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## **Factors promoting informal and formal learning strategies among school leaders**

David Rodriguez-Gomez<sup>a\*</sup>, Georgeta Ion<sup>a</sup>, Cristina Mercader, and Saida López-Crespo<sup>b</sup>

*<sup>a</sup>Department of Applied Pedagogy, Universitat Autònoma de Barcelona, Barcelona, Spain*

*\*David Rodriguez-Gomez, [david.rodriguez.gomez@uab.cat](mailto:david.rodriguez.gomez@uab.cat), Department of Applied Pedagogy, Plaça del Coneixement, Campus de la UAB, 08193, Bellaterra (Cerdanyola del Vallès), Barcelona, Spain*

# **Factors promoting informal and formal learning strategies among school leaders**

The professional development of principals is a key element in improving the quality of educational systems. Although it is common for the training of educational leaders to be associated to formal pre- and in-service principal development programs, informal learning opportunities are increasingly common. However, research analysing informal learning processes among this professional group is scarce. The purpose of this paper is to identify the factors promoting informal learning strategies, online and face-to-face, used by principals as part of their professional development. The methodology involved implementing an online self-administered questionnaire to a sample of 715 school leaders. The study begins with a univariate and bivariate descriptive analysis. Three multiple regression models are then developed, which allow to check the independent effects among the variable criteria used and the three types of learning methods under consideration. The results show that the development of formal and informal learning activities among principals clearly requires a 'learning-friendly' organisational culture, a clear motivation for the profession, a strong professional determination and a positive perception of professional competencies as principals. Schools should start promoting the transition from job-based to competence-based staff systems and structures, in which informal learning strategies become relevant as a basis for promoting innovation.

Keywords: informal learning; school leaders; organisational culture; learning strategies;

## **Introduction**

The quality of education and school effectiveness is one of the biggest concerns for academic and practitioners (Baker, Goesling, and LeTendre 2002; Card and Krueger 1992; Hopkins, Stringfield, Harris, Stoll, and Mackay 2014). Numerous studies point out that principals, as key agents for a proper school function (Garza, Drysdale, Gurr, Jacobson, and Merchant 2014), are a key factor in ensuring the quality of our

educational systems (Gairin and Rodriguez-Gomez 2014; OECD 2014; Sanders 2016). Previous studies clearly point to a connection between leaders' leadership style not just with the school climate (Allen, Grigsby, and Peters 2015), but also with the students' achievements and results (Day, Gu, and Sammons 2016).

The multiple and changing responsibilities and functions that principals must develop to ensure school effectiveness and promote improvements, as well as the growth of their autonomy in school management and, consequently, an increase in accountability (MECD 2014), imply their necessary involvement in continuous learning processes (Cameron, Mulholland, and Branson 2013; Huber 2013).

The participation of teachers and school leaders in professional development activities is one of the most powerful predictors of the quality of their activity (Hattie 2012) and has a direct impact on students learning (Akiba 2015) and, also, on teachers' learning experiences and professional lives (e.g., Brown and Zhang 2017; van Veelen, Slegers, and Endedijk 2017).

As in other contexts (e.g., Becker and Bish 2017; Nilsson and Rubenson 2014), it is common for educational leaders' training to remain associated with formal pre- and in-service principal development programs (Darling-Hammond, LaPointe, Meyerson, Orr, and Cohen 2007). These activities are often promoted and designed, directly or indirectly, by the administration in accordance with its education policy (Jiang, Sumintono, Perera, Harris, and Jones 2018; Ng and Szeto 2016), or by universities, with varying degrees of centralisation/decentralisation, and focused on updating specialised knowledge according to their areas of operation (e.g., courses in school administration, teacher training or courses on educational leadership) (OECD 2014), on the development of individual schools or on the development of participants' mental concepts (Huber 2004).

In recent years, the usefulness of this type of traditional educational activity has been questioned because of its high cost, being time limited, not meeting real learning needs, not meeting professional interests, offering scattered and de-contextualised learning and, above all, for the scarce learning transfer into daily work activity (Blume, Ford, Baldwin, and Huang 2010; Reich, Rooney, and Boud 2015). In the specific field of education, the Teaching and Learning International Survey (TALIS) (OECD 2014) reveals that some of the main barriers to the participation of principals in professional development are, in order of importance, incompatibility with working hours, lack of incentives, high cost of the training, lack of training opportunities, lack of support from employers, family obligations and prerequisites.

