Chapter 16
Communication-Driven Digital Learning Environments: 10 years of Research and Development of the Campus Platform

Luís Pedro and Carlos Santos

Abstract In this chapter we will underline the importance of communication concepts and affordances in the research and development of a digital learning environment, the Campus platform. We will argue that its overall design and features reflect a position that finds support in socioconstructivist and connective approaches to learning, approaches that value the social construction of knowledge, the importance of networks, collaboration and sharing. As its uses are very different from content-driven platforms such as the traditional Learning Management Systems, we will also defend that the active promotion of these features contributes to a redefinition of the knowledge construction process, namely in what self-regulated learning is concerned. Along the chapter we will present results of evaluation studies of the platform that allowed us to characterize it as an open communication ecosystem for effective dialogue, participation and engagement.

Keywords Campus · Technology · Digital media · Social media · Communities · Participation · Interaction · Engagement

16.1 Introduction

In educational and training contexts there is a clear opposition between the use of technologies that express a closed and atomized view of education and knowledge and technologies that put forward an open, social and holistic one. This on-going discussion epitomizes much of the discussion in the Educational Technology community in the past dozen years and indicates a tension [1] that is as related to technology as it is related to one's epistemological perspective of knowledge.

L. Pedro (✉) · C. Santos
Digimedia, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal
e-mail: lpedro@ua.pt

C. Santos
e-mail: carlossantos@ua.pt

On the one hand, the use of Learning Management Systems (LMS) or other Virtual Learning Environments (VLE) outlines a particular educational and epistemological view. The use of these systems materializes some educational and knowledge construction practices that rely heavily on tight management and access control to content, on a compartmentalized organization of knowledge, and on the lack of widespread social and transdisciplinary discussion and interaction.

On the other hand, social media approaches are seen as technological proposals that may be used to promote concepts like openness, participation, collective intelligence and social interaction [2].

These opposing views result on different perspectives and practices regarding the way we learn, teach and, foremost, in the way we design technologies to be used in educational and training contexts.

We argue that Communication Sciences concepts have been absent from these discussions and that they bring to the conversation important contributions, namely in terms of the affordances of technology, i.e., how the design of technology can potentially determine the "action possibilities" [3] of educational agents.

We will explore and discuss these issues in the next sections, and while doing it we will contextualize the importance of some underlying concepts for the development of a social media platform designed for use in educational and training contexts: the Campus platform.

16.2 Learning as a Social Activity

The learning concept is not an easy one to grasp in all its complexity. Due to that multidimensionality, it has been the subject of a thorough discussion that crosses multiple scientific disciplines. It is easier, though, to discuss its current consensual definition. According to Illeris [4] all learning "comprises two simultaneous processes so that the learner does not experience them separately: an interaction process between learners and the social and/or material environment which provides them with some impressions and an acquisition process whereby these impressions are assessed, elaborated and taken in". Illeris [4] further elaborates this claim arguing that "all learning always comprises three dimensions: the content dimension, which is usually, but not always, cognitive; the incentive dimension, which includes engagement, interest and motivation and is mainly emotional; and the interaction dimension, which is social (also when it is a text, a picture, a film or the like) and may have many layers, ranging from the immediate situation, the local, institutional, environmental, national and other conditions to the global context in general".

This more consensual definition is very different from the initial learning theory proposals put forward during the first sixty years of the twentieth century. Those proposals conceptualized learning as essentially an individual activity in which meaning making (assimilation and accommodation), emotion and interactions were excluded.

The works of Ausubel, Bandura and other scholars definitely humanized learning, moving it away from the mechanical views of behaviourism and conceptualizing it as an experiential, social and contextual activity. Wenger [5] and Lave and Wenger [6] put it best when they defined learning as an interaction between meaning-making (experience), practice (doing), community (belonging) and identity (becoming).

The humanization of the learning concept contributed to some major advances in education, such as the acceptance of learning preferences, the assumption of the learner as an active constructor of knowledge and of importance of motivation and engagement (cf. [7] for more information on the latter).

From an epistemological standpoint, the view of the learner as an active constructor of knowledge is an important landmark. This view, summarized in the constructivist proposals of the 1960s that extended the cognitivist theories of learning, emphasizes the importance of "internal mental constructions and the influence of others on an individual's learning" [8]. This position is very relevant as it opens the door to a discussion of the importance of knowledge representations and meaning making that result from the interaction of the learner with the environment.

