

## The role of institutional leaderships in the SAPO Campus' adoption process

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### **Abstract**

SAPO Campus (SC) is a web 2.0 service platform, whose aim is to promote collaboration, communication and sharing practices in institutional settings, specifically in educational contexts. Since 2012, a group of schools has promoted the institutional adoption of SC. Taking into account the fact that this is an intentional process as institutions support the platform's adoption, a study was carried out in order to identify the involvement strategies used by principals and school leaders when adopting this technology. Based on a literature review, which included several studies dealing with involvement strategies and how they connect to institutional leadership, an interview was designed not only to understand the strategies used throughout each adoption process, but also their effectiveness.

Our research approach also valued the issues related with the continuous and sustainable use of the SAPO Campus platform in terms of the strategies designed and implemented by the schools' principals.

The content of these interviews was then analysed, making it possible to establish that, overall, the general outcomes are aligned with the results found on previous research, even though it was possible to identify other strategies used throughout the technology adoption process.

### **Keywords:**

SAPO Campus, Leadership, Technology, Adoption, Strategies

## I. Introduction

SAPO Campus (SC) is a social media platform developed by the University of Aveiro and PT Comunicações/SAPO within the SAPO Labs initiative. One of the aims of this platform is to foster innovative concepts within institutional settings, namely by adopting a user-centred approach, promoting users' learning interests and supporting collaborative knowledge construction (Santos et al., 2014). Even though the platform was initially thought out and designed for Higher Education contexts (Santos et al., 2009a; Santos et al., 2009b), it was later redesigned so it could reach out and be used in other educational levels and settings (Pais et al., 2012). As a result, in 2012, a group of schools adopted and started to use the platform.

In the beginning of this process (pilot project), SAPO Labs' team has designed a strategy in order to promote the institutional adoption of SAPO Campus. This adoption strategy relied on the fact that the platform adoption had an intentional purpose – because the schools involved had to declare their intention to adopt the platform – an institutional purpose – because the intention to adopt SAPO Campus came from the school's principals, on behalf of the institution – and a formal purpose, because a collaboration protocol was established between SAPO Labs and the school, where the Terms of Service were defined.

In this initial phase, the engagement and compromise of the schools was guaranteed as was the institutional adoption of the technology.

In the next sections we will discuss the critical factors behind the adoption of technologies in educational settings and will put forward an overall conceptual framework that identifies and characterises the fundamental dimensions and principles of SAPO Campus.

In the Methodology section we will present the research question that guides this study and the instruments used to collect data and will analyse and discuss the results obtained.

Finally, some conclusions are presented and briefly discussed.

## II. Conceptual framework

This section is divided in two complementary sub-sections. In the first one we identify and discuss the critical factors of the technology adoption process as presented in the literature. In the second sub-section we briefly present and describe the main dimensions and principles of SAPO Campus, taking into account the technology adoption context of this study.

### a. Critical factors in a technology adoption process in educational settings

The literature review in this field shows there is a large number of studies that focus on the variables that influence a technology adoption process within educational contexts. In an extensive review, Khalid et al. (2015, p. 5) divided these factors into three main levels: "*the micro level involves the classroom settings, the meso level encompasses the institutional level, and the macro level includes the national bodies associated with education and ICT*".

In the following subsections we explore each one of these levels.

#### i. Macro-level

There is a set of factors in the macro-level that can operate as catalysts or inhibitors regarding the technology adoption process. Costa et al. (2009) refer, for instance, the relevance of educational policies and actual measures that, frequently, do not match the political discourses. Balanskat et al. (2006) point out the rigid structure of teaching systems as having an impact in the adoption of technology, highlighting that the way the students' assessment is done tends to not consider skills that are much regarded in the society. Balanskat et al. (2006a, p. 6) actually say that "is the educational system itself and its rigid assessment structures that impede the integration of ICT into everyday learning activities".

These fears are not exclusive of teachers. According to Balanskat et al. (2006a) there are several studies that show that parents, alongside with teachers, have many doubts choosing the integration of technologies when faced with a more traditional approach, especially taking into account the existence of final exams: "(...) teachers and parents are still nervous about the new methods' capacity to lead to the same results in national exams and fear that schools using ICT will be less performing than traditional schools" (Balanskat et al., 2006a, p. 53).

Petko et al. (2015) sum up these ideas by stating that the adoption of technology can only succeed when there is a clear connection with the pedagogical objectives and the curriculum, stressing that in the technology appropriation moments, the focus should always be in the pedagogical component and not in the technical one.

