3), 2) contextual informants in model (n = 86), 3) evaluation of satisfaction an integrated research information Phetchabun province (n = 100), and 4) evaluation of development system (n = 42).

The results of the research showed the following:
1) Model for sustainable community health based on technology was highly accepted by the experts and could be further used to development support system behind flood.
2) The evaluation and analysis of expert’s opinion toward the integrated research model was at the highest level of three aspects that the synthesize model was at the highest level with a mean of 4.26 and a standard deviation of 0.36. In summary, the results found that the all expert’s opinion toward the model was at the highest level can be used.
3) The development of health communication support system behind flood were data-management subsystem, model management subsystem, user interface subsystem, and knowledge-based management subsystem. Development of the system using Java and XML via HTTP and the MySQL database. The system design was synthetic model to guideline for design as follows:

- The Client site was operated the user wants to use system through Web browser.
- The Web server was operated the system consisted of three parts as follow: Commutation tool module was a tool to support communication both Asynchronous and Synchronous consisted of web board, chat programs, electronic mail. Participant module was collected the relevant data. User interface management module was revealed and interacts to facilitate use, support and present data to be appropriate and needs for each user.
- The Database server was operated the system consists of information management systems that the administrator were managed data.

The analysis of the evaluation of system efficiency by the experts found that the system efficiency was at the high level of five aspects with a mean of 3.76 and a standard deviation of 0.15 can be used.
The evaluation of user’s satisfaction toward the system in each aspect was at the high level with a mean of 3.77 and a standard deviation of 1.02.

Keywords: Health Communication Support System, Behind Flood.

1. Introduction

Flooding occurs regularly in Thailand, affecting many area and provinces. Phetchabun is a geographical location in the low north of Thailand, located between center and northeast. Physical characteristics are wetlands belly pan, mountains, forests and open plains. The general area slopes down north to south with mountainous formations at the northern edge. The central plains and the mountains are flanked on both sides
forming a horseshoe shape. In 2011, Phetchabun was one of the provinces submerged in water because it is made up of pan-shaped lowlands serving as drainage basins.

Health Promotion is an important strategy that enable person to have a better quality of life by performing healthy behaviors. Unfortunately, most people who live in the northern part of Thailand have a low standard of living and lack the opportunity to access health care services which is made worse by a large number of illiterate people. Health Strategic Plan (Phetchabun) aims to provide the knowledge and self-care. The public health community is an important mechanism for the development of Thailand. The health communication promotes positive behaviors. The system of health communication supports flood victims by understanding and obtaining the necessary knowledge to ensure better health and provide a quality of life in their community.

The recommendation of this research concerning the system health communication for flood victim is that people ought to be given information about of the self-care behavior and eliminating obstacles relating to self-care. Moreover, people in Phetchabun must be conscious and determine to act appropriately in both their own family as well as in the local village community.

2. Objective
1) Survey of health communication behind flood
2) To synthesize of health communication behind flood model
3) To development of health communication support system behind flood
4) To study users health communication support system behind flood.

3. Literature review
3.1. Decision Support Systems (DSS)
Decision support systems are gaining an increased popularity in various domains, including business, engineering, the military, and medicine. Decision support systems can aid human cognitive decencies by integrating various sources of information, providing intelligent access to revel ant knowledge, and aiding the process of structuring decisions [1]. They can also support choice among well-dined alternatives and build on formal approaches, such as the methods of engineering economics, operations research, statistics, and decision theory.

Typical application areas of DSSs are management and planning in business, health care, the military, and any area in which management will encounter complex decision situations. There are three fundamental components of DSSs [2].

- Database management system (DBMS). A DBMS serves as a data bank for the DSS. It stores large quantities of data that are relevant to the class of problems for which the DSS has been designed and provides logical data structures (as opposed to the physical data structures) with which the users interact.
- Model-base management system (MBMS). The role of MBMS is analogous to that of a DBMS. Its primary function is providing independence between specie models that are used in a DSS from the applications that use them. The purpose of an MBMS is to transform data from the DBMS into information that is useful in decision making. Since many problems that the user of a DSS will cope with may be unstructured, the MBMS should also be capable of assisting the user in model building.
- Dialog generation and management system (DGMS). The main product of an interaction with a DSS is insight. As their users are often managers who are not computer-trained, DSSs need to be equipped with intuitive and easy-to-use interfaces.

