

Screening of the Impact of Dual Training in the Spanish University Press: A Documentary Review

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Abstract

University Dual Training is constructed at the intersection of academic and professional spheres, shaping a complex and multifaceted educational model. The aim of this study is to analyze the media representation of University Dual Training within the Spanish higher education landscape. The analysis focused on news articles published in the digital press of Spanish universities between 2021 and 2025. Following the methodological principles of a systematic review, a total of 81 news items (comprising 747 lexical segments) were identified and categorized 60 from 25 public universities and 21 from 7 private institutions. Data analysis, supported by the MAXQDA 24 software, enabled the identification of trends in the use of keywords, temporal evolution, and prevailing themes, along with the degree of relevance attributed to this training modality. The findings reveal an institutional tendency in media dissemination centred on promoting University Dual Training as a pathway for educational innovation, highlighting experiences and collaborations with companies, and projecting a discourse in which universities present themselves as committed to this modality. The study concludes that digital university newspapers convey the relevance and impact of University Dual Training as a modality that brings together diverse stakeholders, creating a space of collaboration and shared responsibility that strengthens student training and employability.

Keywords: dual training; higher education; media coverage; university-industry relationship



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1. Introduction

One of the fundamental goals of higher education systems worldwide is to train highly qualified professionals who are committed to the economic and social development of their communities. In an increasingly knowledge-oriented economy, this priority becomes more pressing in the light of the growing demand for a large number of highly specialized jobs (CEDEFOP, 2024).

Within this context, dual training emerges as a key strategy, as it intentionally and systematically integrates the academic and professional domains. This model is grounded in collaboration between educational institutions and organizations from the labour market, with the aim of providing authentic learning experiences that foster both students' critical reflection and the development of professional competences (Geay, 1998; Cohen-Scali, 1999; Deissinger, 1996). This is primarily achieved through the alternation between educational

and workplace settings, enabling the active involvement of the productive sector in training processes, collaboration and joint curriculum design, the participation of both university faculty and industry experts in instruction, and the provision of financial compensation to students for their work. Collectively, these mechanisms contribute to reducing youth unemployment and facilitating the transition from university to the labour market (Graf et al., 2014; Consejo Económico y Social de España, 2023).

In the European context, dual higher education is grounded in three interrelated notions (work-related learning, work-based learning, and work-integrated learning) which position professional experience as a central component of curriculum design and of the acquisition of competences relevant to students' transition into the labour market (Tsertsvadze et al., 2024). From this perspective, dual university training is configured as a strategic mechanism for strengthening employability and aligning higher education provision with emerging socio-economic demands. In Germany, the institutionalized model of the Duale Hochschule Baden-Württemberg stands as a consolidated reference, as it structures learning through the alternating presence of students in university and collaborating companies, fostering active engagement of the productive sector and demonstrating recognized effectiveness in graduates' labour market integration (Gerloff & Reinhard, 2019). In line with this, the expansion and consolidation of dual programmes in systems such as Austria, Germany or Spain (Tsertsvadze et al., 2024), Ecuador (Espinoza, 2020) and México (Zamora & Thalheim, 2020) illustrate an ongoing structural transformation aimed at enhancing universities' responsiveness to highly dynamic economic environments and continuously evolving professional profiles (Tsertsvadze et al., 2024).

In the case of Spain, the development of University Dual Training (UDT) initially drew on the legal framework of Dual Vocational Training, with one of the most significant regulatory advances being the approval of Royal Decree 822/2021 of September 28, which governs the organization of university education and the procedures to ensure its quality. Article 22 of this decree introduces the possibility of awarding a Dual Mention to university degrees, thereby establishing a framework for its implementation (Real Decreto 822/2021, de 28 de septiembre, por el que se establece la organización de las enseñanzas universitarias y del procedimiento de aseguramiento de su calidad, 2021, 2021). From this article derive, as noted by Sarceda-Gorgoso et al. (2024), the design and application of a clearly defined objective, a shared training project between the university and the collaborating entity, a differentiated distribution of credits depending on the training setting, remunerated work activity through an employment contract, joint tutoring, and a general framework agreement for educational collaboration. These constitute the six essential components that characterize UDT. Furthermore, Organic Law 2/2023 of March 22, on the University System, has for the first time incorporated the dual training pathway into state-level legislation, emphasizing both the active role that universities must play in its promotion and the need to strengthen collaborative links with the business sector. Sarceda-Gorgoso et al. (2024) conceptualize dual university training as:

A training modality that, through the alternation between the university centre and the collaborating entity (as stipulated in the legal provisions and formalized in a collaboration agreement) and by means of a contract that involves paid work activity, develops an individualized training programme for each student. This program is designed jointly and collaboratively across both settings, under a dual tutoring system. Its objective is to foster the development of professional, personal, and transversal competences that promote students' comprehensive education and employability (Sarceda-Gorgoso et al., 2024, p. 95).

In this context, where University Dual Training plays a central role, the strategic importance of digital institutional communication by university bodies becomes partic-

ularly evident. As [Gordon-Isasi et al. \(2021\)](#) argue, in knowledge-based economies such communication is a key instrument to support the fulfilment of the university mission, facilitate the development of its functions, and achieve its institutional objectives ([Davies, 2020](#)). The strategies adopted are increasingly sophisticated, with the internet and social media serving as the main tools that foster the creation of long-term relationships with their audiences ([Peruta & Shields, 2016](#)). Through these media—which include blogs, wikis, professional platforms, and many other formats—channels of dialogue and engagement are established both with internal stakeholders (students, faculty, and administrative staff) and with external ones, encompassing the social, cultural, political, and economic actors in the surrounding environment ([Marino & Lo Presti, 2018](#)).

These channels foster communication, the dissemination of knowledge, brand differentiation, and the management of university reputation ([Budnikevich et al., 2023](#)). They also help meet the informational needs of audiences and position universities as reference sources on topics of academic interest ([Oliveira, 2020](#)). Most universities employ a dominant strategy of institutional content, which rather than focusing on their day-to-day activities, clearly prioritizes institutional over functional content ([Capriotti et al., 2023](#)). In this regard, [Zeler et al. \(2023\)](#) highlight that the themes disseminated by higher education institutions constitute a key factor, as such content decisively contributes to their positioning, prestige, and public perception ([Marino & Lo Presti, 2018](#)).

Accordingly, it is essential to examine in detail how university media communicate strategic initiatives such as the implementation and development of this educational modality. The analysis of press reports is a common methodological resource in educational research, whether addressing issues related to specific didactics ([Madrid et al., 2021](#); [Jurado & Vílchez, 2021](#)) or broader concerns such as hate speech ([Luque et al., 2021](#)), educational challenges ([Saiz de Lobado & García-Delgado, 2022](#)), or inclusive education ([Rogero-García et al., 2022](#)), among others.

Building on these previous works, this study analyzes how the relevance and impact of University Dual Training are represented and projected in the news content of institutional newspapers, paying particular attention to the actors involved, the effects on the surrounding environment, and the communicative dimensions associated with the model. The objective is to address the following research questions:

- What type of information is institutionally publicized about Dual University Training?
- What is the relevance and impact attributed to the DUT in the information published in the institutional digital newspapers?