#### ii. Meso-level

According to Jones (2004), access to technology and support are the most relevant factors regarding the impact in technology adoption. All over the world there are governmental initiatives that try to solve this problem and access topics actually precede technology adoption concerns. Piedade et al. (2014) however refer a relevant amount of studies that highlight the importance of the organizational leadership role – normally assumed by the school principal - in this process. In this line of thought, Tondeur et al. (2008, p. 214) refer that the "[a]nalysis of the available research also reveals the importance of leadership in managing ICT integration. School principals are in a position to create the conditions to develop a shared ICT policy".

Besides the definition and implementation of local policies, that must have a match with the educational policies that are defined in the macro-level, the school principals must assume a transformational leadership role that can be defined as the ability to promote the organization compromise and engagement towards innovation and effective technology adoption (Khalid et al., 2014; Piedade et al., 2014; Seyal, 2015; Wong et al., 2008).

Finally, the factors related with the school culture and institutional involvement in innovation projects are pointed out in some research as relevant factors in schools' technology adoption and appropriation processes (Afshari et al., 2012; Anderson et al., 2005; Hedberg, 2011; Kopcha, 2010; Wong et al., 2008).

#### iii. Micro-level

According to Costa (2008) and Kler (2015), teacher training is the most important factor for the adoption of technology in the teaching and learning process and a quality training programme may have a pivotal role both in the adoption of technology and in the change of teaching practices.

Kopcha (2010) emphasizes also continuous training, in a peer-collaboration approach, as paramount for preparing teachers. Accordingly, Hedberg (2011: 7) reinforces these ideas stating that "(...) [m]any teachers have never used ICT-based learning strategies as learners themselves, nor had training in, or previous experience of, teaching with such technologies".

According to Petko et al. (2015), some research shows that factors related with teachers' beliefs and skills tend to be more important than infrastructure, hardware and software when thinking in technology adoption.

However, according to Ertmer et al. (2012), it is not possible to draw a clear and linear correlation between teachers' beliefs and the adoption of technology: typically, there are other factors (curriculum limitations, assessment models and classroom management) that are involved and that hinder the capacity of teachers to change their beliefs and implement more student-centred and technology powered classroom practices.

More, teachers' personal characteristics, such as attitudes towards technology, confidence and skills, self-efficacy beliefs are pointed out by research as important factors in the technology adoption process (Balanskat et al., 2006b, Hew et al., 2007, Costa et al., 2009b, Kler (2015).

Finally, Kler (2015) also refers an important factor regarding technology adoption: time and work overload resulting from the cumulative and not integrative use of technologies.

While the micro level has been extensively studied (Stuart et al., 2009), research on the meso and macro levels is (by comparison) still lacking (Piedade et al., 2014; Tondeur et al., 2008). Regarding the meso level, Piedade et al. (2014) identified a number of studies that show a clear interest in relating an organisation leadership role – in the person of its principal – with the process of technology adoption.

Tondeur et al. (2008) state that "[a]nalysis of the available research also reveals the importance of leadership in managing ICT integration. School principals are in a position to create the conditions to develop a shared ICT policy". In addition to defining and implementing "local policies", which falls within the macro level (namely through the application of educational policies), and setting the pace for integrating technology into the classroom (besides dealing with other basic and technical issues such as access), technology leadership is also important at a meso level: *"although technology infrastructure is important, technology leadership is even more necessary for effective use of technology in schools"* (Anderson et al., 2005, p. 49).

Thus, the importance of leadership and the role of school principals in the process of adopting technologies are highlighted in several studies that emphasise the concept of transformational leadership, understood as an action that promotes commitment and organisational engagement regarding innovation and the actual use of technology (Khalid et al., 2014, 2015; Piedade et al., 2014; Seyal, 2015; Wong et al., 2008). Moolenaar et al. (2015), referring to the pivotal role of principals, consider that school leaders who develop and are actively engaged in promoting institutional social networks, create better conditions for technological innovation. Cakir (2012) and Afshari et al. (2012) highlight the fact that principals must be role models, as they set the terms for organisational development and promote these processes by sharing their vision and encouraging others to follow.

Other key elements mentioned as relevant in the literature regarding the promotion of technology integration in schools are the institutions' culture and background regarding the involvement in innovative projects (Afshari et al., 2012; Anderson et al., 2005; Wong et al., 2008).

