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ARTICLE / ARTÍCULO

Digital platforms for management and teacher autonomy: perceptions of primary school teachers

Plataformas digitales de gestión y autonomía docente: percepciones del profesorado de Educación Primaria

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Abstract: This study analyses the perceptions of primary school teachers regarding their autonomy and professional development in the context of the implementation of the LOMLOE (Organic Law on the Modification of the Organic Law on Education), as well as its possible relationship with their level of teacher digital competence. A mixed sequential exploratory design was used, involving focus groups and a questionnaire administered nationwide. The focus groups revealed difficulties perceived by teachers due to increasing bureaucratisation, overload in assessment processes, and the mandatory use of digital management platforms in what has been identified as a process of educational platformisation perceived as a control mechanism. The questionnaire (n = 872) showed that, although teachers in this context continue to value their autonomy in the classroom positively, they consider that there are difficulties in managing curricular elements, mainly due to assessment criteria. Taking into account the certification of teacher digital competence, the highest levels are associated with greater use of technological resources, but no differences are apparent in the perception of autonomy or professional development, suggesting an excessively instrumental approach to accreditation processes. It is concluded that the LOMLOE, despite aiming to promote the professional autonomy of teachers, in practice generates new forms of administrative control that put pressure on their professional development.

Keywords: Professional Autonomy, Professional Development, School Law, Teachers, Elementary Education.

Resumen: Este estudio analiza las percepciones del profesorado de Educación Primaria sobre su autonomía y desarrollo profesional en el contexto de la implementación de la LOMLOE además de su posible relación con su nivel de Competencia Digital Docente. Se empleó un diseño mixto secuencial exploratorio mediante grupos focales y un cuestionario aplicado a nivel nacional. Los grupos focales revelaron dificultades percibidas por el profesorado debido a la creciente burocratización, la sobrecarga en los procesos de evaluación y el uso obligatorio de plataformas digitales de gestión en lo que se ha identificado como un proceso de plataformaización didáctica percibido como un mecanismo de control. El cuestionario (n=872) mostró que, aunque el profesorado en este contexto sigue valorando positivamente su autonomía en el aula, considera que existen dificultades por la gestión de elementos curriculares fundamentalmente por los criterios de evaluación. Tomando en consideración la certificación de la Competencia Digital Docente del profesorado, los niveles más altos se asocian con mayor uso de recursos tecnológicos, pero no se aprecian diferencias en la percepción de la autonomía o el desarrollo profesional, lo que sugiere un enfoque excesivamente instrumental en los procesos de acreditación de la Competencia Digital Docente. Se concluye que la LOMLOE, pese a pretender promover la autonomía profesional del profesorado, genera en la práctica nuevas formas de control administrativo que tensionan su desarrollo profesional.

Palabras-clave: Autonomía Profesional, Desarrollo profesional, Legislación escolar, Profesorado, Educación Primaria.

1. Introduction

The Spanish educational system has undergone successive legislative reforms over the past few decades which have substantially altered the role and working conditions of teachers. The passing of Organic Law 3/2020, of 29 December, amending Organic Law 2/2006, of 3 May, on Education (Spanish abbreviation: LOMLOE), and Decree 157/2022, of 1 March, establishing the Decree of Minimum Educational Content in Primary Education, are the current working framework for autonomous community curricula and subsequent work in schools. This reform seeks to reverse certain aspects of the previous Organic Law 8/2013, of 9 December, for the Improvement of Education Quality (Spanish abbreviation: LOMCE), promoting a competence-based approach with greater autonomy for schools and teachers. However, the curricular structure promoted was called into question, as it undermined professional autonomy by specifying the minimum learning outcomes in the form of learning standards derived from assessment criteria. Research studies have regarded this configuration as an element that devalues teachers' work, and as a loss of their professional autonomy (Rodríguez-Martínez, 2014). In consequence, the LOMLOE (2020) eliminates learning standards, reorganises the integration of competencies into areas through specific competencies linked to basic knowledge, and allows teachers to establish the minimum outcomes to be achieved in their teaching programmes. All of this is done with a view to reducing the burden of prescriptiveness.

In Spain, curriculum development is partially decentralised through a mechanism that gives autonomous communities the ability to enrich the curriculum in a percentage that varies between 40% and 50%, depending on whether the territory has or not its own co-official language (LOMLOE, 2020). The core of the curriculum is still the responsibility of the Ministry of Education in order to guarantee compatibility and coherence in the whole of the state. However, recent research (Fraga-Varela et al., 2024) has identified major inconsistencies between autonomous community curricula derived from the LOMLOE, with significant differences in terms of length, terminology and conceptual development, and especially in relation to the role of the assessment criteria proposed in the different areas.