Social constructivism adds additional layers to these assumptions, bringing along a multifaceted view on what the environment really is. By doing so, learning is conceptualized as the process of internal knowledge representation and meaning making that results from the interaction of the learner with the social, cultural and media environment. Knowledge is then postulated as a mediated co-constructed representation in which the learner is an active participant when he engages in social and cultural interactions.

According to a systematic review of literature by Hill et al. [9], social learning constructs include context, culture and community and learner characteristics and every single one of these constructs can be applied in technological-mediated educational scenarios.

These mediated scenarios are to be found in the current digital age, as individuals use technology on a daily basis for communicate, access to information and learning.

New learning theories such as connectivism acknowledge this and put forward new perspectives on what learning really is. In the next section, we explore the connectivist approach, especially in what its connection with technology is concerned.

16.3 Learning as a Connective Activity

In his seminal work on connectivism, Siemens [10] states that "[t]he Achilles heel of existing [learning] theories rests in the pace of knowledge growth", as some of technologies' affordances are precisely the acceleration of knowledge dissemination, discussion and co-creation. By claiming the inadequacy of past learning theories to deal with the current pace and flow of knowledge creation, Siemens argues that the learner "offloads some of the processing and interpreting functions of knowledge flow to nodes within a learning network".

Connectivism appears publicly in the beginning of the 00 s decade and puts forward a perspective on knowledge and learning that assumes that knowledge "resides in the collective" [10] and that learning is more than a knowledge acquisition activity, being the ability to form personal networks between resources (nodes) that are available in the environment. These new learning ecologies assume that technology has a vital role in the creation, redesign and repurpose of the learner's personal network, as knowing where and knowing who are suddenly more important that knowing how and knowing what.

This perspective is commonly regarded as a deepening of socioconstructivist theories of learning as it argues that learning is a user-centric, distributed and knowledge-pull activity and that technology performs a role of augmentation of learners' social and collaborative skills, hosting and enabling an environment where people, practices, values and technologies ecologically connect [11].

This perspective actually reflects current positions on learning and knowledge creation that are broadly subsumed as emergent learning practices, i.e., "learning which arises out of the interaction between a number of people and resources, in which the learners organise and determine both the process and to some extent the learning destinations, both of which are unpredictable. The interaction is in many senses self-organised, but it nevertheless requires some constraint and structure. It may include virtual or physical networks, or both" [12].

The network concept is paramount in the connectivist approach. The knowledge construction process is conceptualized as a flow that establishes connection through a network that includes nodes that can be other individuals, communities, resources or technologies. These networks are, in turn, both internal and external to the individual, i.e., they are external as they can subsume entities (nodes) that do not reside in the learner, but they are also internal as learning is a process of creating connections and patterns of understanding in the learner's mind [13].

These claims, however, did not go without criticisms. Bell [14] points out very clearly some of those issues and summarizes her approach by claiming that connectivism is insufficient both as a learning theory and as a perspective regarding human activity within our current sociotechnical environment. Gros [13] also argues that other theories, such as the Actor-Network Theory by Latour or theories that are more focused on social-personal interaction processes (such as andragogy, heutagogy or peeragogy) propose a better integration between the social, natural and technological dimensions of learning. This association between technology and learning has also been extensively studied in the context of self-regulated learning. Several studies report that the increase use of online environments in the context of formal and informal learning activities should include a reflection self-regulating learning skills by the students as "the control of learning is shifted from the educational institutions and cultures to the individual—often isolated—learner [15]".

So, what is exactly this sociotechnical environment that shapes much of our daily activities? Nowadays, the idea of technology as a medium has been replaced by the idea of technology as a platform, one where knowledge is created, shared, remixed and repurposed [11]. Technology is, then, an enabler of personal knowledge ecologies [12] and an ever-evolving learning environment.

16.4 Technology as (the) Learning Environment

Humans have always used technologies to learn [8]. However, as Gros [13] states, technology is now pervasive and ubiquitous and is not seen any more as something external to the learning process. Technology is now both the enabler and the context where learning takes place and that is a major difference in terms of its role and potential affordances.

