Measurement of the User eXperience.

Educational games Unlove and Carmen Sandiego

Maria Helena da Silva Reis | harelis@ua.pt ■ Ana Margarida Pisco Almeida | marga@ua.pt
DeCA/DigiMedia | UA, Aveiro, Portugal

METHODS

Participants

- Observational study (11 Jun. 2019 - 26 mar. 2020)
- Soho Centre do Estudos da Fátima (Fátima, PT)
- 50 participants
- Participation rate 97.06%

Data collection and analysis

- User Experience Questionnaire
- Descriptive statistical analysis

In this study, the User eXperience is one of the dimensions appreciated in the game’s evaluation (beyond motivation and learning) (Fig. 1). After several classroom game sessions, Vocational Education students completed, for each game, the 26 items of Martin Schrepp’s User Experience Questionnaire (UEQ). The Carmen Sandiego and Unlove games (Fig. 2) were measured according to the UEO scales “Attractiveness”, “Pervasivity”, “Efficiency”, “Dependability”, “Stimulation” and “Novelty” [5].

These six UEO scales define a theoretical scale structure in Pragmatic Quality (goal-directed) and Hedonic Quality (not goal directed). The first brings together aspects related to the task and its quality; the second relates to the concept of usability in a holistic view, since it allows to perceive the interaction between people and resources. Concepts like pleasure, emotions, attraction are included in the hedonic quality scale (Table 1).

Table 1 - Users’ UEO

<table>
<thead>
<tr>
<th>Attractiveness</th>
<th>Pervasivity</th>
<th>Efficiency</th>
<th>Stimulation</th>
<th>Novelty</th>
</tr>
</thead>
<tbody>
<tr>
<td>whether users feel in control of the interaction with the resource and if this interaction with the game is safe and somehow predictable.</td>
<td>whether it is easy to understand how to use the game or to become familiar with it.</td>
<td>whether it is possible to use the game more quickly and more efficiently; whether the user interface is organized.</td>
<td>whether the game design is innovative and creative; whether the feature draws attention.</td>
<td>whether the user feels in control of the interaction with the resource and if this interaction with the game is safe and somehow predictable.</td>
</tr>
</tbody>
</table>

RESULTS

The raw data used on 7-point Likert scale has been transformed so that the final data may range from -3 to +3. The error bars represent the 95% confidence interval for each arithmetic mean. A T-test with Alpha-Level of 0.5 was used and showed that game Carmen Sandiego and Unlove has no significant difference in the different scales (Attractiveness 0.1891; Pervasivity 0.1337; Efficiency 0.3441; Dependability 0.3787; Stimulation 0.0614 and Novelty 0.2394).

Figure 3 - Results for Carmen Sandiego and Unlove

Figure 4 - Pragmatic Quality and Hedonic Quality for Carmen Sandiego

Figure 5 - Pragmatic Quality and Hedonic Quality for Unlove

CONCLUSIONS

Although the T-test presents no significant difference, the result shows that the participants had a slightly positive or neutral impression concerning the user experience of Carmen Sandiego and Unlove. The impression of the participants concerning the Carmen Sandiego user experience is much better than their impression on Unlove (Fig. 3), being the Carmen sandiego game a mature product, it’s no surprise that its average value is above the neutral value (i.e., 0) of the / points as well as above the Unlove game rating. Their impression concerning the pragmatic quality (Pervasivity, Efficiency and Dependability) of the Carmen Sandiego (Fig. 4) and Unlove (Fig. 5) games is higher than the impression concerning the hedonic quality (Stimulation, Novelty). This is somehow natural, since participants are used to using serious games with more evolved graphics and major challenges. Another interesting result is that the Pervasivity scale showed the highest score which may have been influenced by used of the developed support materials for both games.

REFERENCES