Given this situation, the workplace learning, and specifically informal learning opportunities are increasing prominence because of their greater impact on people and low distortion or interference on daily work (Becker and Bish 2017; Michaelidou and Pashiardis 2009). Informal learning is not organised in study plans or restricted to certain contexts. It is self-directed learning, where professionals decide what, how, when, where and with what resources they learn based on everyday demands, needs and professional interests (Manuti, Pastore, Scardigno, Giancaspro, and Morciano 2015; Margaryan, Littlejohn, and Milligan 2013). Out of formal structures, teachers and school leaders benefit from a wide variety of activities they undertake during their worktime (e.g., Cerasoli, Alliger, Donsbach, Mathieu, Tonnebaum, and Orvis 2018; Kwakman 2003). The forms leaders learn in the workplace are varied: experimenting, considering one's own practice, learning by doing, receiving feedback, in-school coaching and networks of professional support or mentoring, among others (Zhang and Brundrett 2010).

The studies focused on workplace learning and casual learning from a broader perspective often address, among other issues, the comparison or overlap between formal and informal learning (Manuti, Pastore, Scardigno, Giancaspro, and Morciano 2015), the identification of personal, group and organisational factors that facilitate this type of learning (Berg and Chyung 2008; Kukenberger, Mathieu, and Ruddy 2015), the formal recognition of competences acquired informally (Singh 2015), their link to organisational performance (Jacobs and Parks 2009) and other organisational processes such as, for example, networking (Trust, Krutka, and Carpenter 2016), organisational development (Zhang and Brundrett 2010) and organisational learning (Za, Spagnoletti, and North-Samardzic 2014). Regarding this last topic, the analysis and development of a learning organisational culture, where values and habits of inquiry, initiative, and experimental thinking predominates, is one of the main concerns (Watkins and O'Neil 2013).

A substantial part of studies focusing on informal learning show the benefits of this form of learning, such as developing competences and updated professional knowledge, promoting knowledge creation (Paavola, Lipponen, and Hakkarainen 2004), facilitating changes in attitudes and professional values and direct transfer to the work context (Burke and Hutchins 2007; Enos, Kehrhahn, and Bell 2003) providing more confidence to workers and higher levels of satisfaction, among others (Bednall, Sanders, and Runhaar 2014).

However, in education, little research has been done into the study of this type of informal learning strategies and requires more evidence to effectively develop them (Kyndt, Gijbels, Grosemans, and Donche 2016). In addition, as highlighted by van Veelen, Slegers, and Endedijk (2017), compared with studies and essays that focus on the formal learning proposals and programs of principals, there is little research

analysing the informal learning processes in this professional group. Thus, the aim of the present study is to identify the factors promoting informal learning strategies, online and face-to-face, used by school leaders as part of their professional development.

## **Method**

This research has been conducted as part of the project 'ICEDU - Analysis of organisational and informal learning procedures in schools. Validation of technological proposals for organisational and professional development' (ref. EDU2014-56070-P), founded by the Spanish Ministry of Economy and Competitiveness. The project aimed to analyse organisational and informal learning processes in Spanish primary and secondary schools<sup>1</sup>. However, this paper focuses only on the analysis of formal and informal learning strategies used by school leaders as part of their professional development.

The fieldwork was conducted between November 2015 and May 2016 and consisted of applying an online self-administered questionnaire (adapted from Lohman, 2005) to a sample of 715 school leaders (409 from primary schools, 181 from secondary schools and 125 from schools with both, primary and secondary students), accepting a maximum margin of error of  $\pm 3.6\%$ , at a confidence level of 95% ( $p = q = 0.50$  and  $k = 2$ ). Table 1 provides information (means and standard deviations) about the participants' sociodemographic characteristics.

## **Measures**

The independent variables used in this study include the sociodemographic characteristics of the directors (i.e., age, gender, highest education level attained and management experience), school characteristics (i.e., school educational level, school ownership, number of students), the organisational learning culture, structural and

intrapersonal factors.