This dual role of technology is self-evident in the concept of Personal Learning Environments (PLE). PLE are conceptualized as both a learning approach and a technological system or, as Casquero et al. [15] propose, "a mainstream pedagogical and technological concept that is supposed to enable (…) education institutions to adopt and adapt the patterns learned from Web 2.0 and social media in order to fit into the new networked and learner-centered model of learning".

This merging role of technology implies that these tools both frame and afford the emergence of educational approaches that are user-centric, dynamic and flexible and of new roles both for learners and teachers more focused in participation, interaction and engagement.

The aforementioned concepts—participation, interaction and engagement—are important concepts in the realm of Communication Sciences and Technologies but are also processes that are (re)gaining importance in the context of education. As Halverson argues, there is an emerging bond between the evolution of cognitive and sociocultural views on knowledge and learning and the design of learning environments [16].

Although the interchanges between these two fields are, sometimes, affected by siloed research agendas, in a knowledge-based society they share far more than admitted.

The first common concept that is relevant to clarify due to its two folded use in the fields of communication and education is related to the difference between technology and media. Although these two terms are often used interchangeably, Bates [17] distinguishes them by arguing that technologies are tools or systems that carry a message while media implies intermediation and interpretation, i.e., require an active act of creation and activation by its users. To put it briefly, "media depend on technology, but technology is only one element of media" [17].

In this line of thought, it is important to underline that, contrary to technologies, media are not neutral as they mediate communication and convey subjective symbols, beliefs and choices. We will revisit this topic in the next section, contextualizing it within the choices that were made in the development of the Campus platform.

The second concept that is important to define is the concept of participation. Participation can be defined as a social act or process initiated by individuals and one that, in the context of learning communities, supports their discourse, their social presence and their sense of belonging to a larger whole [18]. But as important as the social dimension, participation also has a very strong cultural dimension. Jenkins [19] defines a participatory culture as "one in which members believe their contributions matter and feel some degree of social connection with one another".

Being a relevant human capability, participation is sometimes confused with interaction. However, much like the aforementioned distinction between technologies and media, interaction depends on participation, but participation is only a part of interaction. In a common dictionary, interaction is defined as a situation in which two or more entities act upon one another to produce a new effect and, as so, it implies additional layers of mediation and intersubjectivity that we seldom encounter on a simple participation.

Both concepts are clear social affordances of most technologies used nowadays, be it in the form of quick reactions that signal our participation in a group or community, be it in the form of more elaborated kinds of interaction that may vary from one-to-one, to one-to-many and many-to-many interaction patterns [20].

Finally, a concept that is both used in the Communication and Education fields is the concept of engagement. Engagement is defined by Kahu [21] as an overarching meta-construct that has evolved and encapsulates a more intrinsic and individual perspective and a more external and socio-cultural perspective. From a communication standpoint engagement implies communication, agency and bidirectionality. From an educational standpoint, student engagement is defined as "(…) a psychosocial process, influenced by institutional and personal factors, and embedded within a wider social context (…)".

All these concepts—participation, interaction and engagement—are believed to be promoted by current technologies/media as they emphasize the importance of user-driven approaches to learning, of creating networks and interacting with peers and of actively collaborating in learning and societal challenges.

A rising body of research expresses positive results of the application of social media in educational contexts (see Garrison and Anderson [19] for a comprehensive review on the subject). There is, however, an important issue that crosses these studies: typically, the application of these media is teacher-driven and teacher-pushed and it is implemented with technologies that are outside the technological offers of educational institutions.

This issue is not new and several authors [15, 22] have signaled this apparent paradox. New learning approaches promote students-pulled learning environments, which explore social affordances (such as the creation of networks, massive participation and interaction) of media and are controlled and configured by the students themselves inside a siloed, institutional and teacher-driven technological culture.

In the next sections we present the Campus platform as our response to this conundrum, tracing the rational of its evolution since 2010.

16.5   Campus: A Social Media Platform for Learning

Back in the end of the 00 s decade, the process of providing and promoting the use of social media in institutional environments—largely configured by tight control and supervision of educational practices—was a challenge.

Although several authors advocate that the adoption of social media can be instrumental in reconceptualizing the main principles underlying teaching and learning, there is a known natural inertia and resistance to change in educational institutions that has to be taken into account (see [23] for a thorough discussion on this topic).

