School head teachers' views of the drive towards educational innovation in Catalonia

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Resumen: El cambio educativo y la innovación son hoy una clara prioridad en los centros educativos de todo el mundo. Este artículo analiza las fortalezas y las oportunidades que presenta el proceso de innovación educativa que se está viviendo en Cataluña des de la perspectiva de los directores de centro, y plantea una metodología cuanti-cualitativa, mediante 227 encuestas y 29 entrevistas semiestructuradas. Los resultados sitúan el proceso de innovación en una fase caracterizada por los esfuerzos en actualizar las prácticas existentes, las resistencias al cambio provocadas por el propio sistema y la falta de reflexión sistemática sobre la misma acción. Se constatan dos fortalezas del proceso, como son su amplitud y su transversalidad en todo el territorio, así como la importancia que está teniendo la colaboración entre docentes y entre centros para impulsar la innovación. También se detecta la necesidad de una mayor planificación de los procesos de innovación; la necesidad de reflexión por parte del Departamento de Enseñanza entorno a su rol dentro del proceso; y finalmente la necesidad de ahondar en el rol de las tecnologías como facilitadores de la innovación y la comunicación.

Palabras clave: Innovación educativa; Reforma educativa; Liderazgo; Sistema educativo; Administrador de la educación.

Abstract: Today, educational change and innovation are a clear priority in educational centres across the world. This article analyses the strengths and opportunities presented by the process of educational innovation taking place in Catalonia from the perspective of school head teachers, employing a quanti-qualitative methodology using 227 surveys and 29 semi-structured interviews. The results locate the innovation process in a phase characterised by efforts aimed at updating existing practice, resistance to change generated by the system itself, and a lack of systematic reflection on current practice. Two strengths of the process reported relate to its scale and transversality across the whole territory on the one hand, and the importance that collaboration between teachers and schools is having in order to facilitate innovation. Other aspects highlighted are: the need to invest more planning in innovation processes; the need for the Deparment of Education to reflect on its own role within the process; and, finally, the need to develop the role of technologies as facilitators of innovation and communication.

Keywords: Educational innovation; Educational reform; Leadership; Educational system; Educational administrator.

Educational innovation has become a clear priority across the world (European Comission, 2010; Fullan, 2010; Hargreaves, Lieberman, Fullan, & Hopkins, 2010; Law,Yuen, & Fox, 2011; Levin, 2008). Despite this, the need for innovation in schools contrasts with the difficulties the institution has faced in general, and throughout its long history, when trying to implement changes. Authors such as Carbonell (2001), Pedró (2013) and Shön (1998) highlight that change and educational innovation are not an easy task for a highly regulated institution like the school; which evolves within a system which is also regulated, hierarchical and politicised.

As a result, for schools and the educational system in general, change is a major challenge in our country. In this regard, while driving forward educational innovation is a reality across the whole Spanish state, it is in Catalonia where we find the highest number of schools leading such processes of change (Martínez-Celorrio, 2006). For this reason, it is particularly important to understand the Catalan case, in which both state schools and semi-funded schools are leading an educational earthquake marked by the desire of the whole community to transform the education received by children and young people in schools. This phenomenon has been configured as a wide and transversal movement, with numerous simultaneous and consecutive efforts emerging to drive it forward, carried out by teachers, schools, families and socio-educational organisations across the country.

Little evidence is available to date to help us describe how the drive to educational innovation is being developed in schools in Catalonia. This article aims to analyse the strengths and opportunities presented by this innovation process from the perspective of one of the key agents in educational planning action: school head teachers. To do this, the aim is to analyse the

significance these agents attribute to educational innovation; the inhibitors and facilitators of innovation; and the ultimate aims of said innovation. Initially, this article describes the state of the question in relation to the most used innovation strategies on the basis of 281 questionnaires completed by head teachers in Catalan schools. Subsequently, 29 semi-structured interviews are carried out with school heads leading prominent innovation processes in order to analyse their discourse. In this way, the article adopts a mixed quanti-qualitative approach to analyse the accounts of school heads, in order to inform the educational community of the challenges and opportunities presented by the current educational setting in Catalonia, which is a process undergoing constant growth in the rest of Spain and Europe.

