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Evaluate the interactive and reusable service in adaptive on demand applications

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Key words: *Interactive reusable, on demand*

Abstract:

In this paper, the researcher based on the open platforms and tools for personalized learning idea, with the “Interactive & reusable” function in UI design model, directly dealing with Knowledge on demand (KOD) service from the aspect-oriented and object-oriented issue. Moreover, to propose the KOD combine with VOD (Video on Demand); AOD (Audio on Demand); COD (Course on Demand) and IOD (Information on Demand in Global index searching) in diversity of hypermedia metadata.

Karagiannidis (2002) indicated that the adaptive “Knowledge Packaging” format used in KOD extend emerging international e-learning specifications, enabling the publication of all constituents and determinants of the KOD personal learning model (e.g. raw assets, user profiles, testing points, navigational logic), etc.

However, My argument is, about the adaptive KOD service with human working memory, can it allow people to make sense and rapid decisions from the masses of metadata, and provide external representations in the interactive interface?

In this reason, the aim of this empirical test work involved the development and validation of a novel dynamic environment, and discussion based on the interactive IOD, VOD, AOD and MOD service:

1. Which on-demand service is easier for the user to find the answer, feeling less lost and make less cognitive overload in the lesson/contents.
2. Which on-demand service is easier for the user to retrieve, reuse the lesson/contents they had already learned, and not feel any confusion.
3. Which on-demand service is clearer for the user to arrive at the given topic (in the lesson/contents).

Furthermore, also compare their function to the user cognition and browsing experience separately.

The methodology in this research is select the Taiwan National Digital Archive Program: “The Digital Museum of Nature & Culture” web site (<http://digimuse.nmns.edu.tw/index.jsp>) and aims at the Anthropology category for this empirical test sample.



Figure 1 IOD index searching service



Figure 2 Present the house structure in VOD 3D animation

During the empirical test, 30 subjects were invited to participate in the “KOD non-linear media disorientation assessment“ questionnaire. --- That is the researcher quoted from Beasley & Waugh's (1995) questionnaire, to reorganize and combine with the KOD ideas as the test edition. This questionnaire assessment validity from SPSS Cronbach's Alpha was: 0.742.

Moreover, by Using SPSS to do the Paired- samples T-test & Correlation, the result reveals:

1. Global index searching (IOD) was easier for the user to find the answer and feeling less lost in the lesson/contents than VOD, AOD and MOD service.
2. VOD, AOD, MOD with Video, Audio and virtual reality (3D &2D) service, was easier than the Global index searching (IOD), for the user to reuse (retrieve) the lesson/contents they had already learned, to enhance their cognition memory, and not feel confusion.
3. Global index searching (IOD) was clearer for the user to arrive at the given topic (lesson/contents), than the VOD, AOD, MOD service.

Conclusion:

The multimedia KOD technique interacting with on-line mechanisms and digital learning forms a dynamic and interactive service. Through the interactive IOD, VOD, AOD and MOD service, the reader, using the remote multimedia KOD server, can according to one's interest browse each digital metadata with an interactive style. Moreover, in e-learning adaptive navigation & presentation environment, the teacher may prepare different teaching materials (metadata content), by using the streaming technique, to transmit different digital multimedia metadata. Besides, based on the learner-centered concept, allowing the student to prepare and review the lesson as their individualized learning paths. This will not only make economic efficiency for the student, but will also save time for teacher from duplicating and compiling the teaching material.

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