This contributes to the known phenomenon of "adding" instead of "integrating" technologies in the learning environment [23], a phenomenon that highlights the mismatch between the students' typical open culture and the resistance to change that builds on the natural inertia of educational institutions agents, practices, procedures and technologies.

One underlying cause for this inertia is the existence of different perspectives on openness. Some studies argue that students use open technologies in their everyday life, choosing and naturally changing them according to their interests, and as a result of the free choices made by informal (interest, practice and/or learning) communities in which they are integrated (cf. [24, 25]). According to those studies students also tend to privilege freely accessible content, aggregating, participating and following sources that provide free and reusable information. Educational institutions are typically slow in their reaction to these emergent needs and the implementation of technologies that answer these patterns "represent a complex challenge in terms of institutional culture and structure" [15].

One other underlying cause for this resistance to change is more profound and is related with different views on the nature of knowledge, i.e., it is an epistemological issue.

The opposition between technologies that embody a close and atomized view of education and knowledge and, on the other hand, technologies that put forward an open, social and holistic one epitomizes much of the current discussion in the EdTech community of, at least, the past 10 years.

The use of Learning Management Systems (LMS), for instance, outlines a particular educational and epistemological view. The use of these systems materializes some educational and knowledge construction practices that rely heavily on tight management and access control to content, on subject matter and compartmentalized organization of knowledge, and on the lack of widespread social and transdisciplinary discussion and interaction. Being closed systems that only grant access to current students through strict authentication rules, LMS also seem to endanger important enterprises such as Lifelong Learning that is promoted by open access to open content.

On the other hand, social media are seen as a set of tools that promote concepts like openness, participation, collective intelligence and social interaction. As stated by Casquero et al. [15], despite many LMS "support the affordances of Web 2.0 and social media with more or less success, many users would be reluctant to abandon the external web services they are already using because they see them as more innovative or because they are connected to their own communities or personal networks through them".

As stated in the previous section, PLE were emerging in the turn to the 10 s decade as a way to bring together these "two separate and loosely connected spheres: the

Fig. 16.1 Conceptual diagram of the Campus platform in 2010

institutional and the personal one" [15]. So, between 2009 and 2010, the Campus platform was designed and launched as a platform comprised of several Web 2.0 services and a dedicated tool to support the construction of an institutionally supported PLE. From a conceptual point of view, the platform could be seen as a Web 2.0 platform whose primary objective was the promotion of concepts such as openness, sharing and collaboration. Upon an independent and open set of social core services (photo and video sharing, blogs, wiki, social bookmarking) lied a set of aggregation services (RSS reader, portfolio, assessment, presence manager) integrated in a widget-based platform that provided a core technological framework to build an institutionally supported PLE (Fig. 16.1).

With this design the platform tried to balance and compromise institutional concerns and responsibilities with an open, personal and social learning experience.

As discussed earlier, the adoption of this technological solution required that institutions (in our case, the University of Aveiro) showed some flexibility to change some of their control and supervision policies in the usage of technological tools and services. Among them were, for instance, hierarchy policies. In the Campus platform all users in the community were equal and shared the same privileges. This approach ensured that every user could access the same type of services as well as the same type of data. One important result from this assumption was that change-tracking mechanisms could not exist in this non-hierarchical digital community, thus ensuring user privacy.

In this line of thought, core services were open and free to all the community, without prior requirements or bureaucracies. All content was open to people outside the institution and, by default, non-registered users were able to participate and get involved in discussions. This wide-open consumption and participation of (and in) core services meant everyone, everywhere, could view and talk about content, tearing down the metaphorical walls that typically surrounded the institutional space.

This first version of the platform is still available but had quite a few limitations.

Its authentication mechanisms, for instance, were integrated with core technological services of the University of Aveiro and its use by other educational institutions implied a major architectural revision. In terms of user experience, although the

PLE component of the platform was clearly user-driven, there was a clear mismatch with the service-driven experience that users had of the integrated Web 2.0 services. Finally, the platform was clearly designed for use in higher education institutions what caused an obvious problem of scalability.