Educational innovation

Carbonell (2001) and Foray and Raffo (2012) define educational innovation as the act of creating and sharing new educational tools, teaching practice, organisational systems and technologies in order to improve quality and productivity in education. In this way, educational innovation refers to the overall process, from the development of new ideas to the implementation of new actions and projects. Leadbeater (2012) explains that innovation is a collaborative and accumulative process based on old ideas assembled with new combinations of ideas. The author describes how effective educational innovation comes mainly from changes in the way in which people work together. This approach is largely due to the need to study and systematise organisational processes different from existing ones, that help schools to promote constant change in response to identified needs. These processes are organic and complex, presenting many highs and lows along the way, and requiring time and room for reflection (Carbonell, 2001; Díaz-Gibson, et. al, 2016).

On the other hand, some authors refer to the concept of innovation, putting the focus exclusively on the final stage of the process, which is to say on the implementation of actions and projects (Li, 2012; Roberts & King, 1996, among others). Renzulli (2003) defines innovation as change which involves a certain degree of novelty, whether in terms of a process, a method or an educational project. From this perspective, innovation becomes a label used to categorise the value of an educational practice or action, understood as a renovating and new action compared to existing actions. Li (2012) identifies two types of innovative practice: disruptive innovation, understood as an invention which is totally different from existing practice; and incremental innovation, such as the identification, translation and adaptation of new ideas and solutions from other contexts, experiences or local organisations. As a result, the context in which innovation is implemented determines if the proposals are innovative or not.

In this sense, while an educational action may be innovative, it may not be effective in achieving the objectives set, which means that innovation is not synonymous with success. Pedró (2013) makes a relevant consideration regarding the importance of evaluating innovation processes and changes sought, in order to identify innovations that are effective and those that are not. This means that it is important to document the process, as well as acknowledging the existence of changes without evidence of effects, or with evidence of negative effects.

The literature highlights three key elements in educational innovation processes: leadership, collaboration and technologies. In relation to leadership, López (2007) explains that innovation processes are not one-off actions and should always be accompanied by reflection on what, why

and how it has been carried out. In this way, school heads, as well as those in middle-management posts, are genuine drivers of systematic innovation processes in schools, planning, guiding and accompanying teachers (Carbonell, 2001; Ely, 1999; Fullan, 2010; Sorensen & Torfing, 2011). At the same time, authors such as Ansell and Torfing (2014); Eggers and Singh (2009); Nambisan (2008) Torfing and Díaz-Gibson (2016), and Díaz-Gibson et. al (2016) support the idea that collaboration between numerous agents, whether within the school or school community, strengthen and improve innovation processes in general. Furthermore, the literature also highlights the role of technologies as boosters of processes involving the discussion, creation and implementation of new projects (Craft, 2005; Flavin, 2016; Loveless, 2008). Technologies facilitate the varied management and representation of information and allow teachers and students to make changes, and to try out new ideas and approaches to solve problems and make creative proposals. Kampylis, Bocconi, and Punie (2012) add that despite being a clear enhancer of new organisational, methodological and pedagogical proposals, technologies run the risk of being used to reproduce traditonal practices.

In summary, we see how the idea of educational innovation is understood from two different perspectives: 1- a first responding to a wide process that goes from discussing and creating new ideas to their implementation in specific action and projects; and 2- a second perspective that refers exclusively to implementation, and responds to a category for denoting new educational proposals that seek qualitative changes in specific contexts. The literature also highlights the key role of management teams as facilitators of innovation processes; the importance of collaboration between professionals within the school and within the school and community; and, finally, the value of technologies as potential boosters of innovation processes.

The drive towards educational innovation in Catalonia

While scarce literature is available exploring the causes of the process of educational change and innovation in Spain, many factors could be discussed to explain its emergence. Some of these could be related to the economic crisis and the budgetary cutbacks made over the last decade, or demographic decreases and its effect on school enrolments. These factors have subjected schools to excessive tensions at a time when education is experiencing substantial changes (UNESCO, 2014), and many schools have decided to make moves to avoid losing more students.

In this context, Martínez-Celorrio (2016) highlights that evidence of drives towards educational innovation can be found at this moment in time across the whole Spanish state. Despite this, the same author claims that the wave of educational change is more visible and evident in Catalonia, while in the rest of Spain it remains largely unnoticed or camouflaged within local networks, pending recognition by civil society and public authorities. In this sense, it can be suggested that one of the characteristics that distinguishes the innovation process being developed in Catalonia from other processes in the rest of Spain is that the latter is emerging in a bottom-up manner and in a transversal and wide-scale way by the whole educational community. Taking into account the database of the Escola Nova 21 project in 2019, the scope of this process has a direct impact on around 500 schools in Catalonia (15% of the total), 20,000 teachers and 230,000 students. Of all these schools, 68% are state schools, 31% semi-funded, and 2% private; 40% secondary schools, 60% primary schools and 15% schools of maximum social complexity. We will now describe the

scale of this educational drive from the main vectors of change: schools, families, civil society and, finally, the public administration.

