Web portals as tools to support information management in higher education institutions: A systematic literature review

Cláudia Pinho[a], Mário Franco[b,*], Luis Mendes[b]

[a] University of Beira Interior, Estrada do Sineiro, 6200-209, Covilhã, Portugal
[b] University of Beira Interior, Department of Management and Economics, CEFAGE-UBI Research Center, Estrada do Sineiro, 6200-209, Covilhã, Portugal

ABSTRACT

Web portals have become vital for Higher Education Institutions (HEI), since they serve as an interface and communication channel between all academic staff. Therefore, this study aims to provide a systematic literature review (SLR) of the role of web portals as tools to support information management in HEIs, based on various studies published up to the present day. Based on the results obtained, it was possible to identify, explore and systematize the main themes on this topic: (1) Software used in web portals, (2) Internal and external benefits, (3) Acceptance of technology and (4) Management and storage of information. The evidence demonstrates there is a major shortage of scientific articles in the HEI context. Also revealed is the importance for these institutions of implementing a web portal appropriate to their needs, and the web portal's importance to help in decision-making. This SLR also suggests future lines of research according to the gaps identified in the theoretical corpus.

1. Introduction

Due to growing globalization and internationalization, Higher Education Institutions (HEI) need to implement effective tools of information management (Melchor-Ferrer & Buendía-Carrillo, 2016). HEIs are exponentially integrating technologies that allow efficient and effective information management, making them more competitive (Bisaso, 2009).

In this context, the World Wide Web (WWW), particularly web portals, or websites, play a central role in the exchange of information between lecturers and students, facilitating the teaching/learning process. In addition, all higher education staff (both teaching and non-teaching) recognize the importance of this type of tool, for cooperation and exchanging knowledge between different HEIs (Arroyo, Hornos, & Sánchez, 2007). A web portal incorporates all an institution's information resources and applications in a single site. Therefore, a well-implemented web portal is the key to competitiveness in higher education (Jain & Chande, 2013).

Currently, in the European HEI context, web-based communication channels are widely implemented, allowing remote communication and interaction among all academia. In this way, web portals have shortened distances and revolutionized the way of teaching/learning, as well as society itself (Willis, Baron, Lee, Gozza-Cohen, & Currie, 2010).

Web portals also allow *e-learning*. In this way, HEIs provide an innovative teaching/learning method, more flexible and at a distance,

making it accessible to a greater number of students (Álvarez, 2012). Here, lecturer/student communication takes place via the web, through mechanisms allowing remote interaction (Arroyo et al., 2007). However, the success of the web services provided by web portals depends on individuals' acceptance of technology. Perception of the suitability and usefulness of web portals is vital as intrinsic and extrinsic factors of these actors (Ganley, 2011).

Despite the benefits provided by websites and information technology (IT) in general, a limited number of studies explore and assess the impact of this technology in HEIs, compared to other sectors (Carcary, 2007). This shortage should be remedied, in order to understand the impact of websites on these institutions' operational performance, and thereby to be able to improve it.

Furthermore, we have no knowledge of any systematic literature review (SLR) of web portals as tools to support information management in HEIs. Therefore, this study aims to fill these gaps, identifying, exploring and systematizing the main themes, in this way contributing to enriching the literature on the subject. This SLR also contributes to highlighting the gaps, or themes, still little explored in the theoretical corpus of the various studies selected and in doing so, suggests guidelines for future research.

Regarding the structure of this research, Chapter 1 presents the introduction, indicating the objectives and stating the gaps it is aimed to fill. Chapter 2 describes the methodology and stages used to attain the objectives proposed for the research. Chapter 3 contains a

* Corresponding author.
   E-mail addresses: sophia.borges@gmail.com (C. Pinho), mfranco@ubi.pt (M. Franco), lmendes@ubi.pt (L. Mendes).
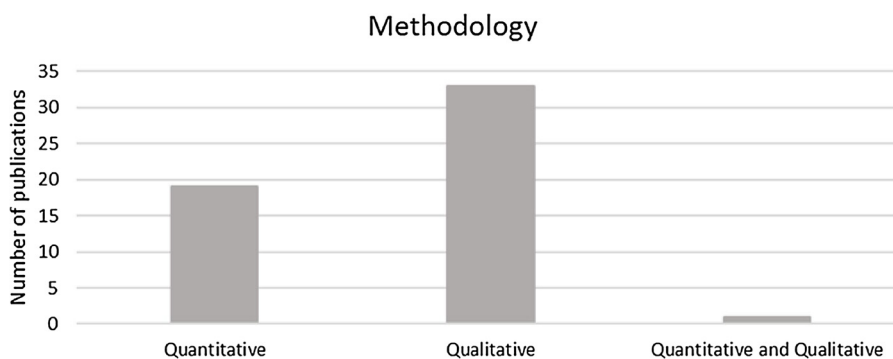
Methodology