In these two years, besides the design and development of the platform, the delivery of research documents was also a clear goal of the team. In this phase, two master's degree dissertations were developed, related to the specification, development and assessment of specific features within the overall development of the platform [26, 27].

We always adopted a vision that the platform should be continuously updated through an iterative and user-driven participatory design development process, based on the feedback of the community, the involvement of graduate students in the development team and the inputs from our funding partner (SAPO). This led to an important decision, in 2011, to begin a major redesign of the platform.

That redesign was organized around three main ideas: develop a platform that could be used by educational institutions of all levels, improve the overall user experience of the platform with an evolution towards a social network approach, and develop new services (such as a gamification tool, a portfolio tool, and a user and content recommendation system) that the research in the field was suggesting as relevant in educational platforms.

The development process of the version 2 of the platform took around 18 months as a major technical overhaul was made in terms of the technologies used. These technologies supported an also major interface redesign, more user-centered and based in the newsfeed metaphor of other social media applications and very strict privacy rules that resulted from the decision of making the Campus platform available for all teaching levels.

With the support of our funding partner, the launching of the platform occurred in 2013 in a limited format, for 5 selected school clusters. This controlled launching allowed us to test the platform with actual users and collect valuable data that would be used to make important updates before the public launching of the platform. This version already featured a gamification tool (see Costa [28] for more information on the decision-making process in this tool) and other relevant tools such as user recommendations, support for the creation of groups and file storage (Fig. 16.2).

Once more we carried on with a quite intensive research agenda while developing the platform between 2011 and 2014. In this timespan a total of seven master's dissertations were developed, whose themes ranged from the validation of the gamification tool and the recommendation system integrated in the platform to impact studies related to the appropriation of the platform in vocational learning [29–32].

The Campus platform was now available to all educational levels and contexts. Its main purpose remained the support to the natural interaction that occurs inside and beyond the classroom walls, allowing the development of a sharing and collaborative environment between the community. Campus' users had its personal area where the content they have published is automatically aggregated. Each user had the possibility to follow other users, establishing a connective network based on common/shared interests and enabling a connective knowledge construction.
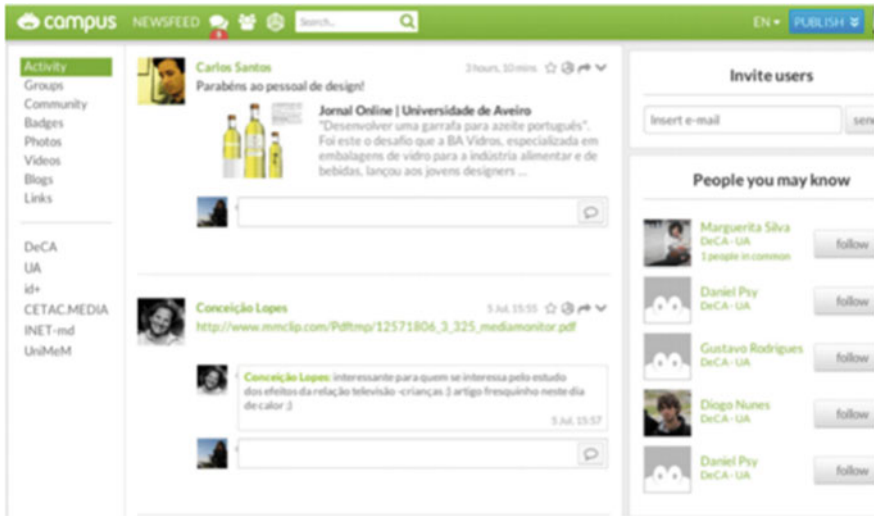
Fig. 16.2 Newsfeed page of the Campus platform in 2013–14

The content shared by the platform's users was automatically aggregated and displayed on the school's newsfeed area, where the user could also access recommendations, notifications and favorite content. This social dimension was always a major part of the platform, thus, beyond the possibility of following other users' activity and access the content they're publishing, Campus' users had also the possibility to integrate and create groups based on their interests. These groups or communities are composed of a number of people sharing the same objects or desires, governed by rules and usually divide tasks among their participants. The interaction created around the groups of users with similar interests has the potential to join motivated individuals aiming to achieve their goals through collaboration and sharing. With these core principles, the Campus platform opens up the possibility of creating different groups based in different interests, where each user is able to establish different connections with different purposes, intensities and goals.