All this information has been extremely valuable to back up the project from which this work has stemmed, whose objective was to develop a piece of software for primary education classrooms with a view to improving English pronunciation. It was necessary to understand the professional context of foreign language teachers in order to adjust the core of the educational planning included in the software and to ensure that it was adapted to the actual characteristics of the teaching without becoming an obstacle for teachers already overloaded with administrative tasks. In this regard, previous work for the project identified a wide variety of ways of developing autonomous community curricula, and showed a trend to increase the average number of assessment criteria, with a total of 415 from the autonomous communities, compared with 287 from the Ministry. Extreme cases can be seen, such as that of Galicia, which has established 1,312 criteria, which means a 4.6-fold increase compared with the Decree on the Minimum Educational Content, or Castile and León, with 873 criteria, which triples the number stated in the same decree (Fraga-Varela et al., 2024). These data point to a clear tendency to overregulation of teachers' work.

This overload in the development processes of autonomous community curricula is also apparent in the area of English as a Foreign Language. While the Decree on Minimum Educational Content proposes 43 assessment criteria for the entire primary education stage, communities such as Galicia have established 82 criteria (91% more), with distributions that multiply especially in the first cycle, going from 13 criteria to 43 (a 230% increase). A study on teaching programmes in Galician schools (Trillo and Fraga-Varela, 2023) revealed the extraordinarily high number of elements of assessment that teachers must manage in their programmes, with an average of 40 criteria per didactic unit and approximately 400 criteria for the whole of the academic year in the same area. All this is in addition to the need to collect evidence for each selected criterion for all students on the basis of the assessment tool established.

1.1. Teacher professional development as reference

Teacher professional development (TPD) is the core concept of this study. We understand TPD as a continuous set of processes throughout teachers' working life which, taking initial training as a basis, extends through lifelong training to tackle the different challenges of professional practice in both formal and informal settings (Montero-Mesa et al., 2023). TPD is the goal of any training action, laying the emphasis on the improvement of teachers' ability to face the complexity and uncertainty of teaching (Schön, 1998).

This approach embraces the conception of teachers as researchers of their practice with the ability to produce knowledge (Admiraal, 2024; Tardiff, 2013), highlighting the importance of the way in which professional knowledge is built. Professional autonomy emerges as a key element for teachers to be able to exercise this role as researchers and act in a manner that reveals reflection on their practice (López-Arias & Sánchez-Moreno, 2023; Schön, 1992).

But this is not merely a matter of research. The European Commission has insisted on the need to reinforce teachers' competences and foster their autonomy to achieve quality education (European Commission / EACEA / Eurydice, 2021), which is currently recognised as a trend in European educational systems (European Commission / EACEA / Eurydice, 2025). However, educational policies tend to relate quality exclusively to accountability and external assessments, placing professional autonomy in a merely instrumental setting linked to control, which results in contradictions with what it really involves (Pérez Gómez, 2014).

The tension between a bureaucratic, administrative conception and a professional, pedagogic one (Bolívar, 2019) becomes more acute when educational legislation moves towards new forms of control that may devalue teachers' work, affecting their qualification and status. Barroso (2006) has analysed how school autonomy can become mere rhetoric when, simultaneously, regulatory and control mechanisms by education authorities are stepped up. The doubt as to whether genuine autonomy is being guaranteed persists: are we facing a real possibility for TPD or new ways of preventing it?

1.2. Overregulation and performativity in teaching practice: the opportunity of teacher digital competence in the face of new forms of control

The international literature has identified instances of overregulation of teaching practice through assessment and accountability mechanisms. Ball (2001, 2003) has analysed how global policy guidelines translate into local policies that transform teachers' professionalism into new forms of managerialism and performativity. In this context, assessment becomes highly relevant, as it evolves into an objective of performativity and has a direct impact on how teachers' work is perceived at present (Pardo Baldoví, 2025).

Parcerisa and Falabella (2017) have documented the consolidation of what they have called the 'evaluative state' through accountability policies that, while promising improvements, often limit professional autonomy. The emphasis on assessment and the substantial increase in the elements that vertebrate it, especially as a result of all the assessment criteria that teachers have to manage, evidence this tendency to overregulation of professional practice by the authorities. In a context of external assessments and accountability, assessment processes become the core of performativity (Ball, 2003), which has a direct impact on the way in which teachers' work is regarded. Assessment criteria become a symbolic element that transcends what is evident, externalizing school activities and establishing themselves as a central component of teachers' work, as they focus their practice on providing evidence and justification to administrative control systems rather than on pedagogic reflexion.