Finally, another relevant issue that is often mentioned in the literature in this field is training. Questions regarding training can be placed at two different levels: developing teachers' technical skills (teacher training); and specific training aimed at school leaders focusing specifically on the use of technology and the role it plays within management processes (Piedade et al., 2014; Stuart et al., 2009)

Costa (2008) and Kler (2015) reinforce these ideas stating that a quality training programme can have an important role in the technology adoption process as well as in the transformation of teaching practices.

## **b. SAPO Campus' guiding dimensions and principles**

Since the beginning of the development of the SAPO Campus platform we consider that this technology has three complementary dimensions: an institutional dimension, a personal dimension and a social dimension.

The institutional dimension of the platform is strongly connected to the context where SAPO Campus was conceptualised and developed. The platform initially emerges from and directed to a Higher Education Institution (the University of Aveiro – Portugal), capitalising the experience of the team members in the use of social web applications and services in educational contexts (Santos et al., 2013. p.4).

In SAPO Campus there is a hierarchy dilution and only the way the platform's users interact with each other and with the available tools can differentiate their roles. This distinction does not have a rigid nor persistent nature. We believe that different approaches to the use of the platform may further promote richer learning experiences as users change their behaviours and adapt the use of the platform to their learning styles and preferences.

From an institutional standpoint this approach tends to reduce formal hierarchies and create new contextual roles, in the process of the social interactions that happen in the platform. More, the freedom allowed by this horizontality to create and publish several kinds of contents in the platform also has important implications in the visibility of the work produced.

One other critical issue regarding this institutional dimension and the use of digital platforms in educational settings is related with the volatility of the technological solutions as they may have serious repercussions inside the institutions. For instance, when deciding the adoption of a technology, decision-makers in the institutions have to take into account potential risk factors that may evolve from a potential change of Terms of Service to a potential discontinuity of a technology or to maintenance/upgrading plans and their budget implications.

SAPO Campus is free and guarantees the aforementioned technical risk factors. So, at an institutional level, the decision of adopting this technology may contribute to release ICT resources (budget and human resources) and allow the institution to work in the materialisation of its mission.

Because SAPO Campus is a social web services platform with a strong institutional component, the personal dimension of the platform also acquires a relevant importance that may assume different shapes (Santos et al, 2014).

When we consider the personal dimension in the context of an institution, one clear dichotomy emerges from this relationship: control by the user vs. control by the institution. When conceptualising the platform, it was decided that the institutional interference levels on the decision and freedom of the users of SAPO Campus would be limited to the levels that we can find in other technologies used outside the institution.

The platform users have access to a wide range of services that allow them to store, organise and share resources in different formats and there are not limitations to the contents' type and quantity that a user can publish in SAPO Campus. Each user can also establish his/her own network, being able to follow in a simple and organised way the activity generated by other members that he/she considers are more relevant to them.

Hence, with this approach, SAPO Campus allows its users to create their own information visualisation filters according to their learning interests, friendships, administrative organisation or any other relevant criteria.

SAPO Campus was previously presented as a social web services platform. Obviously, the platform clearly assumes this social dimension which is a central component of its main organising principles.

From a technological standpoint, the movement towards the social network contexts was something that was seen as unavoidable and has resulted from a continuous and progressive applied research process (Santos et al., 2014).

Following the main principles behind social web services, in an ideal context the institutional adoption of SAPO Campus requires the existence of a considerable number of users which should have different interests and profiles. As other social web technologies, SAPO Campus encourages participation (O'Reilly, 2010) and tends to improve with the participation and interaction of its users. The platform allows them to freely create their own networks inside the institution, for instance through the creation of groups that may be created around shared interests by institutional members. These groups may be closed groups or open groups and the joining process may also be free or moderated.

Taking into account the applicability of gamification principles in educational contexts, the platform also offers a badging system that may promote the recognition of skills and competences in informal and formal contexts and, foremost, aims to promote the active participation and engagement of the community (Pedro et al., 2015) through this motivational feature.

SAPO Campus also includes a synchronous chat tool where is possible to create a direct/private conversation with another member of the institution, the members of a particular group of the institution or to the overall institution. This feature, along with a file sharing service, was implemented after the request from an initial batch of schools that adopted the platform requested them. Finally, in terms of its core features, the platform also makes available a Task manager feature where members can create assignments, establish delivery dates and easily manage the delivery process.