The public launching of this version and the interaction with the platform user's community allowed us to begin a new and different phase regarding its development. This phase was more focused in collecting data from the different profiles of users (teachers, students of all education levels, parents, educational community) that allowed us to surgically update some of the platform's features and overall performance.

This was the case, for instance, with the gamification tool.

Several authors were reporting in the beginning of the 10 s decade that the strengths of gamification and schools could be complementary and that bringing education and game elements together could lead to results that were especially important to develop twenty-first century skills [33–36].

These authors argued that the application of game elements in educational contexts could motivate and engage learners and give teachers better tools to guide and reward students [33]. Badges, particularly, were seen as a game element that "allow users to view their achievements compared to those of others in the same community—also creating a sense of belonging to a similar minded group and competition among them" [34].

Taken these growing body of research into account, the Campus team developed and implemented a badging system supported by the Mozilla Open Badges technology and comprising two main types of attribution: a manual attribution system and an automatic attribution system.

In the manual attribution system school members were able to create badges and some pre-designed badges were already available for members to use.

To make possible the creation of badges a badge creation tool with a set of elements (frames, backgrounds and images) was created, which allowed different combinations (Fig. 16.3). Hence, the platform user could customize and adjust the badge to the context in which is being used.

Beyond the possibility of creating badges, the platform also provided a set of predefined badges that could be used by the institutions. Each badge represented a challenge that should be overcome by users in order to earn that badge. Our main goal was to connect the formal and informal activities occurring in the schools with

Fig. 16.3 Campus platform Badge creation tool

the Campus digital environment, thus promoting challenges that tested and rewarded users' mastery and proficiency in both activities occurring in school (for instance: participate in or win a poetry contest) as within the platform (for example: share the best picture of the school).

This automatic system for badges attribution was implemented as a challenge-based introductory tutorial that aimed to lead the user to explore the main areas and functionalities of the platform. The tutorial was composed of two major challenges: explore and socialize. To earn the first badge (explorer badge), the user had to visit and explore the main areas of the platform: the school page, the newsfeed, his profile page and the settings area. In order to earn the second badge (socializer badge), the user had to visit the profile, follow and mention at least one user and make at least one comment, beginning, in this way, the development of its own network based on his personal interests.

The automatic badge feature was abandoned as a result of several tests with users and the manual badge attribution became a staple of the platform (see [2, 37, 38] for more information regarding its evolution and testing).

A quite intensive research agenda was also pursued. While continuously developing the platform between 2014 and 2018, a total of 2 PhD thesis [39, 40] and one master's dissertation [41] were developed. One of the PhD thesis was particularly relevant. It was the PhD thesis of the main responsible for the conceptualization and development of the platform and encapsulated, at the time, eight years of research and development of the Campus platform [39]. During this period the development of the platform was also tested by the change of our funding partner, SAPO. This private company was very important to the project since its beginning and the idea of the Campus platform as a research and development project outside its immediate control is a sure test of the vision, boldness and unconditional support of its Executives.

From 2018 until now a third version of the platform was developed. The main objective underlying the development of this version was a mobile-first concern, echoing the growing importance and use of mobile access to educational technologies.

While maintaining its core blueprint as a customizable social networking platform solution focused on collaboration, sharing and communication, this new version is characterized by a tenant-oriented architecture to create new platforms and a reusable infrastructure and technology that allows an independent product page and modular features for each platform, preserving all privacy control for communities, groups and users.

This multi-tenant approach can be seen in the launching of new services that leverage the principles of the platform and apply them to new contexts, such as bringing together the Portuguese research diaspora in a common platform [42] and creating digital communities to elderly citizens (miOne community—https://mione.altice.pt).

It is available since 2019 and is being used by schools, private foundations and research projects as a tool that carries on with the same objectives it had more than ten years ago: to answer the communication and collaboration needs of the learning and

research communities, guaranteeing the privacy of the publications that are shared and facilitating the teaching and learning process through a diverse set of tools, including social and multimedia features such as blogs, files, videos, photos, chat and task management tools.

