Ubiquitous educational use of mobile digital devices: A general and comparative study in Spanish and Latin America Higher Education.


**Introduction**

Teaching-learning processes and social interaction between Higher Education students no longer take place only in physical and specific spaces of university campuses. Ubiquitous educational use of mobile digital devices (smartphones, tablets and laptops) for educational purposes and analyzing the differences and patterns of utilization between two geographical areas of the Spanish-speaking world.

**Objective of the study:** establishing the spaces and locations where Spanish and Latin American students make an educational use of digital devices. A list of 26-item questionnaire was administrated during the 2015-16 academic year.

**Method**

Determination of a list of places inside and outside the classroom where Spanish and Latin American students make an educational use of digital devices. A list of three macro-categories associated with educational activities performed by means of mobile devices was proposed:

1. Informing: identifying, locating, retrieving, storing, organizing and analyzing
2. Communicating in digital environments
3. Creating and publishing new content

A general and comparative study about the ubiquitous utilization of mobile digital devices in Spain and in different Latin American countries.

**Participants**

Survey addressed to students (n = 444 Spanish and 444 Latin American) from five Spanish and five Latin American universities.

**Instrument**

A 26-item questionnaire with two possible types of questions (polythetic and psikhnostic). The reliability of the initial correlation matrix was appropriate to conduct the factorial analysis.

**Procedure**

Administration of questionnaires during the 2015-16 academic year.

**Data analysis**

Factorial analysis and parametric as well as non-parametric tests with SPSS 19.

**Results and Discussion**

Evaluation of questionnaire reliability (Kaiser’s spheicity test and KMO sample suitability test). The internal consistency of the 26-item questionnaire was appropriate to conduct the factorial analysis. Six factors were obtained which could be selected.

**Interpretation of the six factors according to total variance**

- Educational use of laptops in college cafeterias (.370)
- Educational use of laptops in classrooms (.336)
- Educational use of tablets on the street (.401)
- Educational use of tablets in outdoor leisure areas (.419)
- Educational use of tablets in workplace (.501)
- Educational use of tablets in means of transport (.631)
- Educational use of tablets in habitual residence (.726)

- Educational use of laptops in outdoor leisure areas (.439)
- Educational use of laptops in habitual residence (.678)
- Educational use of mobiles on the street (.506)
- Educational use of mobiles in workplace (.549)
- Educational use of mobiles in habitual residence (.657)
- Educational use of mobiles in outdoor leisure areas (.715)
- Educational use of mobiles in means of transport (.795)

- Library (.742)
- Classrooms (.812)
- College corridors (.749)
- College cafeteria (.767)
- Library (.784)
- Classrooms (.856)
- College corridors (.806)
- College cafeteria (.767)

**Factor 1. Educational use of tablets at university facilities:**

- Educational use of tablets in universities (.592)
- Educational use of tablets outside universities (.592)
- Educational use of tablets in outdoor leisure areas (.497)
- Educational use of tablets in outdoor leisure areas (0.497)
- Educational use of tablets in workplace (.533)
- Educational use of tablets in means of transport (.497)
- Educational use of tablets in habitual residence (0.497)

**Factor 2. Educational use of smartphone at university facilities:**

- Educational use of smartphones in universities (.624)
- Educational use of smartphones outside universities (.624)
- Educational use of smartphones in outdoor leisure areas (.563)
- Educational use of smartphones in outdoor leisure areas (0.563)
- Educational use of smartphones in workplace (.501)
- Educational use of smartphones in means of transport (.459)
- Educational use of smartphones in habitual residence (0.459)

**Factor 3. Educational use of smartphones outside university facilities:**

- Educational use of smartphones in outdoor leisure areas (.592)
- Educational use of smartphones in outdoor leisure areas (0.592)
- Educational use of smartphones in workplace (.533)
- Educational use of smartphones in means of transport (.497)
- Educational use of smartphones in habitual residence (0.497)

**Factor 4. Educational use of laptops at university facilities:**

- Educational use of laptops in universities (.592)
- Educational use of laptops outside universities (.592)
- Educational use of laptops in outdoor leisure areas (.497)
- Educational use of laptops in outdoor leisure areas (0.497)
- Educational use of laptops in workplace (.533)
- Educational use of laptops in means of transport (.497)
- Educational use of laptops in habitual residence (0.497)

**Factor 5. Educational use of tablets outside university facilities:**

- Educational use of tablets in outdoor leisure areas (.592)
- Educational use of tablets in outdoor leisure areas (0.592)
- Educational use of tablets in workplace (.533)
- Educational use of tablets in means of transport (.497)
- Educational use of tablets in habitual residence (0.497)

**Factor 6. Educational use of laptops outside university facilities:**

- Educational use of laptops in outdoor leisure areas (.592)
- Educational use of laptops in outdoor leisure areas (0.592)
- Educational use of laptops in workplace (.533)
- Educational use of laptops in means of transport (.497)
- Educational use of laptops in habitual residence (0.497)

**Conclusions**

Significant differences exist between Spain and Latin America.

In Spain, the educational use of laptops is more frequent in classrooms and University administration than in mobile devices. In Latin America, smartphones are more often used for educational purposes outside university facilities, whereas laptops are more present inside university facilities.

**General conclusion:** mobile learning can help to expand a limited and restricted educational curriculum, as well as to connect learning inside and outside higher education environments.