With regard to principals' demographic characteristics, the age variable was recoded into four categories (44 years or less, between 45 and 50, between 51 and 55, 56 years or older); the highest education level attained exhibits the three usual levels of training among professionals in primary and secondary education in Spain (i.e., diploma or technical engineering degree, higher undergraduate or engineering degree, master's or doctorate); and the management experience variable is recoded into four categories, given the usual duration of four years for a management term in Spain, and clearly differentiating novice principals from those with more experience (i.e., 4 years or less, between 5 and 8 years, between 9 and 15 years, 16 years or more).

Regarding school characteristics, the school educational level takes into consideration the three types of school sampled (i.e., Primary, Secondary, and joint Primary and Secondary). The school ownership variable includes only two categories (i.e., public schools and private schools). Finally, the variable that counts the number of students in each school is recoded into four categories (i.e., 207 students or less, between 208 and 389 students, between 390 and 580 students, 581 or more students) illustrating the sizes of common schools in the Spanish educational system.

Organisational culture is one of the major determinants of any activities taking place in schools (Haiyan, Walker, and Xiaowei 2017). In this study, we focus exclusively on cultural aspects linked to learning processes. Organisational learning culture is an ad-hoc Likert-type scale of six items ranging from 'never' to 'always'. This measure was created from the dimensions of learning organisations proposal by Watkins and Marsick (1993). Managers specified the frequency with which they did some organisational practices associated with the culture of organisational learning (i.e., teachers rewarded for learning; teachers take time to build trust between them; teams



review their approaches as a result of discussions or information collected; lessons learned are made available to teachers; teachers who take initiatives are recognized; work is carried out in conjunction with the educational community to address mutual needs; management continually seeks ways of learning for the school as a whole). Factor analysis shows an acceptable single-factor structure (KMO=0.807 and a significant Bartlett's test  $p=0.000$ ) — factor loadings ranging from 0.477 to 0.724 accounting for 41.99% of total variance. Reliability analysis shows a Cronbach's  $\alpha$  of 0.755.

Structural and intrapersonal factors are elements typically conditioning learning processes in schools (Margaryan, Littlejohn, and Milligan 2013; Parding and Berg-Jansson 2018; van Veelen, Sleegers, and Endedijk 2017). Managers are asked to express their degree of agreement, using a six-point Likert scale, in relation to the influence of four structural (i.e., time available for learning, infrastructures, financial compensation and professional recognition) and three intrapersonal (i.e., professional determination, professional competencies and motivation for the profession) factors in their willingness to engage in formal and informal learning processes.

The dependent variables are face-to-face informal learning, online informal learning and face-to-face formal learning. In all three cases managers are requested to report on how often they develop certain activities when they need to learn something new, via a Likert-type scale of six items ranging from 'never' to 'always'. The two scales on informal learning are composite scales. The variable 'informal face-to-face learning' comprises five items: informal talks with colleagues, collaboration with colleagues, consulting school's internal documentation, participation in general meetings and conversations and finally reflecting on the tasks themselves. The variable on informal online learning includes the following four items: searching on the internet,

using professional resources (e.g., reference literature), participating in networks and personal and/or professional communities, reading blogs, tweets and other online sources. The factor analysis shows a two-factor structure (KMO=0.819 and a significant Bartlett test,  $p=0.000$ ), which accounts for 52.27% of the total variance. Factor loadings range between 0.820 and 0.593 for the informal face-to-face learning and between 0.857 and 0.525 for informal online learning activities. Both factors show a Cronbach's  $\alpha$  of 0.761 and 0.694 respectively.

To accomplish the objectives of this research, first, a univariate and bivariate descriptive analysis of the data is performed, using the corresponding measures of association and significance tests (see Table 1). According to the metric of the pairs of variables, the Pearson  $r$  test was used for continuous variables, the Spearman correlation range ( $r_s$ ) between ordinal and pair variables comprising quantitative and ordinal variables, the point-biserial ( $r_{pb}$ ) for quantitative and dichotomous variables, and the phi ( $r_\phi$ ) for pairs of ordinal and dichotomous variables.

Three multiple regression models are developed below to allow to check the independent effects through statistical control between the criterion variables used and the three types of learning practices (i.e., informal face-to-face learning, informal online learning and classroom learning) (see table 2).