In this context, the platforms that the authorities establish as mandatory for managing teaching programmes reinforce the situation described above. This is an extension of platformisation (Kerssens and van Dijck, 2021; Kerssens and van Dijck, 2022; Nieborg et al., 2022) but one in the field of education, as it contributes to the processes by which digital platforms restructure practices and relations in different sectors (Poell et al., 2019). This situation in the field of education cannot be treated merely as yet another form of surveillance capitalism (Zuboff, 2019) since, as Williamson (2020) points out, it is essential to analyse its distinctive forms, practices and consequences in this field. This is a phenomenon that entails the adaptation of teachers to new modes of regulation imposed by education authorities through digital tools that set new mechanisms for controlling and homogenizing teaching practice. As mandated by authorities, platforms claim this space for educational and curricular matters (Sefton-Green, 2021; Williamson et al., 2025).

In this context, it is necessary to look at teacher digital competence (TDC) based on DigCompEdu (Redecker, 2020), whose regulatory basis in Spain is the Resolution of 4 May 2022, which proposes aspects that go beyond the mere use of technologies and may constitute a clear opportunity to strengthen TPD. This is the largest coordinated training initiative in our country in recent years which depends on one single reference structure. The framework includes lifelong professional digital development, reflective practice and general teaching elements such as teaching planning, assessment and professional reflection processes. Area 1 of TDC (INTEF, 2022) focuses specifically on professional commitment, including organisational communication, professional collaboration, reflective practice and lifelong professional digital development.

However, the question arises of how teachers are experiencing their TPD at present, and if the improvement in TDC constitutes an opportunity for their professional development and autonomy in light of the contradictions detected at curricular level as a result of the implementation of the LOMLOE and the use of new digital support structures. This work presents a review of the data of the project, investigating these emerging elements that were not envisaged among the initial objectives. In today's context, it is a priority to understand the role of digital technologies in teaching practice, and the difficulties to go beyond merely instrumental aspects and embark on a true educational transformation. In such context, this work has the following objectives:

- a) To identify the factors that teachers perceive as limiting teacher autonomy and TPD in the framework of the LOMLOE.
- b) To analyse the extent to which the available training meets teachers' actual needs.
- c) To examine the relationship between TDC certification and teachers' perception of their autonomy and professional development.

2. Method

2.1. Research design

A mixed-methods sequential exploratory design (Creswell and Plano, 2018) was used, structured into two main phases, which makes it possible to complement the depth of the qualitative analysis with the breadth of the quantitative analysis. The qualitative phase enables an in-depth exploration of teachers' perception in a context of high overregulation of the curriculum in the autonomous communities, and the quantitative phase contextualises these findings. It is important to note that the qualitative results are exploratory and limited in scope, and they cannot be generalised to teachers as whole. The entire process was approved by the Bioethics Committee of the University of Santiago de Compostela under code USC 08/2023.

2.2. Qualitative phase: focus groups

An initial qualitative phase was developed through the design of focus groups with teachers from a variety of primary schools. Among these focus groups, this work has taken into consideration those that took place in Galicia, as they provided information on the objectives of this study identified as DG1 for discussion group 1 and DG2 for discussion group 2.

For the design of the focus groups, the type of school (public or private, and rural or urban) and the involvement of teachers with different levels of teaching experience were considered. The intention was to explore in depth their perceptions, experiences and concerns in relation to professional autonomy, bureaucratisation and professional development in the context of the LOMLOE. Based on these considerations, two focus groups were carried out in Santiago de Compostela: one in a public school and one in a private charter school. Each group consisted of eight teachers, ensuring gender parity. Also, with a view to having a comprehensive perspective, profiles with different careers were selected.

The focus groups were conducted following a semi-structured script that considered three main categories: the first, at classroom level, on the implications for teachers, which dealt with the elements that primary education teachers face in their daily work; the second, at school level, with elements such as professional autonomy, accountability policies and levels of curriculum concretion; and the third, at education stage level, that tackled fields such as bottom-up programming, the relationship with other areas, assessment, competence development and project-based work.

Participation was voluntary, and anonymity and confidentiality were guaranteed through the use of identification codes. The sessions lasted for approximately 90 to 120 minutes, were recorded in audio with the previous written consent of the participants, and were subsequently transcribed for their analysis. The transcriptions underwent an emerging analysis following an inductive–deductive process that included the following phases: familiarisation with the data through the iterative reading of the transcriptions, and writing down initial ideas. The initial coding was subsequently performed (using *in vivo* coding and the manual assignment of codes) by means of the systematic identification of relevant fragments, which resulted in a total of 69 codes. Next, themes were sought by grouping codes according to the study objectives. The themes were then reviewed and refined, ensuring their identification, delimitation and naming, laying the emphasis on internal coherence.

