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Accessing online learning material: Quantitative behavior patterns and their effects on motivation and learning performance

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### **Title:**

Accessing online learning material: quantitative behavior patterns and their effects on motivation and learning performance

### **Abstract:**

Accessing learning materials, that is, lecture slides, video lectures, shared assignments, and forum messages, is the most frequently performed online learning activity. However, students with different purposes, motivations, and preferences may exhibit different behaviors when accessing these materials. These different behaviors may further affect their learning performance. This study analyzed system logs recorded by a Learning Management System in which 59 computer science students participated in a blended learning course to learn mobile phone programming. The results revealed several significant findings. First, the students viewed the learning materials related to their classroom lectures (i.e., lecture slides and video lectures) for longer and more often than other learning materials (i.e., shared assignments and posted messages). Second, although the students spent a great deal of time viewing the online learning materials, most did not use annotation tools. Third, students' viewing behaviors showed great variety and were clustered into three behavior patterns: "consistent use students" who intensively used all of the learning materials, "slide intensive use students" who intensively used the lecture slides, and "less use students" who infrequently used any learning material. These different behavior patterns were also associated with their motivation and learning performance. The results are discussed, and several suggestions for teachers, researchers, and system designers are proposed.

Keywords: Distributed learning environments; Media in education; Post-secondary education; Teaching/Learning strategies

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