It is clear that one of the main agents of this process of change are the teachers themselves and the schools where they work. Over the last decade, various educational projects driven forward by state schools and semi-funded schools have advanced proposals that are different from conventional projects. In general, these schools have used the greater level of autonomy granted by educational legislation (LOGSE 1990, LOPEG 1993, LOE 2006) to define their school projects (Martínez-Celorrio, 2016), organizing their resources and methodologies to respond to the different interests, needs and learning rhythms of their students. This results in pedagogical trends that encompass comprehensive competency-based approaches, greater interaction between students groups of different ages, problem-based learning, flipped classroom methodologies, collaborative group work, greater student autonomy allowing them to make learning choices freely, globalised places designed to respond to this diversity, and a marked co-responsibility between families and schools in the educational process. On the other hand, teachers at these schools focus on preparing the spaces, observing and documenting, adapting technological tools to pedagogical usage, team-work and co-teaching (Martínez-Celorrio, 2016). Far from representing something completely new, these approaches aim to adapt the pedagogical tenets of models dating back to the 19th century and early 20th century - with references such as Montessori, Dewey, Declory and Freinet - to the current context.

At the same time, families are another key agent in the emergence of educational change in Catalonia. A large number of Catalan families opt to enrol their children at these schools, which

means that demand outweighs the schools' current capacities. In May 2016, the Catalan press reported how a group of 400 families in Barcelona organised a platform called 'We want an active school', to pressurise the administrations to extend the offer of places in schools working with innovative educational methodologies. Responding to this demand, in 2017 the Education Consortium (a co-management entity working with the Government of Catalonia and the Barcelona City Council) announced the creation of six new schools with these characteristics in the city of Barcelona. More evidence of the contribution made by families to educational change is found in the emergence of the Network of free schools. Numerous families decide to school their children privately in Free education schools, based on the pedagogical tenets of Alexander Neil, Sumerhill (1923). In 2016, these schools account for over 20 schools in Catalonia, with plans to grow exponentially over the coming years across the rest of the Spanish state.

We also find other relevant social agents related to educational innovation who are trying to boost this process to make it available to the largest number of schools. A benchmark in this respect is the Escola Nova 21 project, an initiative led by the Jaume Bofill Foundation, the UNESCO Centre of Catalonia, the Obra Social of "la Caixa", and the Open University of Catalonia, which also counts on the support of the Education Consortium. This project started with a group of 26 schools noted for their innovations, which made an open call to schools interested in improving their practices in 2016, receiving 461 applications from state and semi-funded schools. The aim of Escola Nova 21 is to create a learning network between Catalan schools, whereby the more innovative schools can support and accompany schools with more traditional projects. Other projects also exist which are also boosting this process, such as the Maestros Rosa Sensat

Foundation, the ChangeMaker schools of the Ashoka Foundation, and the Federation of Pedagogical Renewal Movements.

Finally, and despite the fact that the administration is playing more of a secondary role in this process, it also contributes certain efforts in this direction. Some of the projects led by the administration are *Ara és demà* (Now is tomorrow) in 2016, whereby the School Council of Catalonia promotes general reflection among the whole educational community regarding the future of education. We also find the recent Network of schools for change in 2017, led by the Barcelona Education Consortium along with Escola Nova 21, the Autonomous University of Barcelona and Rosa Sensat, promoting the creation of 19 territorial networks made up of 152 state and semi-funded schools to be trained in educational innovation over a 3-year period. Finally, on 19 December 2018, the Department of Education, the Catalan Association of Municipalities and the Federation of Municipalities of Catalonia presented an agreement to lead a joint initiative with Escola Nova 21, whereby the 60 and more already existing local networks of educational transformation of Escola Nova 21 will take part in public administration actions.

Method

This study aims to analyse the strengths and opportunities brought by the educational innovation process being developed in Catalonia from the viewpoint of school heads. Authors such as Bates (2001), Day (2002) or Pantic and Wubbels (2010) highlight the important influence that school management teams have on the effectiveness of educational innovation processes. The study uses a mixed method design in which quantitative methods are applied, using 281 surveys, as well as

qualitative methods using 29 semi-structured interviews. Complementing the data in this way helps to develop the study objectives more fully.