Lastly, a report was prepared by selecting representative excerpts and integrating them into the theoretical framework for presenting them in the frame of the project. The qualitative analysis software Atlas.ti (version 25) was used to facilitate data management and coding.

2.3. Quantitative phase: questionnaire

Subsequently, and based on the previous findings, a second, quantitative phase was carried out that used a nationwide questionnaire addressed to primary education teachers as technique, to obtain more detailed information on the quantitative findings in a larger, more representative sample.

The questionnaire included an initial section on sociodemographic and professional variables (autonomous community where the teachers carried out their professional practice, type of school and level of TDC certification), and a second section with 5-level Likert scales (1 = Strongly disagree; 5 = Strongly agree) organised into four dimensions: sociodemographic data; pronunciation; from the law to the reality of the classroom; use of resources for the teaching of a foreign language and, lastly, the work environment of the teachers. Once the questionnaire had been designed, it was validated through expert review. These dimensions respond to the context of the project from which this work has stemmed; therefore, based on the objectives guiding it, the fields that were not relevant, such as pronunciation or the use of resources, were not taken into account in the results.

To contact the teachers, a national list was prepared using the website of the Ministry of Education by identifying schools that met the established criteria, which totalled 14,080. A bot was implemented in R (R Core Team, 2024) to extract information by inspecting websites using a web browser and, for the questionnaires, using Postman to analyse requests. HTTP POST or GET requests were made according to the architecture of the site to obtain email addresses through the *rvest* library (Wickham,

2024). Detailed HTTP headers were configured (User-Agent, Accept-Language, Cookies) to simulate browser requests, establishing a 5-second delay between requests to prevent server overload. The questionnaire was sent on 14 October, 4 November and 25 November 2024 at a rate of 60 emails per hour with a minimum of 5 seconds between emails to comply with usage policies and avoid spam. The responses were compiled anonymously, with each email including a specific hash to maintain traceability and make it easier to cancel the subscription. Depending on the autonomous community, the emails were sent in Spanish, Galician, Basque or Catalan after obtaining the necessary permits. After receiving responses or cancellations, the database was updated by removing the corresponding emails in the next round. The response rate of the survey was 5.6%, which corresponded to 713 schools from a total population of 12,732, and a total of 875 individual responses from teachers. After applying the sample estimation formula with correction for a finite population, the sample obtained showed a margin of error of ± 3.6 percentage points for a level of confidence of 95% and under the assumption of maximum uncertainty ($p = q = 0.5$). This margin is below the conventional threshold of ± 5 percentage points that is normally accepted in education research, which suggests adequate sample precision. However, these results should be interpreted with caution in view of the potential limitations resulting from the response rate. Cronbach's alpha showed acceptable internal consistency ($\alpha = 0.78$), exceeding the reference value of 0.70 (Medrano and Pérez, 2019) and confirming the coherence of the items.

The data were analysed using IBM SPSS Statistics 27.0. Descriptive analyses were carried out, which included means, standard deviations, frequencies and percentages for all variables. Prior to the comparative analyses, the assumption of normality was verified using the Kolmogorov–Smirnov test, whose results indicated that the distributions of the variables did not follow a normal distribution ($p < 0.05$). Consequently, the non-parametric Kruskal–Wallis test was used to compare the groups by level of TDC certification, as this constitutes the robust alternative to the ANOVA of a factor when the assumption of normality is not met. A significance level of $p < 0.05$ was established for all the analyses.

3. Results

3.1. Focus groups

The analysis of the focus groups carried out with teachers in Galicia revealed some difficulties in teachers' perceptions of teacher autonomy and professional development in the context of the LOMLOE. Based on the in vivo and manual coding of the transcriptions of the focus groups, a code group table (Table 1) and a network representation of the most relevant quotes and codes were created, enabling a visual structure of the qualitative analysis performed (Figure 1). This section includes also some of the teachers' statements collected (in the form of quotes) from the two focus groups.

Table 1. Emerging code groups from the in vivo and manual coding of the transcriptions.