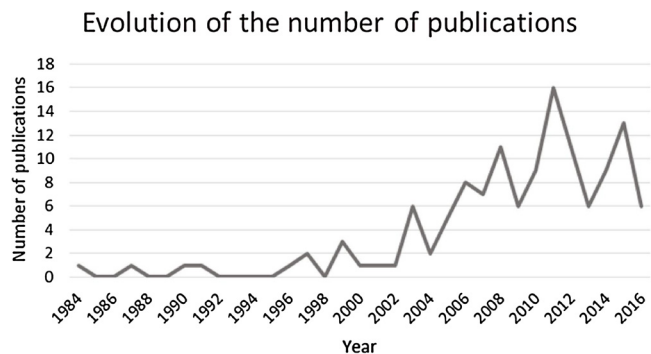**Diagram 1.** Methodology adopted in the scientific articles.

Evolution of the number of publications

Diagram 2. Number of publications on the subject from 1984 to 2016.

Prolific authors

Diagram 3. Authors with more than one publication.

description of the theoretical corpus used, characterising authors, journals and publications. The following chapter groups the publications by topics and thereby maps the theoretical corpus. Chapter 5 presents the conclusions as well as suggestions for future lines of research.

2. Methods

Various methods are used in the literature to carry out an SLR, but common to them all is the fact of being rigorous, explicit and wide-ranging (Albliwi, Antony, & Lim, 2015). This research adopted the methods of Tranfield, Denyer and Smart (2003), as they are most quoted in the area of the Social Sciences. According to these authors, the stages in elaborating an SLR are, (1) Planning the review, (2) Carrying out the review and (3) Disseminating the results obtained.

According to those stages, on 5 November 2016 a search was made of the Web of Science and SCOPUS databases using the advanced expression: Site* OR Website* OR Portal* OR Webportal* AND "Higher Education" OR HEI OR Universit* OR Polytechic* AND "Information Management Syst*" OR "Information management", existing on the topic, or, title, key words and abstract. The area of search was restricted

to the Social Sciences; Management; Economics and Decision Sciences; and to articles; conference papers; reviews; book chapters and conference reviews; only written in English.

After this procedure the Web of Science database produced a total of 5 articles and SCOPUS 175, making a total of 180 studies extracted from these databases. Subsequently, using Endnote version (vs) x7.4 software, 4 duplicate publications were removed, leaving a total of 176.

At a later stage, the documents were studied in detail, in order to include only those set within the subject in question and contributing to its explanation and systematization. Here, 50 studies were removed, leaving a total of 126 documents. Next, using Microsoft Excel 2016 software, a graphic description of the sample was elaborated, based on the 126 studies selected. In this phase, the most frequent authors and sources on the topic were indicated, as well as the development of publications over the years studied.

Finally, based on reading of the theoretical corpus and VosViewer vs. 1.6.5[1] software, the main themes related to web portals as tools of information management in HEIs were identified. It was therefore possible to achieve the objective proposed for this research, namely identification, exploration and systematization of the main themes of the subject studied.

3. Sample description

This SLR analysed a total of 126 different studies, including scientific journals, proceedings, conferences, lecture notes and books. It is of note, however, that only 53 are scientific journals, corresponding to 42.06% of the theoretical corpus included in this research. The limited literature on web portals as tools supporting information management in HEIs is in line with the idea defended by Carcary (2007), who considers there is great disparity between studies made in the domain of HEIs and those made in the business sphere.

Regarding the methodology adopted in these studies, we can observe (see Diagram 1) that a considerable part of the research adopted a qualitative methodology (33 publications). Slightly less numerous were studies adopting a quantitative methodology (19 publications), and only one study, among the 126 studied, adopted a quantitative and qualitative methodology simultaneously.

As for the period of publications on web portals as tools supporting information management in HEIs, this began in 1984. Analysis of Diagram 2 reveals a tendency for publications to increase from 2004, with a peak being reached in 2011 with a total of 16 publications.

Concerning the authors publishing on this subject, none stands out particularly. The maximum number of publications per author was two,

---

[1] *Free VosViewer* vs. 1.6.5 software is available at http://www.vosviewer.com/. It is used to construct bibliometric networks, based on journals, authors, co-citations and co-authorship relations. However, the most commonly used function of this software is data-mining, i.e., identification of patterns present in a theoretical corpus. It therefore allows the construction of word co-occurrence networks existing in the set of articles studie (Source, http://www.vosviewer.com/).