The study is based on the surveys completed by school employees in Catalonia administered by AQU (Agency for the Quality of the University System of Catalonia) in 2014. The sample is made up of 281 heads: 227 from state schools and 54 from private or semi-funded schools; 164 primary schools; 47 from primary and secondary schools, and 69 from secondary schools; with a wide distribution across the country (Table 1); and with 77% of schools reporting mean levels of complexity (Table 2). The survey aims to build awareness of the suitability of the university training of teachers in Catalonia from the perspective of employers. This study focuses solely on the dimension of 'innovation strategies', with the corresponding variables being: 1 - teaching and pedagogic innovations, 2 - significant changes in technology: new equipment or software, 3 - working in networks, 4 - collaboration agreements with schools abroad, 5 - strategic project, 6 - quality improvement project. The data from the questionnaire has been analysed using statistical package IBM SPSS.21.0.

Qualitative data is obtained through 29 semi-structured interviews carried out with a representative sample of school heads who are experts within the school sector, exploring the process of change from the description of reality and subjectivity of experience shared by these leaders who are driving forward the process. Heads of both state (16) and private or semi-funded (13) schools leading current renewal projects have been considered experts in this context. The 29 heads manage schools which appear on the indicative map of innovative schools presented by Martínez-Celorrio (2016), representing 71% of the 41 existing schools. At the same time, the interviewees

bring with them over four years' experience heading the school and also participate in corresponding teacher training programmes and research projects in collaboration with the University. Each interview lasted approximately 45 minutes. The aim of the interviews was to find out the extent to which the heads value the overall process of current educational innovation, posing three different questions: a first asking what the heads understand by educational innovation; a second on what inhibits and facilitates innovation processes; and finally a third concerning the ultimate goals of educational innovation. The extraction, analysis and coding of the data from the interviews has been done using the QSR N-Vivo programme; which is a specific form of software for analysing qualitative data. The data analysis process has followed an inductive procedure, whereby the experts' perceptions have helped to identify descriptive categories corresponding to the characteristics that explain the process of educational innovation.

Results

Firstly, if we focus on the questionnaires on *innovation strategies* completed by all schools (Figure 1), we see that the ones implemented the most are teaching and pedagogical innovations (29%), followed by technological strategies related to significant changes in the technology used in classrooms (24%), and networking with other schools (16%), alluding to new ways of working with other schools. To a lesser extent, we find that innovation strategies are applied in relation to the development of a strategic plan (12.5%). This information enables us to situate the practical efforts related to changes in schools on the map, highlighting new ways of organising methodological resources within the school, the eruption of technologies in learning processes,

and new ways of relating between organisations and professionals, as a source of learning and change.

If we delve further into the details of our analysis of the possible associations (chi-square) between the different innovation strategies and the types of school - ownership, educational stage, area and level of complexity - an initial relevant finding is that very few associations help determine what kind of strategies are more used according to the characteristics of the school. This indicates that there is significant diversity among the schools applying innovation strategies in Catalonia and, at the same time, that the kinds of strategies used by them are very similar. We observe that only one relevant association exists, and this is between 'the development of a quality plan and a strategic plan' and the ownership of the school. This reveals that semi-funded schools implement more quality improvement projects than state schools. At the same time, and on a general level, we observe that the implementation of innovation strategies (Figure 1) is almost the same as the proportions shown by state schools (Figure 2). This fact can be explained to some extent by the imbalance in the sample of the surveys, where state schools represent 80% of the participants.

Having described the setting in relation to schools and innovation strategies, the results focus at a qualitative level on *conceptions of educational innovation,* taking the interviews with the school heads as a reference (Figure 4). The interviews reveal that the heads understand educational innovation according to two main ideas: 1- adjusting educational practice to current demands and 2 - recovering innovations from the past that failed to be consolidated. A large proportion of the heads agree that what is being done is not something new, but rather adapting existing practice to new educational concepts. One of the heads exemplifies his conception of innovation, highlighting

the need for constant updating: *The school should always innovate, it's like when I go to the doctor and I want them to be up-to-date; I don't want a doctor who finished studying in 1960 and hasn't studied anything since, I'd be terrified of that doctor (School head, 2016).* On the other hand, the heads share the idea that innovation requires the recovery of educational practice that emerged in Catalonia during the Second Pepublic: innovating means recovering things that have been lost and that can be found in the active school of Catalonia… with leading thinkers such as *Montessori, Dewey, Decroly, Freinet* or *Freire* (School head, 2016).