The regression coefficients (B), standard errors (SE), the significance t-test and its corresponding standardised version (Beta) are calculated. F and  $R^2$  tests are used to determine the significance and the overall fit of the three multiple regression models. No violation of the main assumptions is observed in the creation of regression models.

## **Results**

As can be seen in Table 1, although in general principals rely on a fairly equal footing to

the three types of learning strategies, activities linked to the processes of informal face-to-face learning (i.e., informal talks with colleagues, collaboration with colleagues, consulting school's internal documentation, participation in general meetings and conversations and finally reflecting on the tasks themselves) are, slightly, the strategies most used by principals for their professional development ( $m=4.69$ ,  $sd=0.85$ ). In contrast, the online version of these informal learning activities (i.e., searching the internet, using professional resources, participating in personal and/or professional communities, read blogs, tweets and other online sources) are the least used ( $m=4.51$ ,  $sd=0.93$ ).

We can also observe the existence of a culture geared toward organisational learning which is well-developed in the surveyed principals' schools, with an average of 4.26 ( $sd=0.84$ ) on a Likert scale of 1 to 6.

Finally, with regard to structural (i.e., time available for learning, infrastructures, financial compensation and professional recognition) and intrapersonal (i.e., professional determination, professional and motivation for professional competence) factors, we can clearly see how principals value a greater impact of intrapersonal factors, with means ranging between  $m=5.11$  ( $sd=0.91$ ) and  $m=4.55$  ( $sd=1.10$ ) on their involvement in learning activities.

Table 1. Means, standard deviations and correlations between observed variables (N=715)

The correlation between the three types of learning is moderate. It is highest, as can be expected, between the two types of informal learning approaches ( $r=0.51$ ,  $p=0.0.000$ ).

Regarding explanatory variables, we can observe generally how the correlations between these variables and the three types of learning are very weak, with  $r$  ranging from 0.47 ( $p=0.000$ ) to  $-0.01$  ( $p>0.1$ ). Particularly striking is the little or no relationship between structural factors and the involvement of principals in any kind of learning activity, where  $r$  ranges between 0.01 ( $p>0.1$ ) and 0.12 ( $p<0.01$ ). Regardless, the negative values of these correlations indicate that those most conditioned by structural factors are the least likely to engage in learning activities.

In contrast, the strongest relationships occur between the culture of organisational learning (OL) and intrapersonal factors. In the first case—a culture of organisational learning—we can see that the most consistent relationship occurs between the OL culture and informal face-to-face learning strategies ( $r=0.47$ ,  $p=0.000$ ), whereas its correlation with online informal learning activities is somewhat weaker ( $r=0.33$ ,  $p=0.000$ ). Focusing on intrapersonal factors, correlations range from  $r=0.43$  ( $p=0.000$ ) and  $r=0.23$  ( $p=0.000$ ). In all cases, motivation for the profession is the most consistent factor with regard to the three types of learning approaches ( $r=0.43$ ,  $r=0.41$  and  $r=0.27$  respectively;  $p=0.000$ ).

Finally, with respect to sociodemographic variables and the school characteristics, although relations with the three types of learning are very weak and in many cases not significant, we see how gender ( $r=0.18$ ,  $p=0.000$ ;  $r=0.14$ ,  $p=0.000$ ;  $r=0.12$ ,  $p<0.001$ , respectively) and the school's educational stage ( $r=-0.12$ ,  $p<0.01$ ;  $r=-0.13$ ,  $p<0.001$ ;  $r=-0.10$ ,  $p<0.01$ , respectively) are the variables presenting the most significant relationships. In the latter case, the data indicate that primary school principals are more involved in learning activities than principals of secondary schools and those who manage schools covering both stages (i.e., primary and secondary education).

Beyond the bivariate analysis, table 2 shows three parallel multiple regression models, one for each of the types of learning referred to in this study: (1) informal face-to-face learning ( $F=16,368$ ,  $p=0.000$ ,  $R^2=0.353$ ), (2) informal online learning ( $F=10.525$ ,  $p=0.000$ ,  $R^2=0.259$ ) and (3) formal learning ( $F=9.350$ ,  $p=0.000$ ,  $R^2=0.237$ ).

Table 2. Multiple regression models for the types of learning developed by school principals.