2. Materials and Methods

The research presented here forms part of a broader R&D project and is grounded in the principles of systematic literature review ([Booth et al., 2016](#)). To select the news items for analysis, an exhaustive review of all digital university newspapers was carried out, complemented by a systematic mapping approach ([Gough et al., 2017](#)), as the search strategy was based on formalised criteria. Likewise, the study employs content analysis and discourse analysis ([Hernández et al., 2014](#)), which make it possible to interpret texts not only in terms of their explicit meaning, but also by identifying patterns, themes and implicit meanings, analysing how universities present, interpret and communicate University Dual Training.

To ensure transparency in the selection process, a PRISMA 2020 flow diagram ([Page et al., 2021](#)) was developed to illustrate the different phases of identification, screening, and inclusion. As shown in Figure 1, the process began with 344 news items retrieved from 91 university digital newspapers.

- (1) In the initial identification stage, searches were conducted across the 91 websites belonging to Spanish universities, consulting their digital newspapers and archives. The descriptors “dual training” and its corresponding meaning in the co-official languages were used as descriptors, which allowed us to identify relevant sources, discarding those newspapers that could not be searched. In total, 56 portals were discarded for the following reasons: technical problems in their search engines (14), being out of time range or not addressing the subject (5) and not having news on the subject (37). As a result, 35 institutional digital newspaper university web newspapers (28 publics and 7 private) provided a total of 344 news items.
- (2) During the screening phase, specific selection criteria were applied. These included thematic relevance—excluding news items not related to dual training as defined in Article 22 of Royal Decree 822/2021—and the nature of the content, exclusively retaining news reports while excluding advertisements, announcements, opinion pieces, or programme descriptions. After this filtering process, 190 news items were retained.
- (3) In the third stage of selection, the results were further refined by eliminating duplicate news items (1 because it was translated into another language and 12 with repeated content under different headlines) and discarding 97 in which dual training was dealt with superficially or tangentially, without providing relevant information for the analysis.
- (4) Thus, in the inclusion phase, 81 news items were identified from the digital newspapers of 32 universities (25 publics and 7 private), covering the period from 1 January 2021 to 19 March 2025.

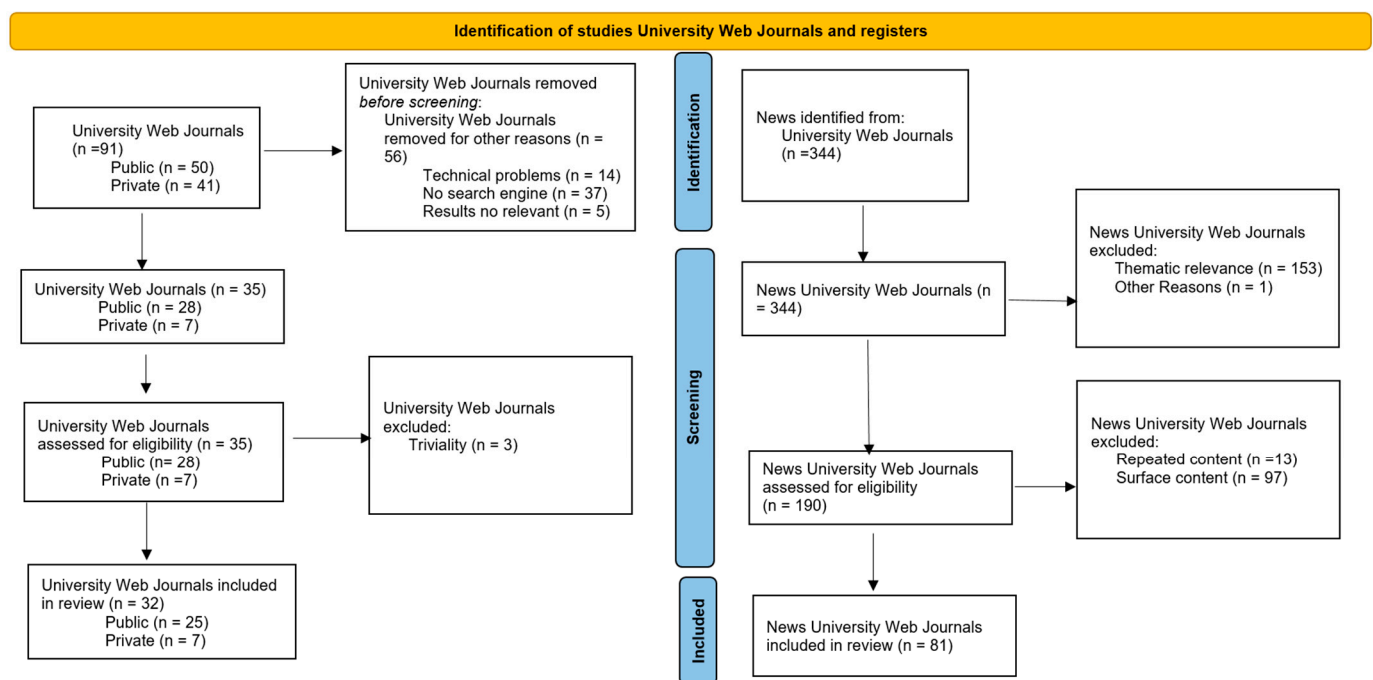


Figure 1. PRISMA 2020 flow diagram of the selection process of news items.

The data collection was carried out using a recording sheet designed based on [García-Fuentes’ \(2022\)](#) proposal and specifically adapted to the context of this study. It is structured into five sections: (1) descriptive data, allowing for the identification of the news item, authorship, and medium; (2) thematic analysis, establishing the actual content, its scope of application, as well as the arguments for and against UDT; (3) relevance and impact on the context, the actors involved, and professionalization; (4) reflection on evidence and

objectivity, applicability or transferability, and the scope of the news item; (5) additional data such as keywords, notes, or observations.

The instrument was reviewed by four university specialists in research methodology and university training, who have a high level (Cruz & Martínez, 2020) in the K coefficient of expert competence ($K = 0.84$). Subsequently, it was applied to a sample of three digital university newspapers, which made it possible to verify the adequacy of its content and the elimination of the question relating to “arguments against”, due to the absence of results.

To ensure consistent results and avoid the risk of bias, the researchers independently administered the form to each news item, and subsequently reached a consensus when discrepancies arose.

The coding process was conducted by a single researcher, which ensures greater internal coherence (Fàbregues Feijóo et al., 2016) and a homogeneous interpretation of the information to be collected. To strengthen the credibility and consistency of the categorisation procedure, the coding framework was externally reviewed by four university experts in research methodology and higher education, who collectively demonstrated a high level of expert competence ($K = 0.84$) (Cruz & Martínez, 2020). Additionally, iterative reflexive checks were carried out throughout the analysis in order to minimize subjectivity and ensure stable interpretation across the corpus.