At the same time, many heads describe educational innovation as a form of change which is disruptive as well as renewing, arguing that: *we are carrying out a ground-breaking renewal because we are breaking with the old way of doing things. Because of this, it's disruptive, we're updating more than innovating* (Head, 2016). On the other hand, some heads believe that the phenomenon of educational innovation in Catalonia is now, more than ever, the latest trend as opposed to a commitment to educational change; a trend to which many schools attach themselves so as not to be left behind and not to lose out on their share of the market.

When asked about the innovation strategies mentioned in the questionnaire, some heads agree that in practice these strategies are closely connected and that changes in teaching and pedagogy, networking and using technologies also involve changes in organisation: *in order to break with closed class groupings and closed curricula, you have to be more flexible. It involves more experiential learning. You break with the usual groupings of children by age, you encourage cooperative work based on the complimentarity of children. And to do this we need lower ratios and we need to combine teachers' work with that of pedagogues and psychologists in the classroom*

(Head, 2016). In this way, changes in organisational structure are identified as transversal facilitators of innovation strategies.

Thirdly, the heads also provide an outline in their discourse of the elements that characterise the *innovation process* in their schools. Initially, the heads give particular importance to the *inhibitors of the innovation process* (Figure 5) in their discourse. The main inhibitors identified are those related to the paradoxes and incongruencies of the educational system itself. An example of these incongruencies is the lack of resources added to the great demands placed on schools. One head argued that: *they say they want an inclusive school when the support given is virtually zero, and we find ourselves faced with really hard realities that can't just be addressed with good intentions* (Head, 2016). On the other hand, heads add that the system of promotions and incentives goes totally against the idea of educational innovation: *teachers that do things differently are penalised more than those who do nothing. Incentives are given for doing nothing. This is ridiculous. If you want to change schools, what counts the most is how long you have worked* (Head, 2016).

On similar lines, the role of the Department of Education is also highlighted as another story, affirming that their demands and actions often prevent the fluid development of innovation processes. One of the heads explained it in this way: *if the school has a lot of demand they increase your ratios. So that means it's better for you not to have too many children during pre-enrolment (...), and that's why I tell you that inspection tells us what we're doing is brilliant, but we're totally overwhelmed and while other schools have 20, we have 27. Maybe it's not in our interest (...). What the administration shouldn't do is hamper schools who are trying to do things differently* (Head, 2016). At the same time, heads argue that there are some really competent inspectors who

are also victims of the incongruencies of the system itself: inspectors prefer us to comply with all the regulations about timetables and all the paperwork we have to do, instead of telling them that we're in the process of innovating and questioning our own practices (Head, 2016). Finally, resistance to change and teacher routines are also highlighted as a clear inhibitor of innovation by a large group of the interviewees. Some of them highlight that such resistance responds to a way of working which is encouraged by the system itself.

On the one hand, the heads highlight that, although the needs for educational change are impaired by existing difficulties, schools and the educational community in general are advancing towards different pedagogical proposals: *There's like an internal reaction in the system itself that goes from bottom up (...), that stops responding just to legal orders in order to think for itself* (Head, 2016). The heads speak about *drivers* that promote innovation processes (Figure 6), highlighting the need to adapt to the demands of the current socio-educational context. In this sense they argue that the knowledge-based society of new technologies presents us with a context that challenges methods based more on rote learning. At the same time, the interviewees argue that the concern shared by teachers and heads in Catalan schools is driving the system towards this profound pedagogical renovation.

A second driving force highlighted is the growing awareness among families of the need for change; a reality which is perceived by the heads as a real impetus which is pushing forward educational projects across Catalonia: *We've reached a point at which many families have stopped delegating (...), there are educated people who think that a different model of schooling is possible for their children* (Head, 2016). In this sense, the interviewees also think that an educational

community receptive to educational change facilitates innovation processes in schools. They also think that the availability of solid teams which remain stable over time and are capable of implementing innovation processes from beginning to end is also a key factor.

A third element highlighted in the overall discourse of these heads is the role of technologies as a 'hoax' facilitator. The initial questionnaire mentioned that both state and semi-funded schools have a strong presence of educational strategies involving technologies. In this sense, some heads agree that the use of technologies does not mean innovative action: *There are schools operating with new technologies that are not innovative (...) other pedagogical parameters explain their qualities, for example using technologies to foster multiple intelligences, or promoting collaborative working* (Head, 2016). While the heads agree that technologies have a key role to play today and in the future as tools that can boost innovation in schools, their discourse needs further development in relation to the key factors needed to turn it into a real facilitator.