### III. Methodology

Having established the importance of leadership in technology adoption processes and SAPO Campus institutional nature, this study tried to find an answer to the following question: What role does institutional leadership plays in the SC adoption process?

In order to answer this question, we decided to conduct research interviews. As stated by Seidman (2012, p. 14), this method is "a powerful way to gain insight into educational and other important social issues through understanding the experience of the individuals whose lives reflect those issues".

Bearing this in mind, we interviewed principals from 5 of the first schools involved in the project of the institutional adoption of SC. These semi-structured interviews were conducted either through Skype (4) or the questions were sent by e-mail (1) and the answers were later transcribed. After a thorough review, the transcripts were validated and uploaded into the content analysis software WebQDA (Web Qualitative Data Analysis).

After the collecting process, the content was analysed using the aforementioned software and the steps defined by Bardin et al. (1979) with the adaptations suggested by Gondim and Bendassolli (2014). The content analysis' categories validation was made by repeating the codification in two separate moments with a temporal interval of six months. This procedure has allowed a critical detachment regarding the codification of the interviews and further promoted a comparison of the obtained results.

The analytical dimensions considered in our research were defined beforehand and were mainly based on the literature review.

These categories were also behind the interviews' topic guides, as shown in the following table (Table 1):

Analytical Dimensions	Questions
<b>D1- Involvement strategies</b>	<i>What engagement strategies did the institution use in order to promote parent and student involvement?</i>
<b>D2 - Effectiveness</b>	<i>Which were the most effective?</i>
<b>D3- Sustainability</b>	<i>Which strategies will be used in order to promote a sustainable use of the SAPO Campus platform?</i>

Table 1 – Connection between the interview questions and the analytical dimensions

The ensuing definition of categories and subcategories was based in the inductive and deductive analysis of the interviews' content, as described by Patton (2002, p. 453). The unit of analysis used was the clause, since it is the smallest grammatical unit that can express a meaningful proposition.

## IV. Results

Based on the collected data, we decided to analyse and describe the results according to the different categories.

In Analytical Dimension 1 (D1 – Involvement strategies) three categories were considered *a priori*: Teachers, Students and Institutional.

The following table illustrates the subcategories of the analytical dimension "Involvement Strategies", category "Students" (Table 2):

Dimension 1: Involvement Strategies (Students)		
Students	Frequency (Y)	Unit of analysis (example)
Working with teachers	11	<i>Some classes are working within that scope. They use the platform to work on specific projects in each course.</i>
Pilot classes	3	<i>That means teachers that want to join the project now can do it on a trial basis. We will set up pilot classes, which will help us develop the project and expand it to other students next year.</i>
Student body involvement	2	<i>I also had a meeting with the student body because I believe they might want to join SC.</i>

Table 2 – Frequency table of the units of analysis coded in the "Involvement Strategies" dimension, category "Students".

The analysis of the data in table 2 suggests that, regarding student involvement, school principals rely heavily on teachers, basing their strategies on the teachers' capacity of promoting classroom work with the students and hoping that those interactions have some kind of impact in terms of their involvement.

Dimension 1: Involvement Strategies (Teachers)		
Teachers	Frequency (Y)	Unit of analysis (example)
Getting the pedagogical council involved	7	<i>(...) we had already publicised the platform in pedagogical council meetings, so that people could start using it.</i>
Simplifying procedures	2	<i>My first idea was - with SC, I thought - I can (...) implement SC and follow its core philosophy, by taking that classroom or those classrooms, those walls and create different work groups (including a group for the pedagogical council) and then ask those involved to, in due time, share documents within the group... meetings would go by faster, as everyone would have access to the documents beforehand, and we would also save paper.</i>
Involving intermediate structures	4	<i>Our strategies relied on involving school and department coordinators and having the project's coordinator presenting it.</i>
Creating a	4	<i>There were two pedagogical council meetings in which I</i>