Data Analysis

The data analysis was conducted using a qualitative approach, combining thematic analysis and discourse analysis with the aim of exploring in depth both the explicit and implicit meanings present in institutional news items. For this purpose, the software MAXQDA 24 was employed, a tool that facilitates the systematic organization, coding, and interpretation of large volumes of textual data (Kuckartz & Rädiker, 2019).

In the first phase, a deductive thematic analysis was applied, consisting of the construction of an initial coding matrix made up of five main categories: type of university, disciplinary area, date of publication, main theme (lexicon and focus), and the relevance and impact attributed to UDT. This coding process enabled the classification of the 81 news items in the corpus according to their institutional, academic, and temporal characteristics, providing a structured overview of the context in which the content appeared.

Subsequently, to address the research questions posed, a second phase of inductive analysis was carried out, aimed at identifying emerging patterns, discursive regularities, and thematic clusters that had not been initially anticipated. This stage involved a process of open and axial coding (Strauss & Corbin, 2002), from which an emergent coding framework was generated with subcategories derived directly from the textual content of the news items.

The methodological approach adopted makes it possible to unravel the social representations, intentionalities, and symbolic constructions operating within institutional texts (Van Dijk, 2008).

3. Results

The content analysis of the 81 news items, originating from 32 universities (25 public and 7 private), made it possible to identify a total of 747 lexical segments. These segments enabled their classification not only by disciplinary areas, type of university, and temporal evolution, but also by revealing a discursive trend in the headlines and highlighting the main thematic focuses associated with the implementation and development of University Dual Training within the higher education context. In addition, the actors for whom the news items hold the greatest relevance were identified, together with the various impacts

attributed to UDT, such as economic and social development, influence on regulatory decision-making, and its role in the professionalization of students.

3.1. Representation and Projection of Dual Training in University Newspapers

Considering the type of university (public vs. private) and the period of publication (2021–2025), as shown in the concurrence map in Figure 2, there is a significant concentration of news items ($n = 60$) in public universities, which may indicate a stronger commitment by these institutions to the University Dual Training model. A predominant trend is observed in the fields of Engineering, Technology, and Architecture ($n = 40$), followed by the area of Social Sciences ($n = 16$). In contrast, there is a notably lower representation in the Exact Sciences ($n = 5$) and Health Sciences ($n = 3$).

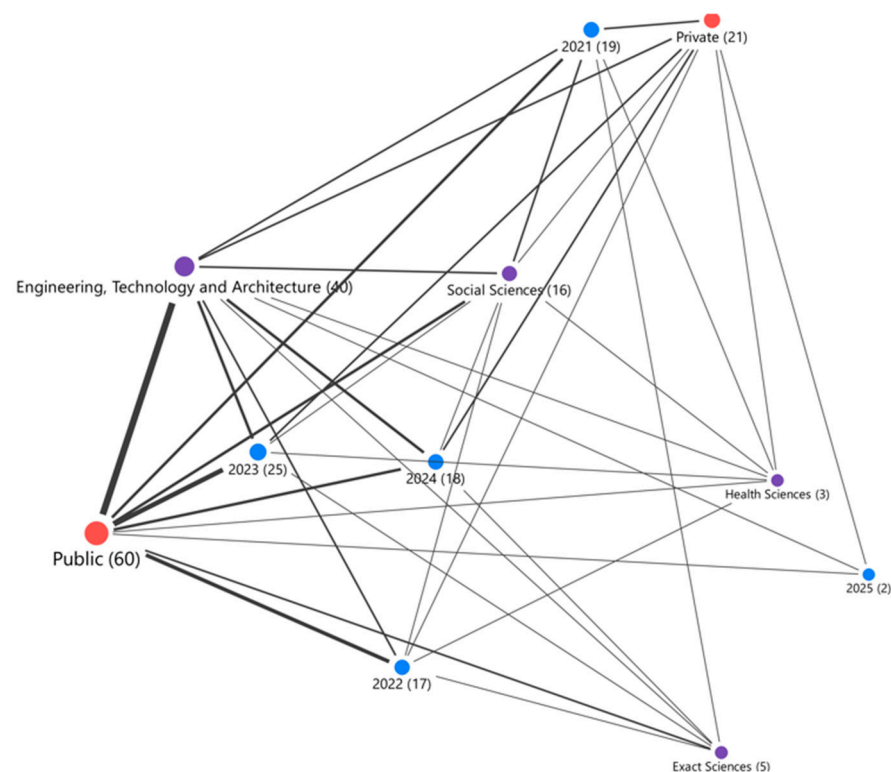


Figure 2. Map of concurrence between area, university type and publication period.

From a temporal perspective, the years 2023, 2021, 2024, and 2022 emerge as key moments in the expansion of the dual training model, with 25, 19, 18, and 17 news items, respectively. This intensification of publications in institutional digital newspapers during this period may be associated with the enactment of Royal Decree 822/2021 of September 28, which provided a legislative framework on which to rely, thereby promoting the expansion of dual training programmes over the past four years.

With regard to the thematic orientation of the news items, the word cloud (Figure 3), generated from a global analysis of the lexical frequency of their headlines and subheadings, reveals that the most frequent word is “dual” ($n = 75$), followed by the term “training” ($n = 61$).



Figure 3. Word cloud of the main concepts in headlines.

Likewise, terms such as “university (universidad)” ($n = 48$) and “university-related (universitario)” ($n = 28$) stand out, confirming that the institutional focus is situated within the sphere of higher education. On the other hand, the word “company (empresa)” ($n = 27$) appears in multiple news items, reflecting the existence of strong collaboration between the academic and professional settings. An example is the following headline:

“The UAL incorporates the dual ‘university–company’ system into its master’s degree catalogue, which has now grown to nearly fifty programs.” (UAL, 18-06-21)

Other noteworthy terms are those referring to the degree programmes involved in UDT, such as “master (máster)” ($n = 23$), and to the novelty of the proposal, with the use of the adjective “new (nuevo)” ($n = 22$). This can be interpreted as universities’ commitment to expanding this educational model, particularly within master’s degree programmes, thereby renewing their academic offerings. This was highlighted, for instance, by the University of Castilla-La Mancha in its news item of 3 April 2024:

“The students of the Dual Master’s Degree in Renewable Energies of the UCLM start their academic and dual training in companies.” (UCLM, 3-04-24)

Although the terms “professional (profesional)” ($n = 14$), “practical (práctico)” ($n = 12$), and “work (trabaja)” ($n = 11$) appear less frequently, they nevertheless reflect how this model is characterized by its technical and applied nature, oriented toward labour market integration.

On the other hand, the presence of words related to specific fields of knowledge is also significant—for example, “engineering (ingeniería)” ($n = 11$) and “automotive (automoción)” ($n = 10$)—which provides indications of the sectors in which the dual modality is gaining projection. An illustrative example is the following headline:

“Definitive boost to the Degree in Automotive Engineering with dual mention with the signing of an agreement between UVigo, Xunta and companies in the sector.” (UVigo, 3-04-23)

In the news coverage analyzed, five major thematic focuses can be identified that structure the institutional discourse on UDT in Spanish university newspapers, as shown in Table 1. These focuses make it possible to identify the main areas of interest that universities emphasize in relation to UDT.