Finally, regarding the *ultimate objective of educational innovation* (Figure 7), the school heads indicate that the ultimate goal of innovation is to improve the overall educational system. At the same time, the heads add that innovation should be aimed at reassessing the organisation of learning processes as well as schools' general educational projects: *we need to break down the divisions between subjects, group students differently, change spaces and encourage teachers to work together* (Head, 2016). They also highlight the specific goal of stimulating students' different skills: *We want to encourage creative learning and different ways of thinking where mathematics concepts can be related with those of language* (Head, 2016). Finally, the pursuit of school success for all seems to be a minority objective in the heads' discourse.

Discussion and conclusions

In this study we aimed to analyse the strengths and opportunities brought by the educational innovation process being developed in Catalonia from the viewpoint of school heads. Our analysis of the results presents us with two strengths and three opportunities for development and advancement of innovation in Catalonia.

A first strength is the confirmation that the innovation process is being developed on a wide and transversal scale across the educational community. Firstly, we find evidence of the scale of different kinds of schools implementing innovation strategies, regardless of their ownership, complexity, educational stage or geographical setting. This fact corroborates the awareness within schools across the whole territory and their interest in driving forward changes aimed at improving their educational proposals. Secondly, the active role of families as drivers of change within schools is also highlighted. Referred to earlier, the importance of this new factor has been verified by the school heads, who agree that the growing awareness of families is a decisive facilitator. This point puts the focus on schools as a community, and understands family-school relations as a capital element in processes of change. There is no doubt that it is vital to reflect on the role that families take in schools and the professional competences needed for teachers to be able to construct and nurture co-responsible and proactive relations aimed at educational improvements.

A second strength highlighted is the importance of collaboration between teachers and between schools to drive innovation forward. Taking the surveys completed by the heads, we see that both

state and semi-funded schools value the sum of collaborative strategies between schools (networking between schools and collaboration with schools abroad) as a capital strategy for innovation. In this sense, and as indicated by Ansell and Torfing (2014), Díaz-Gibson et. Al (2016), Eggers and Singh (2009), among others, collaboration between different agents strengthens and improves innovation processes overall. The idea of collaborative innovation has led a good number of schools to seek synergies with other schools in order to learn and attend to the different educational challenges they are presented with in a more effective way.

On the other hand, a first opportunity for driving forward these processes suggests that educational innovation in Catalonia is in a phase focused more on action than on reflection. The few references to innovation as an overall process starting with the development of an idea to the implementation of a project (Bason, 2010; Carbonell, 2001; Foray & Raffo, 2012; among others); or at least the few allusions to the importance of assessing and collecting evidence on the improvements brought by the changes (Pedró, 2013); reveal a focus on action more than on the organisational, discursive and reflective processes needed to carry out educational innovation processes systematically. This action is perceived as a pedagogical readjustment to current times, in which innovation processes are certainly activated in the schools, but in which the practices suggested are not essentially new. In this sense, the heads refer unanimously to educational innovation as a new practice which involves methodological changes or projects, in line with authors such as Li (2012), Renzulli (2003), or Roberts and King (1996), using words such as 'ground-breaking' or 'disruptive', and illustrating change related to more conventional methodologies and projects used across the whole educational system. This highlights the need for more planning of reflection processes related to

innovation, clearly defining the objectives sought and establishing the mechanisms for evaluating such practices.

A second opportunity presents the need for the administration to reflect on its role within this process, since it can play a crucial role in implementing innovation across the territory, as already referred to above. The results describe how educational innovation processes are actions that go somewhat against the grain and, as a result, they tend to be much slower than many heads would like. A clear element that supports this idea is the significant influence of the inhibitors to innovation found in the school heads' discourse; with these being the incongruencies of the system itself and the role of the administration as the main obstacles in the way of innovation. At the same time, and on many occasions, these resistances inhibit the efforts and talent of teaching teams, who opt to follow the established *status quo* instead of developing new initiatives. This idea is illustrated by Carbonell (2001) and his description of the school as an institution resistant to change. Innovating requires an extra effort that takes its toll on professionals insofar as they are going against a standardised and highly bureaucratic system that favours immutability and the perpetuation of the *status quo*. As a result, innovation is above all a challenge to the dominant structures and cultures of the current educational system. This fact places the Department of Education in a crucial position in relation to the development of processes of educational change in Catalonia. The heads explain that measures empowering the singularity and stability of educational projects in neighbourhoods and cities are needed for them to be considered and constructed with sufficient autonomy and with stability in terms of staffing.