Code groups	Codes
Context	teachers in Galicia, Galicia, primary education, LOMLOE, TPD, school law.
Bureaucratisation and control	bureaucratisation, bureaucratic elements, bureaucratic justification, administrative management, administrative control, forms of control, digital control and surveillance mechanisms, accountability, administrative demands, imposition, obligation, certification.
Educational platformisation	educational platformisation, digital management platforms, PROENS platform, mandatory tools, automation, automated prescription, work logic, models.
Teaching practice and programming	teaching practice, daily practice, planning, teaching programmes, didactic units, preparation, monitoring, plans, resources, digital resources, innovation.
Assessment	assessment criteria, assessment tools, assessment processes, quantitative weights.
Impact and concerns	discontent, overload, workload, frustration, obstacles, limitation, autonomy, contradiction, conditioning, educational value, perceptions, experiences, concerns, difficulties, perceived difficulties.

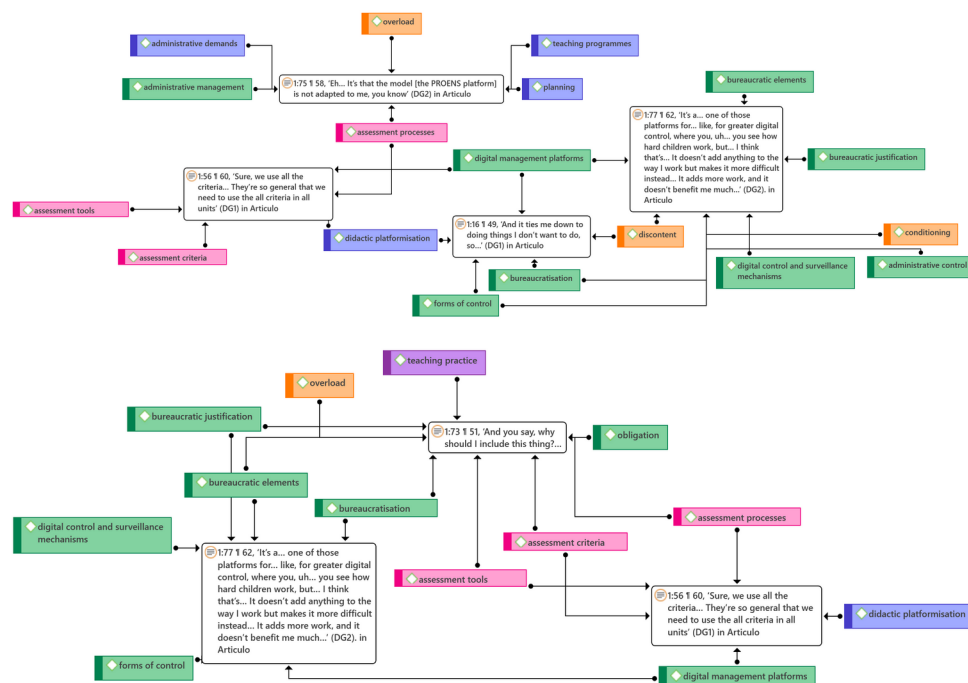


Figure 1. Network of quotes and emerging codes from the coding of the transcriptions of DG1 and DG2.

Bureaucratisation as professional limitation

Teachers express recurrently their deep discontent with the growing bureaucratisation of their teaching work, a phenomenon that is perceived not only as administrative overload but also as a direct limitation of their professional autonomy. This conditioning is summarised in some of the participants' statements: 'And it ties me down to doing things I don't want to do, so...' (DG1).

This perception of a 'tie' becomes more intense in light of the obligation to manage a high number of often disproportionate assessment criteria established by the curricula of the autonomous communities. Teachers state that they must incorporate criteria that they consider to be of little relevance or unsuitable for their practice; they are obliged to include these criteria owing to administrative demands and to the structure of the mandatory platform that manages teaching programmes. Their discomfort is apparent: 'And you say, why should I include this thing? And you jolly well have to include it, because all of them have to be included' (DG1).

This obligation generates frustration because teachers perceive that many of these bureaucratic elements are not related to their daily practice in the classroom and become administrative tasks that take up their time without adding educational value: 'I know you need to work with them, and... Why should I quarrel with anybody. If you have to do it, you have to do it. But sometimes these are things that don't have... any... that don't have any application in my daily practice' (DG1). This administrative logic is also evident in the obligation to prepare and deliver multiple plans that guide school work (digitalisation plan, coexistence plan, reading plan, etc.) and, above all, in the requirement to follow extremely detailed teaching programmes in which assessment criteria play a central role and have a profound impact on teaching planning and development.