Table 1. Thematic Focuses in News Coverage on UDT.

Thematic Focus	Frequency	Description	Example
Institutional and regulatory promotion of the UDT	27	News items reporting on strategic actions promoted by universities or other educational institutions aimed at fostering, consolidating, or expanding Dual Training (DT), as well as those informing about the development, modification, or application of regulations and legal frameworks that govern its implementation.	Launching of the ‘Valeo UJA Academy’ programme, an international dual training itinerary that seeks excellence in the automotive sector (UJAEN, 26-01-22)
Events and Outreach	19	News focused on the organization and development of public events, conferences, fairs, seminars or campaigns aimed at informing, making visible or disseminating the DT model among different audiences.	UCAM HiTech hosts the 3rd Meeting of Companies, Vocational Training and University (UCAM, 04-29-24)
New Academic Offerings in UDT	18	News about the creation or expansion of dual training programmes, either through the incorporation of new itineraries or specializations in university degrees.	The University of Valencia officially implements the Dual Mention in the Degree in Chemistry (UV, 12-07-24)
University-industry alliances company	16	News reporting the signing, renewal or updating of agreements between universities, schools and companies for the development of the FD.	UVigo allies with the multinational Telespazio to launch a pioneering dual master’s degree in Spain in geospatial technology (UVigo, 23-01-23)
Alliances with other universities or institutions	3	News reflecting the inter-institutional collaboration around the FD, especially in the field of pedagogical innovation, academic mobility and the development of joint projects.	Institutional visit of the University of Alcalá to the University of Mondragón and associated centres, exploring possible collaborations in dual training and academic and business projects. (UAH, 14-09-21)

Furthermore, the concurrence map (Figure 4) shows that public universities ($n = 60$) display significantly denser links with all thematic focuses, particularly with the Institutional and regulatory promotion of UDT ($n = 27$), as well as Events and Dissemination ($n = 19$) and New Academic Offerings in UDT ($n = 18$). This reflects a clear commitment to dual training programmes within the Spanish university system.

In contrast, although private universities are also present in all thematic areas, their institutional dissemination of UDT is less intense. They stand out especially in the Events and dissemination category ($n = 19$), which could be interpreted as a visibility strategy to attract students and the productive sector o industrial network. They also show greater participation in the University-Business Alliance ($n = 16$), a key component in the dual model, although, taking into account the thickness of the lines linking them, less intense than in the public ones. At the same time, it is worth highlighting the thematic focus related to alliances between universities or institutions ($n = 3$), which, although it appears less frequently, is of considerable relevance for both types of institutions.

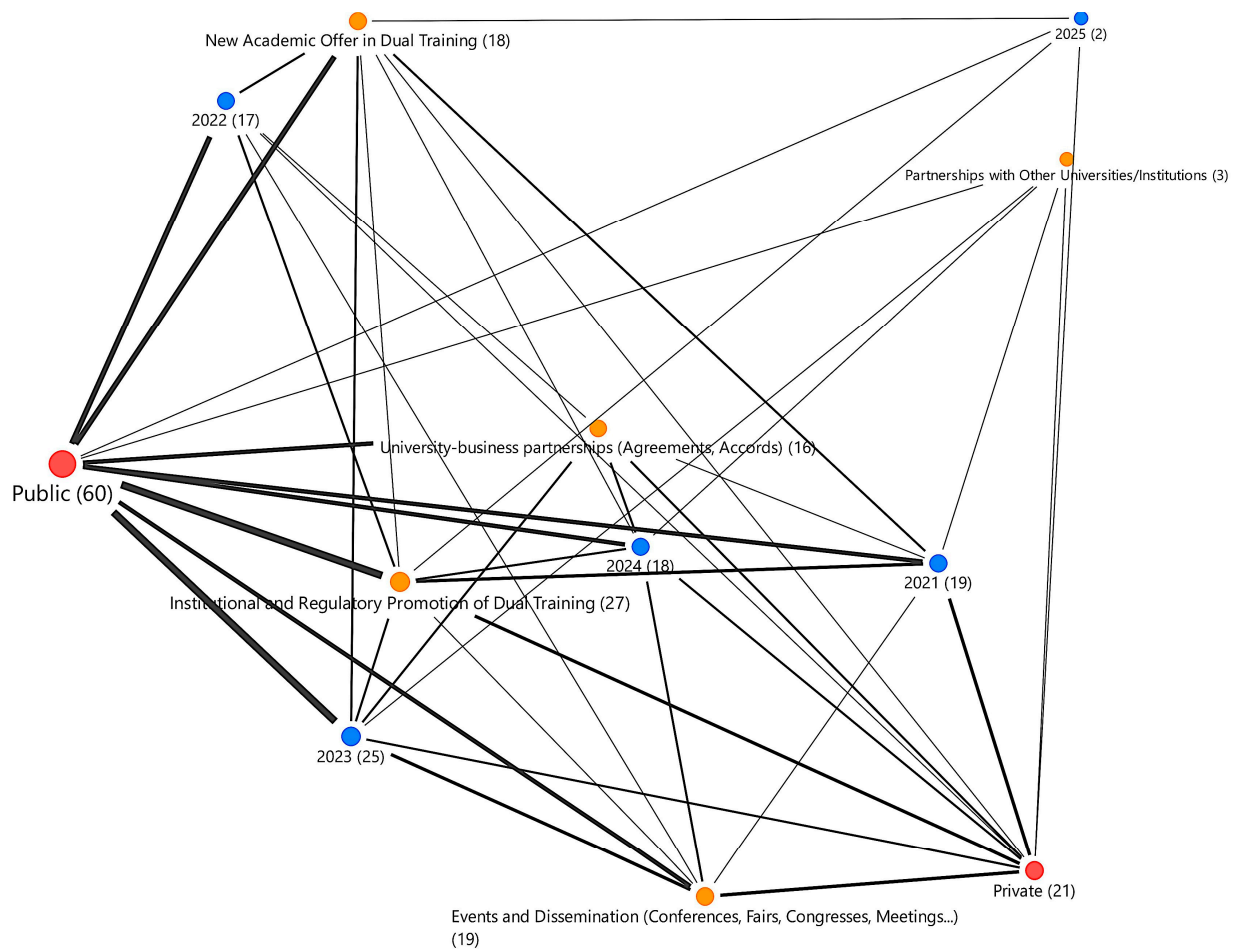


Figure 4. Map of publication period concurrences, type of university, and subject area.

3.2. Relevance and Impact of Dual Education in the Spanish University Discourse

The relevance of UDT-related news is examined by analyzing for which actor (social or institutional group) it is most significant in terms of benefits, direct impact, strategic interests, or functional involvement. By contrast, impact is understood as the effect or influence that UDT may have on the socioeconomic context, on public perception, and on the academic sphere, particularly with regard to regulatory or institutional decision-making, as well as the prestige or institutional perception of the educational model, and its role in the qualification, employability, and professional competences of students. Figure 5 shows the relationships and frequency of the generated code map.