If we start from the last bivariate relationships discussed, we again find little correlation between sociodemographic variables and school characteristics with principals' learning activities. However, contrary to what bivariate analysis suggested, once the effect of other variables is controlled, we can see how men in positions of principalship are slightly less likely to resort to informal learning activities, either face-to-face ( $\text{Beta}=-0.105$ ,  $p < 0.01$ ) or online ( $\text{Beta}=-0.059$ ,  $p < 0.1$ ) than women. We also note that novice directors (4 years or less in their position) are the most likely to use informal online learning activities and more traditional forms of training at the school. Finally, with regard to sociodemographic variables, data show how principals with higher education (master's degree or PhD) often avoid further formal learning actions ( $\text{Beta}=-0.096$ ,  $p < 0.05$ ) when compared with principals who have less training (diploma or technical degree).

With regard to the characteristics of schools and, consistent with the bivariate analysis, the educational stage is statistically linked to the principals' involvement in informal online learning activities. Secondary school ( $\text{Beta}=-0.075$ ,  $p < 0.1$ ) and primary/secondary school ( $\text{Beta}=-0.094$ ,  $p < 0.1$ ) principals use this type of learning activities the least. Primary school principals are also more likely to be involved in formal learning activities than their secondary school counterparts ( $\text{Beta}=-0.125$ ,  $p$

<0.01). We also see that the larger the school (over 208 students), the more likely principals are to use formal learning (with betas ranging from Beta=0.073,  $p < 0.1$  and Beta=0.102,  $p < 0.05$ ).

At the bottom of Table 2 we can see again that the most consistent effects on three models analysed correspond to the OL culture and intrapersonal factors. In the first case, the OL culture is clearly a significant predictor of principals' involvement in learning activities, whether informal (Beta=0.354 and Beta=0.210,  $p=0.000$ , respectively) or more formal (Beta=0.325,  $p=0.000$ ). In the case of intrapersonal variables, after the effects are removed from other variables, we observe a similar behaviour between models 1 and 3, where a greater appreciation of professional competencies (Beta=0.103,  $p < 0.05$  and beta=0.090,  $p < 0.1$ , respectively) and motivation for the profession (Beta=0.213,  $p=0.000$  and 0.119 Beta= $p < 0.01$ ) involve more use of informal face-to-face learning activities and formal learning. In the case of informal online learning activities, professional determination (Beta=0.105,  $p < 0.05$ ) and again the motivation for the profession (Beta=0.245,  $p=0.000$ ) are what encourage principals to participate in this type of learning.

## **Discussion**

This article has addressed the study of factors promoting informal and formal learning strategies used by primary and secondary principals as part of their professional development. As several authors (e.g., OECD 2008) point out, the professional development of principals is directly associated with the quality of our educational institutions. Therefore, understanding the factors that determine whether principals adopt one or another type of learning strategies is crucial to ensuring this quality in the educational system. The results of this study show that, beyond structural aspects, various elements clearly contribute to principals' involvement in learning activities,

both formal and informal. These elements are the existence of an organisational culture with affinity to the processes of organisational learning, a high degree of professional determination and motivation for the profession, as well as a positive self-perception of professional competencies.

With regard specifically to informal learning face-to-face activities, and consistent with previous studies on informal learning in organisations (Cerasoli, Alliger, Donsbach, Mathieu, Tonnebaum, and Orvis 2018), we see that these are clearly the type of activities on which school principals rely the most as part of their professional development. As we have already discussed, and consistent with previous studies on informal learning in educational contexts (Gilmore 2008; Grosemans, Boon Verclairen, Dochy, and Kyndt 2015; Janssens, Smet, Onghena, and Kyndt 2016) a well-developed organisational learning culture—that provides, *inter alia*, trust relationships among teachers, joint work among members of the educational community and the review of institutional approaches as a result of discussions and learning activities carried out—is a key factor for principals to develop informal learning activities. Likewise, a strong motivation for the position of principal and a positive self-image of professional competencies also stand out as unambiguous indicators of principals' propensity to engage in informal face-to-face learning activities. In this regard, several authors emphasise the importance of individual or personal variables (e.g., willingness to learn, positive attitudes, proactivity or extraversion), as a pre-requisite for learning to take place (e.g., Cameron, Mulholland, and Branson 2013; Lohman 2005, 2006; Rytivaara and Kershner 2012).