support team		<i>created a team in order to get all teachers invited into SC.</i>
Training	9	<i>Before we implemented SC, there was a meeting where I explained how it worked, how I got to know the project and the philosophy behind it.  (...) We have to consider that training itself is already useful for teachers, isn't it? Just the word... it epitomizes a will and a need... It combines something that is useful with something that is pleasant.</i>
Internal Formal Communication	1	<i>There was also a whole logistic involved in getting the project going. We sent out an internal memo publicising SC.</i>
Personal and direct contact	1	<i>I didn't have to campaign and engage in public actions to get people involved in the project. It was almost a one-on-one, group-on-group approach. During breaks in the teacher's lounge, relaying the fact that it was a new project and that it was a privilege for the school to be involved and that we should take advantage of that.</i>
Showing its usefulness	4	<i>The fact that students had the opportunity to work on this kind of project that went beyond the curricula and that we had support...This is one of the things that makes the project useful, in my opinion. We can take something from it. It's an asset and it's useful.</i>
Identifying groups and agents that promote change	5	<i>We have another catalyst at our school. Over the last few years we have been lucky enough to have had a group of teachers involved in curricular enrichment activities - that prompt a series of projects and ideas. It is a positive influence that makes other teachers want to join in and take part in projects.</i>

Table 3 – Frequency table of the units of analysis coded in the “Involvement Strategies” dimension, category “Teachers”.

The analysis of the previous table highlights the importance of teacher training in the process of adopting the SAPO Campus platform. This training was thought out specifically for each school and focused on different dimensions: in three of the schools a more pedagogical training activity that involved about 100 teachers was developed; in one school the principal was in charge of training; and in another school the training task was assured by the SAPO Campus team.

These pedagogical-driven training activities were designed assuming that further work with students would be implemented by the teachers and there would be an integration of the aforementioned pedagogical work in formal and non-formal learning contexts. The training plan was also formally recognised by the National Agency that accredits teachers' training programmes.

However, regardless of the model followed, training was clearly considered to be the most important catalyst in adopting the platform. Getting the school structures (pedagogical council and other intermediate structures) involved was also something that all principals referred to. Other strategies adopted in order to get the message through to schools' teachers included having specific groups of teachers working as catalysts for change and creating support teams that supported the adoption and use of the platform. Even though that happened in only one school in this particular study, it should be noted that direct and personal contact can also play an important role in this kind of process. The different possibilities offered by the platform, as well as its usefulness were also mentioned by principals as involvement strategies.

The following table illustrates the subcategories of the analytical dimension “Involvement Strategies”, category “Institution” (Table 4):

Dimension 1: Involvement Strategies (Institution)		
Institution	Frequency (Y)	Unit of analysis (example)
Tradition and culture	5	<i>The organisation has a history of getting involved in innovative initiatives, specifically those that involve new technologies.</i>
Getting the pedagogical council involved	2	<i>All the communication to and from the Pedagogical Council is starting to be done through SC</i>
Personal involvement	4	<i>I am a keen supporter of SC.  I would like to remind you that I was the project's first mentor and enthusiast.</i>
Dissemination on the school's website	2	<i>So, the first thing we did was publish a direct link to SC on our school's page. As a result, many of our main, or frequent users – students – started accessing SC through our webpage.</i>
Making equipment and resources available	3	<i>The support we had regarding software: the availability of internet access, so that we could develop activities and projects.</i>
Getting other organisations involved	2	<i>We gradually got the school and local communities involved (namely the Arouca's Geoparque's Association).</i>

Table 4 – Frequency table of the units of analysis coded in the “Involvement Strategies” dimension, category “Institution”.

Calling up on the school's tradition and culture of getting involved in innovative projects and directing it towards the adoption of SAPO Campus was a consensual strategy amongst the principals being interviewed. The personal involvement of one of the principals (that clearly stated to be a fan and keen user of this technology) was also consistently referred. Other principals also considered that getting other institutions and organisations involved was strategic, as it made it possible to broaden and expand SC's application.

As for the second analytical dimension (D2 – Efficiency), the categories emerged from the ones defined in D1, as a way of establishing which strategies were more effective.

Dimension 2: Involvement Strategies		
Effectiveness	Frequency (Y)	Unit of analysis (example)
To improve resources and logistics	1	<i>I will try to implement the necessary logistics, so that teachers and students can continue to develop their network activities.</i>
Getting other organisations involved	1	<i>The project we developed (Geosapo) fostered social exchanges as we created a real community, in which people (working together with local organisations) shared new knowledge and learning.</i>
Phased Strategy	1	<i>Yes, the work started with teachers and those teachers asked me if they could start using it with their students. I said yes. But I would call</i>

		<i>them pilot-teachers, because I really only want to start working with students next year</i>
Training	8	<i>The fact that we had training was, in my opinion, the motor that unleashed the enthusiasm surrounding SC. I can in all confidence say that without training we would not have SC in our school.</i>
Identifying groups and agents for change	4	<i>For me, it was a way of knowing I would easily get through to primary school teachers – and that's definitely not easy.</i>
Internal Formal Communication	1	<i>I believe that internal communication was a way of people knowing what they could have access to.</i>
Dissemination on the school's website	1	<i>For our students (...) making the link available on our page, was the most effective.</i>

Table 5 –Frequency table of the units of analysis coded in the "Effectiveness" dimension

It is not surprising to find out that, when asked about the effectiveness of the strategies adopted, principals clearly highlighted the role played by teacher's training. Finding and using catalyst groups that promote change and the involvement in adopting SC was another effective strategy that was mentioned.

