

Mobile Learning in Higher Education: A Classification Framework for Learning Applications

Research Project CSE3000
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1 Problem

Despite their being frameworks for mobile app classification for PK-12 education, a framework for Higher Education is missing.

Additional, the existing frameworks lack the technological aspects for the applications.

2 Definitions

Mobile Learning: "any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologie" [1].

Mobile (learning) applications: applications which can be used to assist in learning. They do not need to be for learning specifically.

Pedagogical Design: "plan or scenario that defines the format, content, and structure of the environment, the delivery systems, and implementation strategies" [2].

Instructional approach: A strategy used to instruct students.

4 Method

Databases: IEEE, ScienceDirect, Socrative
Year range: 2008-2021
Search Terms: "m-learning", "mobile learning", "app*", "pedago* approach", "technological approach", "classification", "higher education"

352 Initial papers

-9 non-English,
-41 conference documents,
-11 duplicates

-245 inclusion/
exclusion criteria

-4 not applicable

37 papers

Figure 1: literature search and paper selection.

Inclusion Criteria

- Higher educational setting
- Mobile learning is applied
- Use of an application for educational purposes
- Use of an mobile device for educational purposes

Exclusion Criteria

- Mobile device is a laptop / netbook
- Mobile device is stationary
- Mobile device is a wearable
- Lower- or adult educational setting
- The paper is not in English
- The article is not an (E)book

Table 1: Inclusion and exclusion criteria

3 Research Question

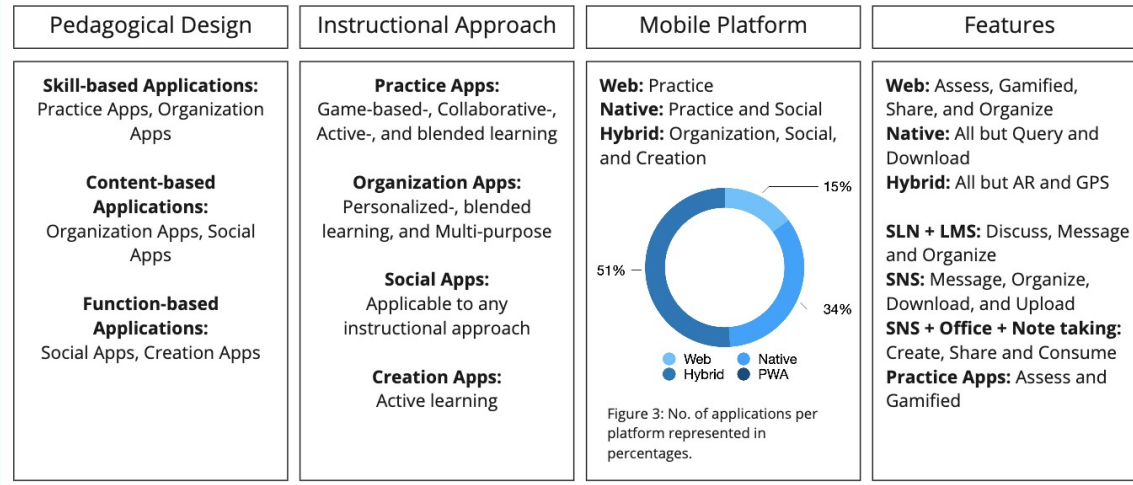
What are the different types of HE mobile (learning) apps, and what might be a pedagogically and technologically sound framework to classify these apps from a teaching and learning perspective?

- 1) What are the different types of mobile (learning) apps for HE, and what is their purpose?
- 2) How can the HE mobile (learning) apps be classified considering the pedagogical and technological dimensions?

5 Abbreviations

LMS: Learning Management Systems
SNS: Social Networking Sites
SLN: Social Learning Network
SRS: Student Respond System
PWA: Progressive Web App
AR: Artificial Reality
GPS: Global Positioning System

7 Results



6 App types

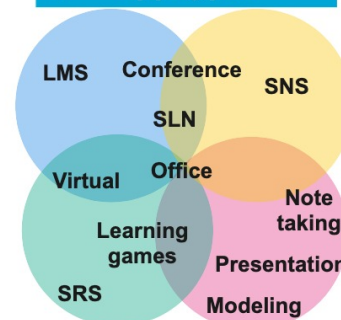


Figure 2: The collected app types sorted over four categories. Each color represents a category, the overlap between categories shows hybrid categories.

8 Framework

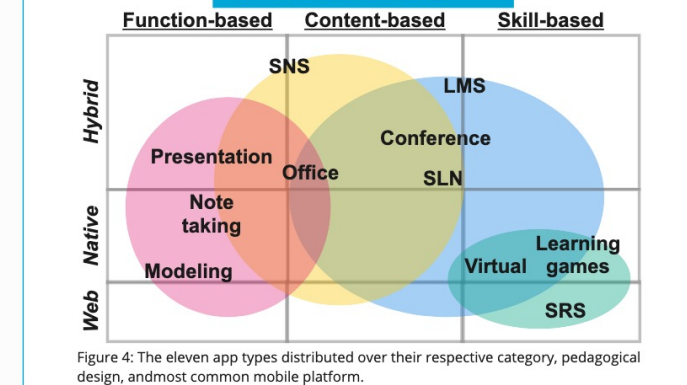


Figure 4: The eleven app types distributed over their respective category, pedagogical design, and most common mobile platform.

Legend

Text App types

- Organization apps
- Social apps
- Practice apps
- Creation apps

[1] O'Malley, C., Vavoula, G., Glew, J., Taylor, J., Sharples, M., Lefrere, P., Lonsdale, P., Naismith, L., & Waycott, J. (2005). Guidelines for learning/teaching/tutoring in a mobile environment.
[2] Lowyck, J. (2002). Pedagogical design. Handbook on information technologies for education and training (pp. 199-217). Springer.