Although usually ICT promotes and encourages the use of informal learning strategies in different contexts (e.g. Ang, Orozco, Gijbels, and Van den Bossche 2018; Dabbagh and Kitsantas 2011; García-Peñalvo, Colomo-Palacios, and Lytras 2012;

Greenhow and Lewin 2016), our results indicate that this type of activity (i.e., Internet searches, participating in personal and/or professional networks and communities, reading blogs, tweets and other online sources) are the least used by principals.

Although we have no specific information in this regard, this apparent disaffection of principals towards the activities of informal online learning can clearly be due to the variability among principals regarding their use of technology and their digital skills (Afshari, Bakar, Luan, Samah, and Fooi 2009; Schiller 2003; Stuart, Millis, and Remus 2009). In this regard, it makes sense that professional determination is one of the elements that determines the execution of online learning activities, something that happens also with the two other types of learning analysed. Regarding the use of informal online learning activities, we note that the principals of primary schools are more prone to this type of proposal, which is consistent with the fact that one of the key activities of informal learning processes, cooperation (e.g., Anthony, Haigh, and Kane 2011), is usually more common among primary teachers than among secondary teachers (Vangrieken, Dochy, Raes, and Kyndt 2015).

Finally, with regard to formal learning activities, in addition to confirming the importance of the culture of organisational learning and personal factors (e.g., competencies and motivation for the profession) we note that although some studies on work-related learning (even some from the education field), argue that the involvement of workers in formal learning activities decreases with age (Kyndt and Baert 2013; Richter, Kunter, Klusmann, Lüdtke, and Baumert 2011), our results do not indicate directly that this is so. However, we can indeed see how the seniority of the position, something that could be associated with the age of principals (though not necessarily) does indicate that novice directors (i.e. 4 years or less in management positions) are the most likely to use informal online learning activities and formalised activities taking



place in the school itself. Our results are consistent to previous studies on the professional development of teachers, indicating that teachers in the early stages of their career are the most motivated and willing to learn (Cameron, Mulholland, and Branson 2013, Richter et al. 2011). In this same line, Eraut (2011) tells us that ‘for novice professionals to make good progress a significant proportion of their work needed to be sufficiently new to challenge them without being so daunting as to reduce their confidence’ (p. 10).

Something common to all three types of learning we are analysing (i.e., informal face-to-face learning, informal online learning and formal learning) is the lack of relationship between structural factors (i.e., time available, infrastructure, compensation and recognition) with the involvement of principals in any kind of learning activity. These results contrast with previous studies which, according to the review by Kyndt, Gijbles, Grosemans, and Donche (2016), indicate that the lack of rewards, whether economic or in the form of recognition, coupled with the lack of time are often factors traditionally associated with a lack of learning.

In summary, the results shown here are evidence, consistent with previous studies, that the development of formal and informal learning activities between principals clearly requires a ‘learning-friendly’ organisational culture and a clear motivation for the profession, a strong professional determination and a positive perception of personal competencies.

However, the results of this study are nothing more than an initial examination of the factors influencing the process of formal and informal learning in principals. The study limitations suggest that their results be read with caution. Thus, for example, the introduction of new measures such as Principals’ digital competences, will help us define with greater certainty the elements that determine the use of informal online

learning activities. Also, a mixed approach using questionnaires and interviews would offer us a better understanding of this phenomenon (Creswell 2014). Qualitative data could help corroborate and shed light on some of our results such as, for example, the attitudes and values that shape an organisational culture conducive to learning, the kind of competencies associated with educational leadership that are best associated with informal learning practices or understanding, in line with what Kyndt et al. (2016) suggest, the relationship between personal and structural factors.

In conclusion, as has been done in other areas, schools should promote the transition from job-based to competence-based staff systems and structures, in which informal learning strategies become relevant as a basis for promoting innovation (Messmann, Segers, and Dochy 2018). However, promoting informal learning activities in schools must be backed by processes that contribute to their recognition by public and private institutions.

## Notes

1. It should be noted that Spanish primary schools include both preschool education (from 3 to 6 years old) and primary education (from 6 to 12 years old).

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