Regarding the target audience, this is mentioned 214 times in the news items. UDT is presented as particularly relevant both for students ($n = 75$)—with news related to their professionalization, employability, and skills acquisition—and for companies ($n = 64$), in connection with access to qualified talent, participation in training design, and the generation of benefits. Universities ($n = 45$) are mentioned in news concerning the dual academic offer, institutional positioning, or governance, while society as a whole ($n = 30$) appears in news linked to territorial development and the public image of UDT, or highlighting its value as a public good.

The impact of UDT on the socioeconomic context ($n = 78$) is reflected in news items showing how University Dual Training directly or indirectly influences regional growth through talent retention or economic progress, as well as in the strengthening of the university–enterprise ecosystem by consolidating collaboration networks and inter-institutional cooperation.

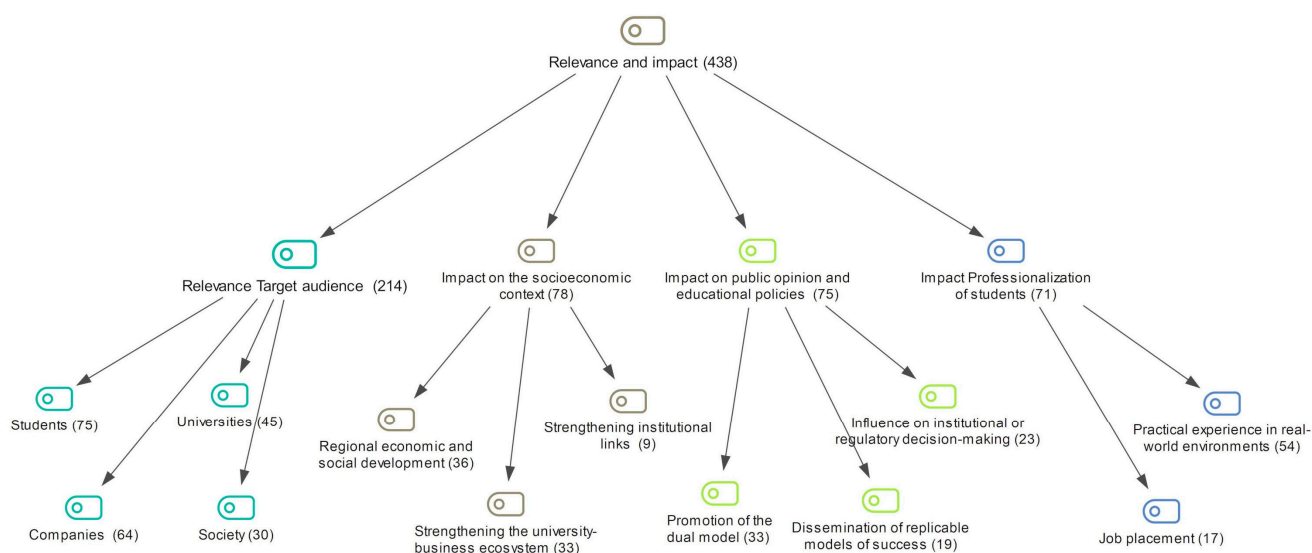


Figure 5. Map of codes related to the Relevance and impact of the UDT.

With regard to the influence on Public Opinion and Educational Policies ($n = 75$), the news items promote UDT ($n = 33$) as an effective modality aligned with the current challenges of higher education, enhancing its prestige and positioning on the media agenda, motivating regulatory or institutional decisions ($n = 23$), and disseminating replicable success models ($n = 19$). Concerning the impact on the Professionalization of Students ($n = 71$), the news highlights practical experience in real contexts ($n = 54$) and improvements in labour market integration or employability ($n = 17$).

This map of codes is further detailed in Figure 6, which graphically shows the most significant connections between the type of university, the groups involved, and the dimensions of impact derived from the institutional discourse, highlighting the most frequent ones with a greater line thickness.

First, from the perspective of the relevance attributed by universities to the different actors, students clearly emerge as the main protagonists, being present in 75 of the news items analyzed. Universities portray students as the group most benefited by UDT, linking it to opportunities for improvement in practical training, competence development, and employability. Institutional narratives primarily emphasize two aspects: the possibility of acquiring practical experience in real environments ($n = 54$) and labour market integration ($n = 17$), as illustrated in the following excerpt:

The programme is aimed at final year students who want to replace their classroom training with practical training in the host company, during their last term and 6 months thereafter. This means one year of experience in the company. In this way, the student acquires the competences of their subjects with professional practice in the business field. (UAL, 7-10-21)

It is worth highlighting the presence of the business sector, with 64 mentions, which appears as a key strategic actor in the implementation of the model. Collaboration with companies is visible through the impact on regional economic and social development ($n = 36$) and the strengthening of the university-business ecosystem ($n = 33$), projecting a vision of the UDT as an engine of innovation, competitiveness and connection with the productive fabric. An example is the following news item:

For the Association it is an honour to be able to collaborate with an educational institution of the prestige and academic recognition of the University of Deusto. For decades, SER-NAUTO has recognised the importance of training as a key factor in the competitiveness

of companies in the sector, and the alliance with the university will allow the industry to remain at the technological forefront. (UDEusto 21-03-23)