Research-wise, the development team has recently three more master's dissertations, focusing in new areas of research and development within the platform: exploring a chat system with intelligent cyberbullying detection services and features [43], a tool that allows the creation of content pages inside communities [44], a global redefinition of the gamification strategy environment in order to meet the specific needs of the Campus multi-tenant approach platform and its diverse online communities [45] and an upcoming work related to the development of a tool for smart reactions, connecting artificial intelligence and interfaces in order to promote more and better interaction between users and content.

16.6 A Brief Overview of the Evaluation of the Platform

As a research and development project, the Campus platform has been subject to different kinds of evaluations in these past 10 years. In terms of scientific areas, most of the research produced was in the area of Communication Sciences and Technologies, although some of the research projects are to be traced in the areas of Educational Technology and Marketing (Fig. 16.4). This is an important feature. The Campus platform has always welcomed different and complementary research approaches that could make it better in terms of being a more solid (communication) product but also to be more adequate to its target area (Education).
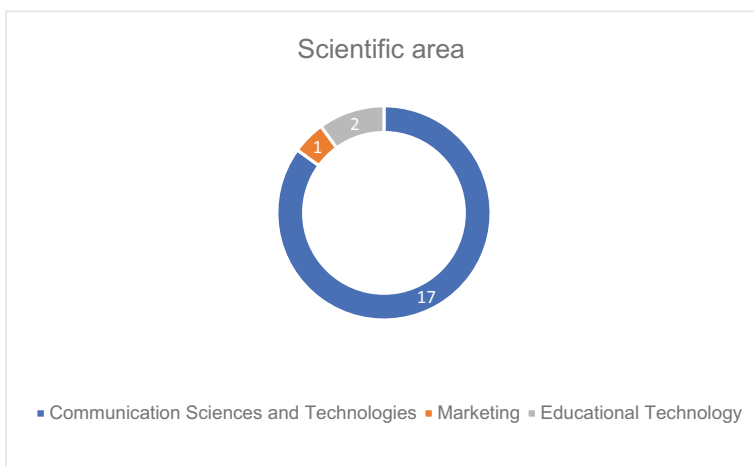

Fig. 16.4 Campus platform: research projects by scientific area
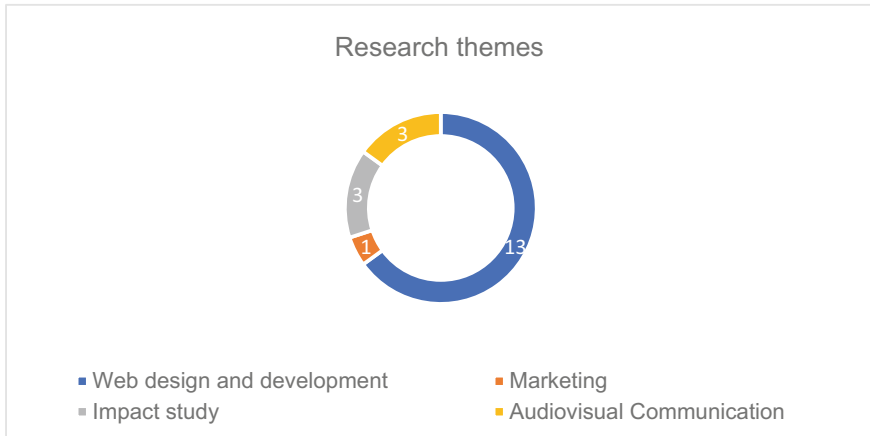
Fig. 16.5 Campus platform: research projects by research theme

In what research themes are concerned there is a relevant focus on Web design and development (Fig. 16.5). Educational media are, in the twenty-first century, Web products and a great deal of their research and development is dedicated to design good learner experiences to its users. However, we should also underline the importance of the impact studies that were conducted. These studies were longer than the others and tested the platform's adoption and appropriation by teachers and students of different teaching levels. Other research focused on digital marketing themes and audiovisual communication and were related to the dissemination strategy of the platform.

In terms of research typologies, the predominant type of research was framed by development-driven MSc research, followed by longitudinal funded research projects and PhD-related work (Fig. 16.6).

Finally, in Fig. 16.7 we can see that there was always some kind of research that was being developed with the platform since 2009. This is a strong indicator that the overall rational of the Campus platform is research-driven and that a good balance was achieved with its product side.