3.2. Health Communication
Communication systems are the formal or informal structures organizations use to support their communication needs. A communication system involves people, the messages they wish to convey, the
technologies that mediate conversations, and the organizational structures that define and constrain the conversations that are allowed to occur. Elements of communication systems include [3]:

- **Communication channel:** The channel is the ‘pipe’ along which a message is conveyed, and there are a wide variety of different communication channels available, from basic face-to-face conversation, through to telecommunication channels like the telephone or e-mail, and computational channels like the medical record. Channels have attributes like capacity and noise, which determine their suitability for different tasks. When two parties exchange messages across a channel at the same time, this is known as **synchronous communication**.

- **Types of message:** Messages are structured to achieve a specific task using available resources to suit the needs of the receiver. Informal messages, which have variable structures, include voice and e-mail messages.

- **Communication policies:** A communication system can be bounded by formal procedure rather than technology, e.g. clinical handover.

- **Interaction mode:** The way an interaction is designed determines much of the utility of different information systems, and this is just as true for communication systems.

4. **Methodology**

4.1. **The system development procedure**

The system procedure was based on the SDLC cycle (System Development Life Cycle) consisting of seven steps as follows:

1) Project definition, this step is to identify the user, mandate, and basic operating concept, including the system timetable with milestones dates and resources estimates, and a formalized approval /authorization or disapproval of the system,

2) User requirements definition, this step is based on the processes that users conduct in their day-by-day activity,

3) System requirements definition, this step is based on merging user processes and requirements in a way that allow a system to support many different users,

4) Analysis and design, this step is a complex and critical step in determining which system design, based on systems engineering and technology analysis, meets the user and system requirements,

5) System build /prototype/pilot, this step is the execution of the approved design. The validation, verification, and testing plan should drive the system testing and be conducted against the system/data and technical requirements to ensure the system is built to specification,

6) Implementation and training, this step includes all necessary activity to procure, receive, configure, and install the new or revised system, and 7) Sustainment, this step is the last step, it is a dedicated effort to keep the system operating at an optimum level by conducting maintenance and enhancements as determined by periodic reviews [4], [5].

Each of the SDLC phase objectives are described with key deliverables, a description of recommended tasks, and a summary of related control objectives for effective management. The application tools for developing the system were Java and XML via HTTP and MySQL to create the database of the system.

4.2. **The evaluation phase**

The developed system was analyzed by three experts using Black box testing that consisted of five aspects of rating-scale questionnaire as follows: part 1) Output Validation testing, part 2) Functional testing, part 3) Usability testing, part 4) Functional Requirement testing, and 5) Security testing. The data was analyzed by using mean and standard deviation.

5. **Results**

5.1. **Model for health communication behind flood**

Model for sustainable community health based on technology was highly accepted by the experts and could be further used to development support system behind flood. (Fig.1)
5.2. The system architecture

The developed system architecture is shown in Figure 2, this consists of three main parts: web server, database server, and client site. The web server is the main part of the system that consisted of four modules as follows:

5.2.1. The client site

The client site was operated the user wants to use system through Web browser.

5.2.2. The Web server

The Web server was operated the system consisted of three parts as follow:

5.2.3. Commutation tool module

Commutation tool module was a tool support communication, this connects to the system module which provides communication tools (such as web board, chat, email, and etc.) consisted of web board, chat programs, electronic mail.

5.2.4. User Interface Management System module (UIMS)

This provides a user-friendly interface between the users from client site via web browsers on the internet environment.
5.3. Analysis results

1) Model for sustainable community health based on technology was highly accepted by the experts and could be further used to development support system behind flood.

2) The evaluation and analysis of expert’s opinion toward the integrated research model was at the highest level of three aspects that the synthesize model was at the highest level with a mean of 4.26 and a standard deviation of 0.36. In summary, the results found that the all expert’s opinion toward the model was at the highest level can be used.

3) The developed system was analyzed by experts found that the system efficiency was at the high level of five aspects with a mean of 3.76 and a standard deviation of 0.15 can be used.

4) The evaluation of user’s satisfaction toward the system in each aspect was at the high level with a mean of 3.77 and a standard deviation of 1.02 as follows: part 1) Output Validation testing, part 2) Functional testing, part 3) Usability testing, part 4) Functional Requirement testing, and part 5) Security testing.

6. Conclusions

This paper described within this paper has two main aims. Firstly, to incorporate several ideas from area of knowledge management for research into web portal environment and secondly, to implement a health communication support system behind flood.

The research processes were data-management subsystem, model management subsystem, user interface subsystem, and knowledge-based management subsystem. Development of the system using Java and XML via HTTP and the MySQL database.

The results from analyzed data were shown as follows: the knowledge health communication support system behind flood can be used these factors to support the summary of research. The information technology expert’s views were at very good level, that the system is efficiently to support the summary of research. In conclusion, the knowledge can be applied.

7. References