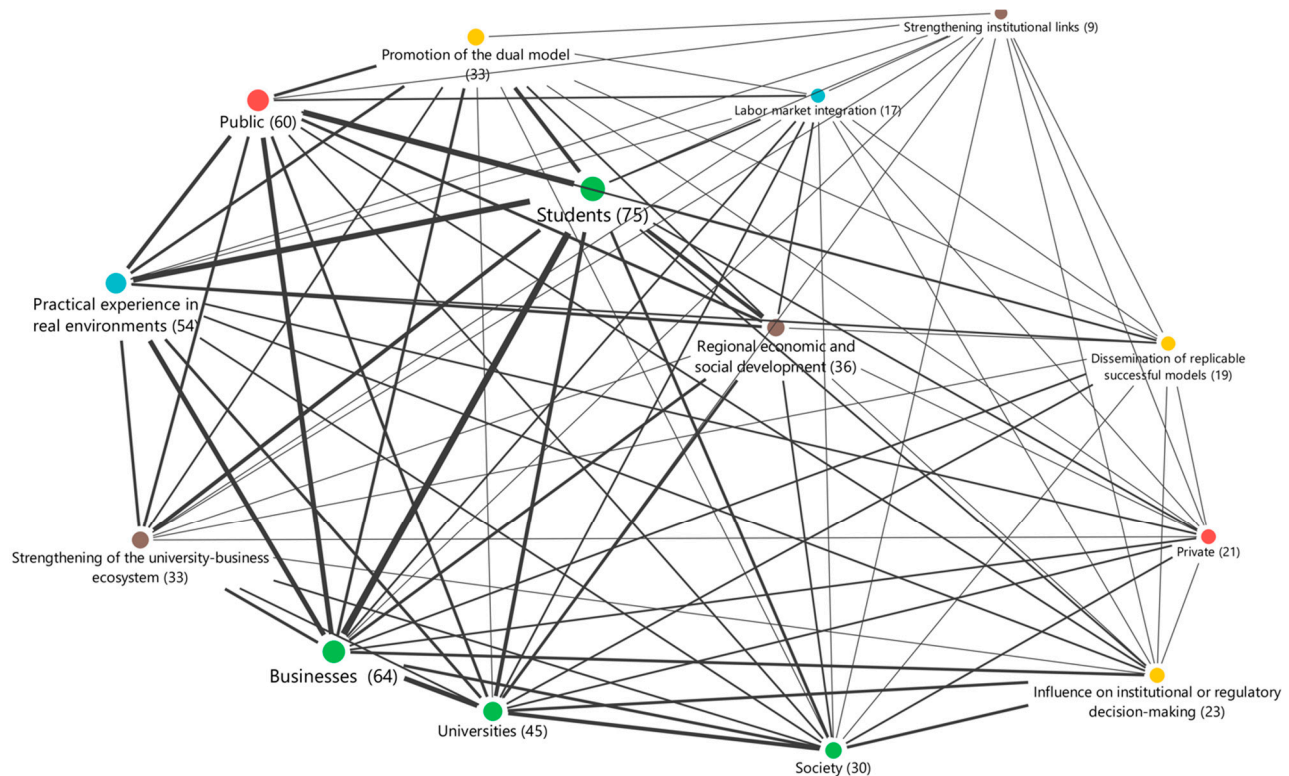


Figure 6. Map of university type of concurrence and relevance and impact.

Universities ($n = 45$) also emerge as key actors in the process, not only as issuers of discourse but also as institutions committed to the transformation of the educational model. UDT is presented as a tool to strengthen institutional prestige, respond to environmental challenges, and reinforce their social role. The following news items serve as examples:

Dual university education is “vital” in some of the most important challenges of our society, such as “quality employment, the retention and attraction of talent, as well as the strengthening of our industrial character”. (UPV / EHU, 7-10-22)

In recent years there has been a certain distance between university and society, which entails “certain dangers” for the future of the university institution. This renewal would involve “intensifying the social and economic impact of the university”. On this point, Subirats argued that “we have to work with the idea of dual training, not only so that students can get better jobs, but also so that their training is more complete” (USAL, 11-09-23).

The category of society ($n = 30$) is indirectly linked to regional economic and social development ($n = 36$). UDT is presented as a model that can influence institutional or normative decision-making ($n = 23$), projecting a discourse aimed at influencing educational policies and university governance. An example of this is the news highlighting the leadership of some universities in the analysis and promotion of the dual model at regional level:

UEx leads a project to analyse the impact of Dual Training for Employment in the regions of Extremadura, Andalusia and the Valencian Community. (UEx, 7-02-24)

We have to try to retain talent and attract as much as possible. If we are able to attract it will be positive for our labour market and for the ecosystem in companies. (UNEAtlantico, 25-11-21)

Secondly, the analysis of the news shows that the impact of UDT on the socio-economic context emerges as a transversal and particularly relevant dimension, as it highlights the articulation between higher education and territorial, productive, and social development. Within this dimension, the news items that underscore the strengthening of the university–business ecosystem ($n = 33$) are particularly notable, emphasizing how UDT enables the consolidation of a stable collaboration network between the university system and the productive sector, thereby promoting a shared model of innovation. In addition, the strengthening of institutional links ($n = 9$) is emphasized, referring to specific cases in which dual training contributes to generating stable relationships between universities, vocational training centres, and other local entities, thus consolidating a cooperation network aimed at sustainable development and the renewal of higher education. The following excerpt illustrates this:

This renewal reinforces the university offer in the Debarrena region and promotes areas of collaboration in dual training, the vocational training-university relationship and continuous training, thus supporting regional development and territorial balance. (UPV/EHU, 14-02-24)

Thirdly, in the news discourse, the impact of the UDT on public opinion and educational policies mainly highlights the promotion of the dual model ($n = 33$). In it, the UDT is positioned as an effective modality aligned with the current challenges of higher education and, therefore, desirable for students. Next, the influence on institutional or regulatory decision-making ($n = 23$) stands out, in which the news items refer to proposals for change or reform both in the Spanish university system and in the internal regulations of the universities themselves, with the aim of facilitating the effective implementation of UDT. An example of this is:

UAL, ASEMPAL and the Chamber of Commerce join forces to improve DUAL training. All of them sign a manifesto in which they express the need to take firmer steps towards this type of training that allows university students to integrate into a real productive environment and become students and workers at the same time, making the university a more entrepreneurial environment and the company a highly valuable training space. (UAL, 8-06-22)

Likewise, news items relating to the dissemination of replicable models of success ($n = 19$) are identified, in which pilot experiences, consolidated practices or testimonials from students, companies and teachers are presented as valid references for their application in other universities. Such is the case of the following extract:

The Pablo de Olavide University has held the II Workshop 'Building the Olavide Dual Model', in which a guide for companies has been presented that includes the roadmap established by the UPO which, according to the rector, will mark the collaborative work in the dual learning ecosystem of the University. (UPO, 25-09-23)

Finally, the impact of UDT on the professionalization of students highlights, on the one hand, the practical experience in real environments ($n = 54$), which demonstrates that this dual modality fosters the acquisition of professional competences. An example is the following:

The new training modality, set out in RD 822/2021 of 28 September, aims, among other objectives, to improve their comprehensive training and improve their employability. The dual mode means that an important part of the degree training is acquired by the

students within the collaborating entity (company, social or trade union organisation) (...) During this period the student is hired by the collaborating entity with a specific work contract in which the working day and remuneration are adapted. (UMU, 9-05-22).

On the other hand, job placement ($n = 17$) is highlighted, which refers to the capacity of the dual model to facilitate early transition to employment by providing real and early integration in professional environments. This can be seen below:

Thus, students who take the dual pathway are immersed in the professional world during the last year of their studies; in this way they contribute to increasing the possibilities of finding work in better paid jobs (...) In addition, they will do their end- of-degree work in the company. (URV, 21-09-21)

4. Discussion and Conclusions

The dual training model has its origins in the field of vocational education, but over the past few years it has progressively extended into the university context, being incorporated into both undergraduate and master's programmes (Опущко, 2023). It is therefore presented as an innovative and recent model within the university system (Alemán-Falcón & Calcines-Piñero, 2022), although it is already grounded in well-established dual training models developed in other international educational systems (Sarceda-Gorgoso et al., 2024). Along these lines, the report *Radiografía de la Formación Dual Universitaria en España* [X-ray of Dual University Training in Spain] (Climent-Ferrando et al., 2024) confirms this evolution, stating that "dual training is experiencing significant growth in our country. With more than a decade of development in Vocational Education and Training, dual approaches are beginning to make their way into universities (...)." (p. 7).