Educational platformisation as control mechanism

A key finding of the focus groups is what we have called 'educational platformisation': the imposition of digital platforms for educational management as mandatory tools for the preparation and monitoring of teaching programmes. This is the case of the PROENS platform in Galicia. Teachers clearly note that these tools are not adapted to their way of working; instead, such tools force them to adapt their work to the predefined logics and structures of the platform: 'Eh... It's that the model [the PROENS platform] is not adapted to me, you know' (DG2). The impact of these logics is twofold: on the one hand, these platforms automate processes prescriptively, as is the case of the automatic connection of contents (or basic knowledge) with assessment criteria, which limits teachers' professional flexibility to make connections that are more in line with their specific educational reality. On the other hand, the platforms make it mandatory to link each assessment criteria to specific assessment tools and to establish minimum levels of achievement and quantitative weights for each criterion. This, together with the high number of criteria, generates a workload that is perceived as excessive and unnecessary. Teachers' statements underscore the inefficiency and overload that result from this process: 'Sure, we use all the criteria. They're so general that we need to use all the criteria in all units' (DG1).

As a result, processes focus on assessment and bureaucratic justification, weakening the importance of contents and making classroom work less of a priority

compared to administrative management. Teachers perceive these platforms not as facilitators but as mechanisms of digital control and surveillance of their work: 'It's a... one of those platforms for... like, for greater digital control, where you, uh... you see how hard children work, but... I think that's... It doesn't add anything to the way I work but makes it more difficult instead... It adds more work, and it doesn't benefit me much...' (DG2). This creates a systemic contradiction: technological tools, presented as innovative, facilitating tools, are experienced as obstacles that increase the workload without providing significant educational benefits, and that act mainly as accountability and administrative control devices.

3.2. Quantitative results: questionnaire

The data of the questionnaire provide an overview at national level that offer a perspective that complements and qualifies the qualitative findings. Table 2 presents the means and standard deviations of the main items related to autonomy and professional development.

Table 2. Perceptions on autonomy and professional development.

	M	SD
I can introduce digital resources in the classroom	4.17	.898
I have the necessary TDC	3.85	.981
I am worried that I may not have the knowledge	2.70	1.382
I have professional autonomy at classroom and school level	4.03	.903
I am autonomous in terms of resources	4.36	.774
I am concerned about how little room there is to adapt the curriculum	3.79	1.070
I have the necessary training for the curriculum	3.99	.852
The training meets the existing needs	2.90	1.071

The results confirm the tension identified in the focus groups, with the difference that greater teaching autonomy is perceived in general ($M = 4.36$) and also for decision making in the classroom ($M = 4.03$). This situation may be due to the exceptional characteristics of the curriculum in Galicia as a result of the level of overregulation it establishes in assessment processes. Teachers believe that they have the necessary training to address the demands of the current curriculum ($M = 3.99$). However, they express a moderate to high degree of concern about there not being enough room to adapt the curriculum ($M = 3.79$), which suggests that their perceived autonomy occurs within strongly prescribed limits. In a complementary fashion, they assess the available training as not really suited to their actual professional needs ($M = 2.90$). This is the item with the lowest rating and the greatest dispersion ($SD = 1.15$), which indicates a significant disconnect between the training activities on offer and actual professional demands.

The analysis of the differences in perceptions according to the level of TDC certification reveals relevant findings. Table 3 presents the compared means of three

groups of TDC established in the study: level A (A1–A2 certification), level B (B1–B2 certification) and level C (C1–C2 certification).

Table 3. Perceptions according to the level of TDC certification.

	Level A (n = 273)		Level B (n = 456)		Level C (n = 143)		H	p	r
	M	SD	M	SD	M	SD			
I can introduce digital resources in the classroom	4.05	.924	4.24	.871	4.17	.914	8.176	.017*	0.097
I have the necessary TDC	3.59	.993	3.96	.955	4.02	.945	32.347	.000*	0.193
I am worried that I may not have the knowledge	2.92	1.387	2.62	1.368	2.56	1.377	10.170	.006*	0.108
I have professional autonomy at classroom and school level	4.02	0.870	4.02	.936	4.09	.863	.700	.705	0.028
I am autonomous in terms of resources	4.33	0.757	4.36	.794	4.41	.744	1.814	.404	0.046
I have the necessary training for the curriculum	4.00	0.829	3.96	.853	4.03	.891	1.387	.500	0.040
The training meets the existing needs	2.92	1.049	2.88	1.059	2.91	1.156	.211	.900	0.016

*p<0.05

The application of the Kruskal–Wallis test reveals statistically significant differences between groups in the variables directly related to technological skills:

- Ability to introduce digital resources: teachers with higher levels of TDC certification show greater confidence in their ability to incorporate digital resources into the teaching [$H(2) = 8.18$, $p = 0.017$, $r = .10$]. These differences are more palpable between level A ($M = 4.05$) and level B ($M = 4.24$) and not as much for level C ($M = 4.17$), with the latter being, curiously, that with the highest certification level. This seemingly contradictory result may be due to the fact that, in many cases, C1 level certification is obtained ex officio for the work and the duties performed in the school (in the case of Galicia, the Order of 1 June 2023, regulating the procedure to certify TDC, can be consulted). This does not mean that this level actually reflects a perceptible improvement in terms of competence. Self-perception of TDC: as the certification level increases, so does the perception of having the necessary digital competence [$H(2) = 32.35$, $p < 0.001$, $r = 0.19$]. Teachers at level C ($M = 4.02$) report a significantly higher degree of self-perception than those at level A ($M = 3.59$), with a small to medium effect size.
- Concern about one's technological knowledge: the highest certification levels are associated with less concern about not having sufficient knowledge of

digital resources [$H(2) = 10.17$, $p = 0.006$, $r = 0.11$]. Teachers at level C ($M = 2.56$) show less concern than those at level A ($M = 2.92$).

However, it should be highlighted that no statistically significant differences were seen between levels of TDC certification in the variables linked to professional autonomy, professional development or the suitability of the training ($p = 0.05$ in all cases):

- Teaching autonomy: the differences between groups were minimal and non-significant [$H(2) = 0.70$, $p = 0.705$, $r = 0.03$; mean range: 4.02–4.09].
- Autonomy for resource management: no differences were observed between certification levels [$H(2) = 1.81$, $p = 0.404$, $r = 0.05$; mean range: 4.33–4.41].
- Necessary training for the curriculum: no significant differences were found [$H(2) = 1.39$, $p = 0.500$, $r = 0.04$; mean range: 3.96–4.03].
- Suitability of the training for the existing needs: the results show clear homogeneity across groups [$H(2) = 0.21$, $p = 0.900$, $r = 0.02$; mean range: 2.88–2.91].

These findings suggest that TDC certification is significantly associated with instrumental and technological aspects, such as the use of resources and confidence in the use of tools, but not with the key pedagogic dimensions of professional development, such as autonomy, reflection on one's own practice, or the perception of the suitability of the training. This questions the approach of TDC training and certification processes, as they seem to prioritise technological skills over comprehensive teaching skills, in spite of the fact that the reference framework explicitly includes the latter in its Area 1 (professional commitment).

4. Discussion and conclusions

This study was intended to explore the perceptions of primary education teachers on their autonomy and professional development in the context of the LOMLOE. To this end, the factors that teachers perceive as limiting their autonomy were identified, the suitability of the available training for their actual needs was analysed, and the relationship between TDC certification and teachers' perception of their own practice was examined.

The results obtained provide significant empirical evidence on each of these objectives, which suggests a complex and sometimes contradictory scene in terms of conditions of TPD. The findings indicate that teachers in this context perceive a tension between their recognised formal autonomy and their actual autonomy in the exercise of their duties in the classroom. While they usually consider that they are free to manage their job, they also experience limitations that stem from bureaucratisation and administrative control mechanisms, which burden their work with exhaustive assessment criteria. This task of providing justification seems to consume an amount of their time that, in teachers' view, takes them away from the immediate needs of the classroom. Moreover, the digital platforms that are mandatory for educational management are presented as elements to facilitate one's work, and yet they are

experienced as control and surveillance mechanisms that homogenise teachers' practice and limit their professional flexibility.

Additionally, there is a significant gap between the available training and teachers' actual professional needs, with training that is perceived as excessively oriented towards bureaucratic compliance and an instrumental view, rather than towards educational transformation. The analysis of the questionnaire data segmented by TDC level shows differences in the instrumental domain of digital technologies; however, no changes in TPD are seen between levels of certified competence. Consequently, teachers do not feel that these processes result in a change of perception of their autonomy or professional development. These data might even suggest the adoption of an approach that is more technologically-oriented than pedagogically-oriented (Bolívar, 2019). The results confirm the tension identified by Barroso (2006) between autonomy as administrative rhetoric and its practical materialisation. The LOMLOE promises greater professional autonomy and reduced prescription, but its implementation, especially in the context of autonomous communities with high levels of overregulation, generates conditions that limit teachers' effective autonomy.