16.7 Conclusions

In this chapter we presented and discussed relevant communication concepts that nowadays are seen as essential when discussing education in a digital age. Participation, interaction and engagement are seen as important processes as learning is increasingly acknowledged as a social and connective activity and in which digital learning environments, and namely social media, are an integral part of the learner's knowledge network ecologies.
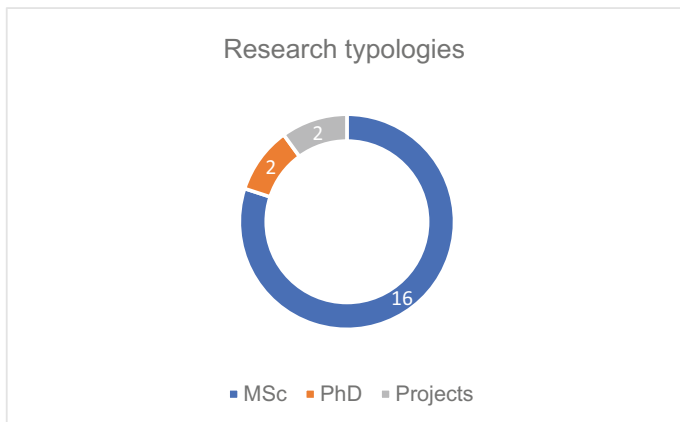
Fig. 16.6 Campus platform: research projects by research type
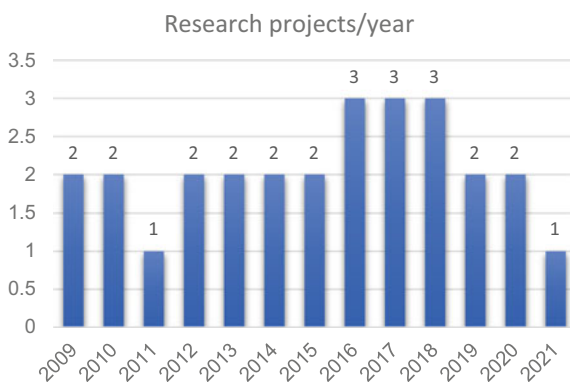

Fig. 16.7 Campus platform: research projects by year

Social media are an important feature in today's learning environments and according to Spector [46] they provide a space for the formation of communities, interaction with peers and a seamless integration of informal, non-formal and formal educational communities.

More importantly, we described, in some detail, the research and development of a social media platform—Campus—since the end of the 2000 decade until 2020. The platform began as a blend of Web 2.0 services and a PLE tool and evolved to a social media tool with institutional support for use in all educational levels.

The successive versions of Campus not only reflected the evolution of technology but, most of all, the evolution of the practices of its users. A few major changes can be signaled. One important change is related to a temporal dimension of learning that technologies tend to resgnify. The admission that constructive debate, conflict and discussion are relevant learning strategies and that they can happen anytime

and anywhere are a powerful affordance of technology. The monitoring of the use of synchronous and asynchronous communication features of the Campus platform taught us exactly that. Some of the most dynamic and participated activities that occurred in the platform took place on weekends or way beyond regular school hours. One other relevant change is related to the use of technology to form groups and the importance of the interactions that occur in these groups. A growing body of research shows that students tend to participate more in social media groups that in institutional LMS (see [47] and [48] for a review on this issue). The fact that the Campus platform made available a tool to create groups, respecting privacy and security in an institutional environment for all education levels reflected this trend. Finally, the evolution towards mobile access to contents and discussions, the idea of quick publishing and acknowledges and of the use of gamified strategies in the learning process were also educational trends that the literature mentioned, that our user community demanded and that were included in the platform.

We are now, for the worst reasons, witnessing the importance of these features as teachers and students try to navigate a distance education scenario imposed by the covid-19 pandemic. More importantly than ever, digital learning environments are now a tool that must empower educational agents to proceed with learning activities, connecting users and communities and giving them all the opportunities to communicate, interact and (socially) construct knowledge.

As we reflect on this journey, besides the gratitude towards everyone that worked on the project, we have a clear notion that this is (always) an unfinished body of work. As the use of the platform by the platform's users evolve, so must evolve the ways in which we acknowledge that, the way we research and develop solutions and the ways in which the platform must transform itself to serve its users.

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