For this reason, in this paper we have set out to find out what information coverage is being provided by universities, both public and private, on UDT, as well as the impact and relevance they attribute to it. As Feijóo Fernández (2013) points out, the mainstream media often do not pay significant attention to the information coming from higher education institutions, relegating it to the background.

Overall, the results obtained from the analysis of 81 news items show a trend toward the dissemination and consolidation of dual training programmes over the past four years, with a growing presence in institutional press, particularly linked to the expansion of the university dual training model in public institutions. The use of concepts such as "dual," "training," "university," or "company" in the analyzed headlines and subheadings highlights the momentum that this modality is gaining in Spanish universities, as well as its gradual integration into academic offerings, especially in master's degree programmes. News coverage revolves around five thematic focuses: institutional and regulatory promotion, events aimed at the dissemination of UDT, the creation or renewal of dual programmes, university–enterprise alliances, and inter-institutional collaboration. These focuses provide evidence of the efforts being undertaken by universities to adapt to the demands of socio-economic contexts in their commitment to the renewal of higher education. As Pilz (2016) points out, UDT is an innovative alternative that fosters collaboration among the business sector, higher education institutions, and students. Likewise, Flores-Sánchez and Vigier (2020) note that "higher education institutions must remain in constant innovation in their processes to create and transfer human capital in favor of a forward-looking society, in order to anticipate societal changes, confront them, and thus remain at the forefront of governmental, technological, social, cultural, and economic transformations" (p. 195).

On the other hand, an unequal distribution of institutional visibility regarding dual training can be observed, with a predominance in public institutions linked to the fields of technology and computer science, which aligns with the strong interest of the industrial sector in the development of dual training. This landscape within the university media

discourse reinforces the idea that UDT tends to concentrate in disciplines with a strong practical and technological orientation, as pointed out by [Pérez-Torregrosa et al. \(2024\)](#), who identify this training as being concentrated mainly in the fields of Engineering, Architecture, and Economics and Business Studies. By contrast, private universities display a lower level of coverage on this topic, with contributions that appear more dispersed. This phenomenon may be due not only to the fact that these institutions generally show a lower degree of adequacy in their online press rooms ([Parejo Cuéllar, 2015](#)), but also to the fact that many universities are turning to the dual model as a strategy to attract prospective students.

The relevance attributed to UDT, according to the information published in digital university newspapers, is linked to the different actors involved in the training process, namely students, companies, and universities. Likewise, the influence or impact that UDT may exert in various areas is identified, such as the socio-economic environment, public opinion, and the academic sphere—particularly with regard to regulatory or institutional decision-making, the recognition or assessment of the educational model, as well as student training, labour market integration, and the development of professional competences.

It should be noted that this proliferation of UDT is manifested through alliances with companies, organizations, and institutions, establishing links with the productive sector in order to optimize academic offerings and respond to labour market demands ([Coiduras et al., 2017](#)). Although private universities display less visibility in this field, they also participate in the effort to promote the consolidation of dual training within higher education. In this context, there are institutions that have managed to stand out thanks to their UDT initiatives, such as the Talento D-UAL programme ([Climent-Ferrando et al., 2024](#)).

The news items on UDT published by universities highlight the potential of this training modality as an effective pathway for improving employability and professional preparation, by helping to reduce the gap between academic training and the real demands of the labour market ([Ibarra & Bribiescas, 2019](#)) and by enhancing prestige through the provision of comprehensive learning experiences closely linked to professional practice ([Virgós-Sánchez et al., 2022](#)). The perception of UDT is thus reinforced as a training model that strengthens ties with the surrounding environment, elevating the public perception of companies ([Igartua Miró, 2017](#)) and fostering the preparation of professionals capable of influencing business productivity and regional economic growth ([Flores-Sánchez & Vigier, 2020](#)).

Moreover, the information published in institutional newspapers emphasizes the impact of UDT on student professionalization. As reflected in the Report on the Promotion and Development of Dual Training in the Catalan University System, the dual modality fosters the acquisition of professional competences through methodologies such as practice- and experience-based learning, enabling comprehensive student training, which also includes the development of undergraduate and master's theses in business contexts ([ACUP, 2021](#)).

This orientation toward professionalization can be observed in the discourses of the news items, which often emphasize aspects such as the consolidation and acquisition of technical and professional competences. Across the various news items, there is a clear conviction that UDT enables a smoother transition from university to employment, as it constitutes an effective pathway toward professionalization and employability ([Beraza Garmendia, 2023](#); [Castellano & Trillo, 2024](#)). At the same time, it facilitates early transition to employment by providing genuine and early integration into workplace environments, along with rapid entry into the labour market ([Zhibin & Weiping, 2017](#)).

Nevertheless, the present study is not without limitations. One of them lies in the fact that all the sources used are institutional and, therefore, tend to be shaped by a promotional approach. Consequently, biases may be present in the discourses analyzed, since, as

Álvarez and Caballero (1997) point out, “any entity that seeks to survive with dignity must convey messages to citizens in order to sell its products or services” (pp. 19–20). As a result, universities not only fulfil educational and research functions but also compete to attract students, collaborate with the business sector, and obtain resources through various national and international calls (Parejo Cuéllar, 2015).

4.1. Practical Recommendations for Universities

The findings of this study reveal that university media primarily adopt a promotional communication strategy when reporting on dual university training. To enhance the strategic role of institutional communication in consolidating this modality, several practical recommendations can be derived. First, universities should strengthen the visibility and distinctiveness of DUT by developing integrated communication plans specifically tailored to highlight its educational value, the alternation-based learning model and the benefits for students in terms of employability and professional development. Second, to avoid a purely institutional narrative, it is advisable to incorporate more diverse voices into news content, particularly those of students and workplace tutors, in order to provide socially meaningful accounts supported by authentic testimonies and verifiable outcomes.

Moreover, communication offices should ensure that the dissemination of information about DUT includes clear and accessible details regarding curricular structure, remuneration conditions, tutoring mechanisms and collaboration agreements. This would contribute to reducing informational asymmetries and support decision-making for prospective students and companies. Finally, the establishment of joint communication strategies with partner organizations could enhance the credibility and outreach of UDT initiatives, helping position universities as active agents of socio-economic development within their regional ecosystems.

4.2. Limitations and Future Research

This study presents certain limitations that should be taken into consideration. Firstly, the analysis focused exclusively on news published in institutional digital newspapers, which implies a communicative perspective aligned with university interests and reduces the plurality of discourses included in the analysis. Secondly, the study is limited to the Spanish context, which may restrict the transferability of the findings to other higher education systems. Nevertheless, it offers a robust characterization of an emerging model that is relevant to countries undergoing similar processes of implementation and consolidation of dual university training. Finally, although the coding process was carried out systematically, qualitative interpretation inevitably involves a degree of subjectivity; however, the application of rigorous criteria and internal triangulation of the analysis contributed to ensuring the consistency and credibility of the conclusions drawn.

