

Proposal of a mobile learning preferences model

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Abstract:

A model consisting of five dimensions of mobile learning preferences – location, level of distractions, time of day, level of motivation and available time – is proposed in this paper. The aim of the model is to potentially increase the learning effectiveness of individuals or groups by appropriately matching and allocating mobile learning materials/applications according to each learner's type. Examples are given.

1 Introduction

A learning style is defined as a “description of the attitudes and behaviours that determine our preferred way of learning” [1]. It has been repeatedly documented by many researchers that, when learners are taught with specific approaches matching their learning styles/preferences as identified by the Dunn and Dunn model [2], they “demonstrate statically higher achievements and aptitude test scores ... than when they are taught with approaches that mismatch their preferences” [3]. It has been argued that the personalization of materials according to learning styles in web-based learning environments has potential to improve the learner's learning effectiveness. Using learning styles to personalise web-based learning is more prevalent than using them to personalise mobile learning (hereafter, abbreviated as m-learning) applications [4,5,7]. In this paper, we propose that the use of learning preferences in m-learning applications are equally important, if not more, due to the non-stationary nature of m-learning. In particular, we propose a mobile learning preferences model, which accommodates some of the different m-learning preferences that mobile learners may have. The construction of the model is based on our previous work, which consists of an interview study; results are presented in Yau and Joy [6]. We presented the construction of a personalized m-learning application, which deploys three of the five different dynamic m-learning preferences dimensions - location, perceived level of distractions, and time of day [7]. No existing m-learning preferences model has been identified, at the time of writing.

2 A proposed model of m-learning preferences

We propose a model consisting of five different dimensions of m-learning preferences namely location of study, perceived level of distractions, time of day, motivation level of the learner, and available time, shown in table 1. Participants of our interview study have described their learning patterns/styles [6] and we have found it useful to map these into a model consisting of five m-learning preferences dimensions. Note that other preferences were commented on; however, we considered these of secondary importance in an m-learning context [6]. The benefits of this model include a) construction of personalized m-learning applications, and b) appropriate matching of m-learning applications which suit learners' m-learning requirements. Some aspects of the five dimensions were mentioned in the Dunn and Dunn model [2] and further information relating to this are presented in Yau and Joy [6,7].

Table 1 – A proposed model of m-learning preferences dimensions

Dimension	Description	M-learning Preferences
Location of study	Determining factors may include availability of resources or academic help, motivation by working peers, relaxing and comfortable elements, maximising available time, familiarity of location, allows for routine, and convenience.	a) <i>Study-designated areas</i> (study alone or with peers); b) <i>Study with peers</i> (location not specified); c) <i>Study in presence of others</i> (e.g. in cafes); d) <i>Making use of idle time</i> (e.g. in transport); e) <i>Indifferent</i>
Perceived level of distractions	Determining factors may include noise level, how busy the environment is, the learner's concentration level, and the level of interruption at the location.	a) <i>High</i> ; b) <i>Medium</i> ; c) <i>Low</i> ; d) <i>With 'distractors'</i> (e.g. such as music or other distractions) [8]; e) <i>Indifferent</i> .
Time of day	Determining factors may include biological clock – awakesness or alertness during different parts of the day.	a) <i>Morning</i> ; b) <i>Afternoon</i> ; c) <i>Evening</i> ; d) <i>Night</i> ; e) <i>Indifferent</i>
Learner's level of motivation	Determining factors may include intrinsic and extrinsic motivations, urgency of task, pressure of performing well, and how enthusiastic the learner is towards learning/m-learning/mobile devices.	a) <i>High</i> ; b) <i>Medium</i> ; c) <i>Low</i> ; d) <i>Conditional</i> ; e) <i>Fluctuating</i> ; f) <i>Indifferent</i>
Available time	Determining factors may include productivity level of learner and tiredness.	a) $\geq 60\text{mins}$; b) <i>ca45mins</i> ; c) <i>ca30mins</i> ; d) <i>ca15mins</i> ; e) $\leq 10\text{mins}$; f) <i>Indifferent</i>

3 Conclusion and Future Work

We had proposed an m-learning preferences model consisting of five dimensions. More dimensions may be added, if they are of primary importance concerning m-learning. When matching appropriate materials/activities to mobile learners, other learning styles dimensions and factors may also be considered such as knowledge level, visual/verbal styles and concentration level. More difficult learning materials can be recommended to learners with a higher motivation to learn, at the current time. Highly-motivated learners may be recommended to use self-regulated applications. Individual and collaborative m-learning applications can be recommended to learners who prefer to study alone and with peers respectively. Our future work includes conducting empirical studies to validate our model.

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