A third opportunity for improvement is the need to develop technologies as a clear enhancer of learning and communication processes within the educational community. Although technologies are presented as one of the most used strategies by both state and semi-funded schools, they appear very infrequently in the discourse analysed. On the whole, heads talk of technologies as 'hoax facilitators' of processes, warning of the risks pointed out by Kamplyis et al. (2012), suggesting that these can perpetuate more traditional pedagogies. No cases are found of the heads explaining the role of technologies as one of the factors that enable pedagogical change in schools, while also fostering autonomous and creative teaching and learning processes, in line with Craft (2005), Flavin (2016) and Loveless (2008). In this way, the role of technologies becomes a significant element upon which reflection is needed within the framework of innovation changes in Catalonia.

In summary, this article sheds light on the process of innovation being developed in Catalonia, which is receiving considerable attention in the press, but concerning which little information is available from the viewpoint of the professionals and schools involved. Two strengths of the process reported relate to its scale and transversality across the whole territory on the one hand, and the importance that collaboration between teachers and schools is having in order to facilitate innovation. Other aspects highlighted are: the need to invest more planning into innovation processes; the need for the Department of Education to reflect on its own role within the process; and, finally, the need to develop the role of technologies as facilitators of innovation and communication. These results help to develop a better understanding of the state of the question regarding innovation in Catalonia, while also introducing key questions to stimulate debate and provide the basis for future improvement measures for the schools themselves, as well as for other key agents such as the administration.

It is important to highlight that the article analyses educational innovation processes exclusively from the viewpoint of a significant group of head teachers. While this fact affords us a privileged viewpoint, it would also be interesting to take into account complementary viewpoints of other agents who are leading forward educational change; such as teachers, families, students and representatives of the Department of Education and civil society. Future studies could explore the perspective of teachers as the main frontline agents in educational action, or analyse the key role played by families and civil society as emerging drivers of educational change in Catalonia.

Acknowledgements

Table 1. Territorial area of the schools

	Frequency	**%**
Baix Llobregat	20	7.1
Barcelona Counties	30	10.7
Central Catalonia	23	8.2
Consortium of Education of Barcelona	34	12.1
Girona	38	13.5
Lleida	31	11
Maresme - Vallés Oriental	39	13.9
Tarragona	29	10.3
Terres de l'Ebre	13	4.6
Vallés Occidental	24	8.5
Total	281	100

Table 2. Level of complexity of the schools

	Frequency	%
Low	25	9.7
Average	198	76.7
High	35	13.6
Total	258	100
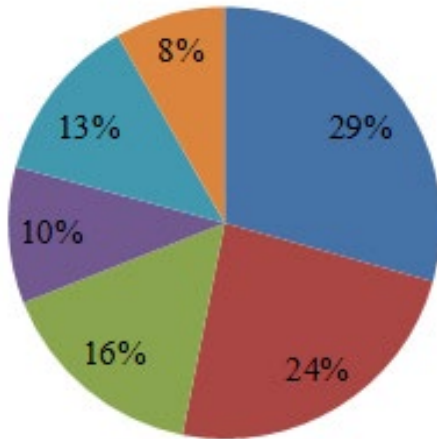
Figure 1. Innovation strategies applied by all the educational centres

- ■ Didactic/Pedagogic
- ■ Technological
- ■ Networking with other schools
- ■ Collaboration with schools abroad
- ■ Development of a strategic plan
- ■ Development of a quality plan
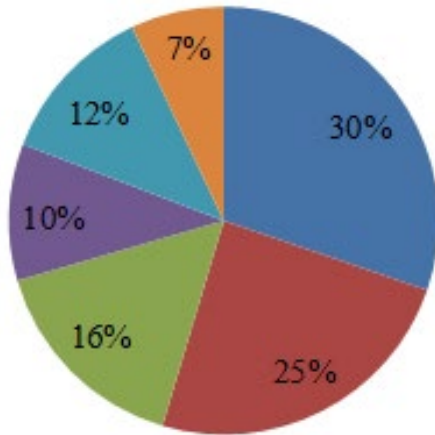
Figure 2. Innovation strategies applied in state schools

- Didactic/Pedagogic
- Technological
- Networking with other schools
- Collaboration with schools abroad
- Development of a strategic plan
- Development of a quality plan
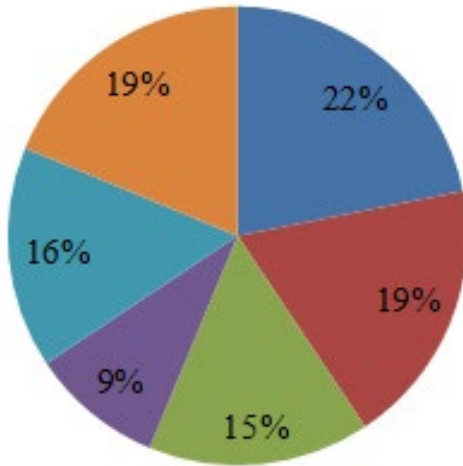
Figure 3. Innovation strategies applied in semi-funded schools