The distinction that emerges between formal autonomy (capacity to decide on methodologies and resources in the classroom) and effective autonomy (existence of actual conditions to exercise that capacity: time, suitable training and absence of bureaucratic overload) is critical. Teachers have the former, but often lack the latter, which generates an experience of limited autonomy that has a negative impact on their professional development and, potentially, on teaching quality. The extraordinary emphasis on assessment criteria, identified in previous studies (Fraga-Varela et al., 2024) has direct, significant consequences for teachers' perceptions and working conditions, as the qualitative data reveal. Assessment criteria become symbolic elements that go beyond their educational role, legitimizing mechanisms to externalise and control school activities, as has been analysed in the literature on the evaluative state (Parcerisa and Falabella, 2017). This situation exemplifies the performativity described by Ball (2001, 2003), where teachers' work is progressively oriented towards demonstration and justification to accountability systems instead of towards pedagogic reflection on teaching-learning processes. When teachers must manage 400 assessment criteria in one academic year in one area (Trillo and Fraga-Varela, 2023), justify their selection, link those criteria to specific instruments and establish weights for each student, the cognitive, time and emotional burden takes them away from their practice and towards complex administrative management. Teachers express this clearly: they must include and assess criteria that they consider irrelevant because such criteria are mandatory, even if they are completely invalid in the classroom.

The phenomenon identified as 'educational platformisation' is a significant contribution of the study that extends the analyses of Poell et al. (2019) to the specific field of educational management, as Williamson (2020) points out. Mandatory platforms represent a development in administrative control (Pangrazio, 2025), as they mark a transition from curricular prescription to algorithmic prescription. The automatic linking of curricular elements, the obligation to establish quantitative weights, and the standardisation of processes significantly reduces the room for the situated professional judgement that characterises quality teaching (Schön, 1992). Instead of adapting the system to their practice, teachers must adapt their practice to the system, inverting the logic of the service that technology should provide.

Platformisation steps up accountability by constantly making teaching work visible, thus functioning more as a surveillance device than as a pedagogic tool (Williamson et al., 2025). This transformation of teachers' professionalism towards new forms of managerialism and technical control confirms Ball's analyses (2003) of how management technologies redefine professional work.

The results show that the conditions for TPD are seriously compromised. Imbernón (2020) has identified reflection on one's practice, research-action, collaboration between professionals and educational innovation as the core components of TPD. However, when teachers spend too much time on bureaucratic tasks and managing assessment criteria, their capacity to engage in these reflective, transformational processes is limited, as the focus groups show. TPD is reduced to formal compliance with administrative requirements such as certifications, participation in mandatory courses or documentation of training activities, instead of becoming a reflective process that transforms teachers' practice. The perception that the available training does not meet their actual needs confirms such disconnect: a range of training activities in line with administrative priorities that does not meet the needs that emerge in teachers' professional practice.

Lastly, it should be noted that the findings on TDC reveal significant problems that call the approach that prevails in training processes into question. TDC certification is significantly associated with instrumental and technological aspects (capacity to use resources, confidence in the use of tools and less concern about technological knowledge) but not with the key educational dimensions of professional development. The TDC reference framework (INTEF, 2022) explicitly refers to professional commitment in its Area 1, which includes organisational communication, professional collaboration, reflective practice and professional development. However, our data show that teachers with higher certification levels do not perceive any differences in relation to these domains. This suggests that training and assessment processes to obtain TDC certification prioritise instrumental technological competencies over comprehensive educational competencies, thus reproducing historical criticism of educational technology integration policies: technological determinism, which assumes that the mere fact of mastering digital tools automatically improves educational practice.

The analysis of the results allows us to conclude that the implementation of the LOMLOE, in spite of aiming at educational improvement and greater professional autonomy, has generated, in practice, a complex, contradictory landscape for primary education teachers. The research reveals a tension between formal autonomy and effective autonomy, as well as the central, performative role of overregulation and bureaucratisation of teachers through assessment processes and the activation of educational platforms that increase these processes.

Our work suggests a number of recommendations:

- a) Effective reduction in curricular prescription: revision of the number of assessment criteria, especially in autonomous communities with high levels of overregulation.
- b) Auditing the bureaucratic burden of teachers: conducting exhaustive audits of the administrative requirements imposed on teachers and removing those

that do not add effective educational value and respond mainly to control logics.

- c) Reorientation of TDC training: reorienting teacher digital competence training and certification programmes towards comprehensive teaching dimensions, not solely technological dimensions of an instrumental nature.
- d) Addressing the emerging challenges of the platformisation of educational practices at educational institutions themselves, ensuring the participation of all the persons involved, paying particular attention to teachers' reflections in relation to their autonomy and professional development.

This study has limitations that should be taken into account when interpreting its results. As both the focus groups and the questionnaire are based on teachers' self-perceptions in the context of the autonomous community of Galicia, the findings cannot be extrapolated to the whole of Spain. Consequently, we suggest that future research studies complement this approach through direct observations in the classroom, an analysis of teaching programmes, or interviews with management teams and education authorities, with a view to obtaining a deeper, holistic perspective on the subject of the research.

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