Regarding the third analysis dimension (D3- Sustainability), the following table (Table 6) presents the categories that emerged from the content analysis process:

<b>Dimension 3: Sustainability</b>		
<b>Categories</b>	<b>Frequency (Y)</b>	<b>Unit of analysis (example)</b>
Personal effort	2	What my colleagues can rely on is that the principal will always be a platform apologist. And I will not forget her (point one) and the idea is to increase (point two) its use.
Show the utility of the platform	8	I usually say, joking around, that this is a muscled democracy, and it can happen that teachers are able to understand the platform advantages. If I can increase the sustainable base of teachers that use the platform I think that we can achieve the desired sustainability.
Promotion of a viral effect	2	Students have a higher degree of rotation, and I believe that word of mouth is a good strategy for the development of the use of the platform, making this project known and making it more used and popular.
Joint planning	2	I think that a joint work should be done in order to, as I was saying, implement dynamics of use that involve joint projects or something else that is directly connected to the platform's

		features and that sustains its continuous use.
Capitalise students' interest in the social web	2	One thing that is not exclusive of SAPO Campus but that is shared with some other new Technologies is that they [students] like this approach, they are used to work with it and that fosters their learning.

Table 6 -Frequency table of the units of analysis coded in the "Sustainability" dimension

The strategy that principals most referred for the promotion of the sustainable use of the SAPO Campus platform is to show its utility in terms of two different but complementary contexts. One of those contexts is related with the platform utility as a support tool to teachers' professional activity since it simplifies procedures and can be used also as an engagement strategy. The other context is related with the conviction that the use of the platform is an added value in order to increase students' success.

The reliance in promoting the platform's viral effect, so used in social networks applications and services, was also identified as a dissemination strategy aiming to guarantee the sustainability of use of the platform. The need for joint planning activities, namely in terms of joint projects that involve several teachers has also emerged as a relevant category in terms of the platform sustainability. Finally, personal effort was also mentioned as an issue that may be a catalyst of the platform sustainability.

## V. Closing remarks

The strategies followed in the 5 schools analysed in our research are aligned with the major issues found in the literature review. In addition, our analysis also found other strategies to be considered when adopting a technology in this setting. In the teachers' category, training is considered to be the most important strategy in promoting a technology's adoption.

The importance of teachers' training in the process of adoption was recognised by all school principals although the strategy and the focus of its materialisation has varied. In the three schools where the teachers' training actions had a pedagogical nature, principals recognised its importance in a more intense way when we compare it to the reaction of schools' principals where the training actions were more technical-driven.

It should also be highlighted the fundamental role of teachers in this process, as the schools' principals identified them as key-elements in the capacity of mobilising other teachers and convince them to embrace an intricate and complex change process.

As for strategies for getting students involved, all schools followed an indirect approach, as teachers mediated the process, with only one school giving students free access to platform.

From an institutional point of view, tradition and culture, as well as the principal's personal involvement, are commonly used strategies.

When we analyse the sustainability of use of SAPO Campus, the most relevant strategy that was mentioned is related with the demonstration of the platform utility considered at the teaching and learning process but also at the simplification of procedures - namely administrative ones - allowed by SAPO Campus.

Even though the results we describe are relevant, they are just starting to emerge. For that reason, we believe there is a need to do further research on this topic.

Finally, another remark from this study is related with the absence of references to any kind of relevance for the adoption of SAPO Campus related with students, at least from the principals' perspective. A key concept of the platform was the aforementioned promotion of the dilution of hierarchies. As most students have an abundant participation in social networks, by removing the hierarchy roles usually associated with the use of institutional technology we were expecting that students could also be key players in the adoption of the platform across the institution.

From the results obtained in this study we can assume that this expectation was not verified and, for that reason, we also believe there is a need to do further research on this specific topic.

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