- Didactic/Pedagogic
- Technological
- Networking with other schools
- Collaboration with schools abroad
- Development of a strategic plan
- Development of a quality plan
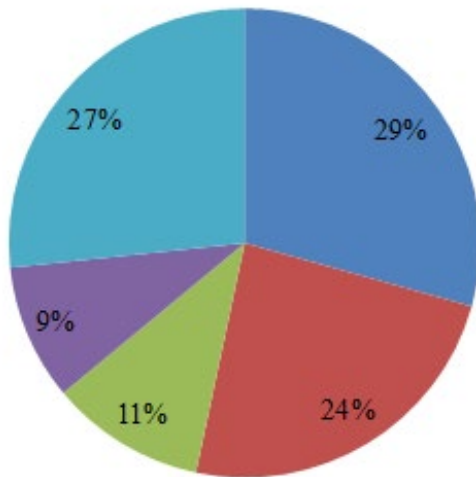
Figure 4. Conception of educational innovation

■ Updating/renewing/improving

■ Change/disruptive transformation

■ Latest trend

■ Process/learning

■ Recover/update things already being done
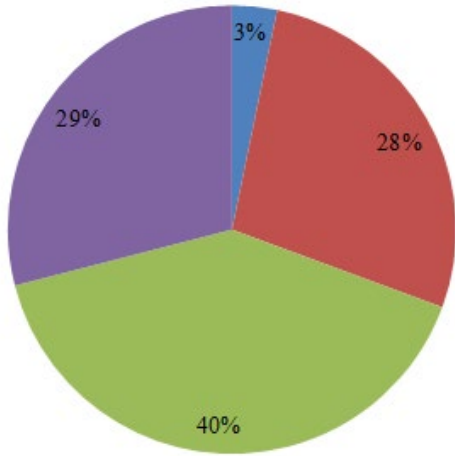
Figure 5. Inhibitors of educational innovation

- Professional individualism and internal corporatism

- Role of Department of Education

- Incongurencies within the educational system

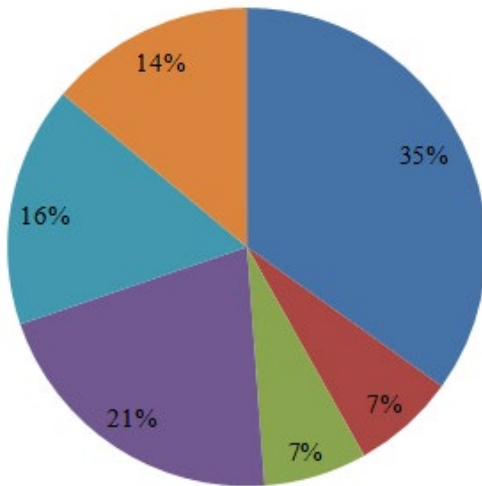- Resistance to change and teacher routines

Figure 6. Enhancers of educational innovation

- Suitability to current needs

- 21st century competencies

- Competitiveness between schools

- Families' awareness of need for change

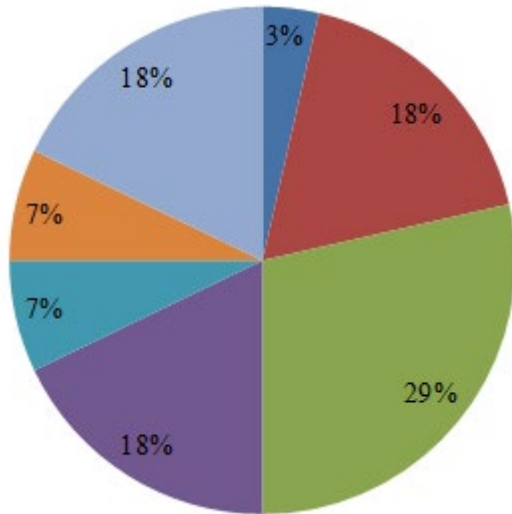- Strong teaching teams and receptive community

- Technological reality

Figure 7. Objectives of educational innovation

- ■ Achieve school success for all
- ■ Stimulate students' skills
- ■ Improve the system
- ■ Reconsider schools' educational projects
- ■ Improve the school's culture
- ■ Increase family satisfaction
- ■ Reconsider learning processes