Future research could broaden the media scope by incorporating university social media channels, press releases or external news sources, enabling a more comprehensive understanding of the communicative ecosystem surrounding UDT. Likewise, comparative studies involving countries with more established dual systems would make it possible to identify convergences and divergences in the institutional narratives across Europe. In addition, the inclusion of qualitative data from students, academics and employers would enrich the interpretation of the communicative impact of UDT and contribute to evaluating its perceived value beyond institutional discourse.

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References

- ACUP (Asociación Catalana de Universidades Públicas). (2021). *Informe sobre la promoción y desarrollo de la formación dual en el sistema universitario catalán*. Available online: <https://plataformacti.cat/wordpress/wp-content/uploads/2021/12/Informe-formacion-universitaria-dual-cast.pdf> (accessed on 30 June 2025).
- Alemán-Falcón, J., & Calcines-Piñero, M. A. (2022). The internationalization of the German Dual Vocational Training System: Factors for its implementation in other countries. *Education Policy Analysis Archives*, 30(57), 1–23. [CrossRef]
- Álvarez, T., & Caballero, M. (1997). *Vendedores de imagen. Los retos de los nuevos gabinetes de comunicación*. Paidós.
- Beraza Garmendia, J. M. (2023). Development of transversal competences in dual training in the degree in BA. *Journal of Management and Business Education*, 6(1), 96–121. [CrossRef]
- Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review*. SAGE Publications Ltd.
- Budnikevich, I., Kolomytseva, O., & Bastrakov, D. (2023). Communication component in the formation of the image of higher education institutions based on a marketing approach. *Proceedings of Scientific Works of Cherkasy State Technological University Series Economic Sciences*, 71, 5–16. [CrossRef]
- Capriotti, P., Losada-Díaz, J., & Martínez-Gras, R. (2023). Evaluating the content strategy developed by universities on social media. *Profesional de la Información*, 32(2), e320210. [CrossRef]
- Castellano, M. M., & Trillo, M. P. (2024). Análisis de necesidades formativas de los tutores de empresa en la formación dual: Revisión sistemática. *Educação e Pesquisa*, 50, e267566. [CrossRef]
- CEDEFOP. (2024). *Digital skills ambitions in action: Cedefop's Skills forecast digitalisation scenario*. Publications Office of the European Union. Available online: <http://data.europa.eu/doi/10.2801/966457> (accessed on 1 June 2025).
- Climent-Ferrando, V. (Coordinator), & Altuna, J., Galarza, J., & Urquía, I. (2024). *Radiografía de la formación dual universitaria en España*. Fundación Bertelsmann. Available online: <https://www.fundacionbertelsmann.org/publicaciones/radiografia-de-la-formacion-dual-universitaria-en-espana/> (accessed on 12 January 2025).
- Cohen-Scali, V. (1999). Alternance et identité professionnelle. *Recherche & Formation*, 36, 221–224. Available online: www.persee.fr/doc/refor_0988-1824_2001_num_36_1_1702_t1_0221_0000_2 (accessed on 12 January 2025).
- Coiduras, J., Correa-Molina, E., Boudjaoui, M., & Curto, A. (2017). Formación dual en el grado de educación: Claves organizativas y pedagógicas. *Revista Currículum*, 30, 81–102.
- Consejo Económico y Social de España. (2023). *La formación dual en España: Situación y perspectivas* (Informe nº 01/2023). Consejo Económico y Social. Available online: <https://www.ces.es> (accessed on 19 May 2025).
- Cruz, M., & Martínez, M. C. (2020). Origen y desarrollo de un índice de competencia experta: El coeficiente k. *Revista Latinoamericana de Metodología de la Investigación Social—ReLMIS*, 19, 40–56.
- Davies, S. R. (2020). University communications as auto-communication: The NTNU Challenge everything campaign. *Journal of Communication Management*, 24(3), 227–243. [CrossRef]

- Deissinger, T. (1996). Germany's vocational training act: Its function as an instrument of quality control within a tradition—Based vocational training system. *Oxford Review of Education*, 22(3), 317–336. [CrossRef]
- Espinoza, E. (2020). La formación dual en Ecuador, retos y desafíos para la educación superior y la empresa. *Revista Universidad y Sociedad*, 12(3), 304–311.
- Fàbregues Feijóo, S., Meneses Naranjo, J., Rodríguez Gómez, D., & Paré, M.-H. (2016). *Técnicas de investigación social y educativa*. Editorial UOC, S.L.
- Feijóo Fernández, B. (2013). La proyección pública de la Universidad de Vigo a través de su diario digital. *Estudios sobre el Mensaje Periodístico*, 19, 159–167. [CrossRef]
- Flores-Sánchez, G. G., & Vigier, H. P. (2020). El impacto del modelo educativo dual en la formación profesional del estudiante. *Revista Colombiana de Educación*, 78, 173–205. [CrossRef]
- García-Fuentes, O. (2022). La robótica educativa y el pensamiento computacional en la primera infancia y el hogar: Un estudio en la prensa digital. *Digital Education Review*, (41), 124–139. [CrossRef]
- Geay, A. (1998). *L'école de l'alternance (1a ed)*. Editions Le Harmattan. Available online: <https://books.openedition.org/purh/1516> (accessed on 12 January 2025).
- Gerloff, A., & Reinhard, K. (2019). University offering work-integrated learning dual study programs. *International Journal of Work-Integrated Learning*, 20(2), 161–169. Available online: <https://eric.ed.gov/?id=EJ1226179> (accessed on 22 May 2025).
- Gordon-Isasi, J., Narvaiza, L., & Gibaja, J. (2021). Revisiting integrated marketing communication (IMC): A scale to assess IMC in higher education (HE). *Journal of Marketing for Higher Education*, 31(1), 58–90. [CrossRef]
- Gough, D., Oliver, S., & Thomas, J. (2017). Introducing systematic reviews. In D. Gough, S. Oliver, & J. Thomas (Eds.), *An introduction to systematic reviews* (pp. 1–18). Sage.
- Graf, L., Powell, J. W., Fortwengel, J., & Bernhard, N. (2014). *Duale Studiengänge im globalen Kontext: Internationalisierung in Deutschland und Transfer nach Brasilien, Frankreich, Katar, Mexiko und in die USA*. DAAD. [CrossRef]
- Hernández, R., Fernández, C., & Baptista, P. (2014). *Metodología de la investigación*. McGraw Hill.
- Ibarra, M., & Bribiescas, F. (2019). Educación Dual: Su análisis y desarrollo del modelo alemán para su implementación en el entorno laboral. *European Scientific Journal*, 15(4), 143–157. [CrossRef]
- Igartua Miró, M. T. (2017). La formación dual en el sistema educativo: Balance y propuestas de mejora. *Temas Laborales*, 137(1), 91–125.
- Jurado, R., & Vilchez, J. M. (2021). Análisis de artículos de prensa digital para valorar su uso como recurso para la enseñanza de la Naturaleza de la Ciencia en Educación Secundaria. Ápice. *Revista de Educación Científica*, 5(1), 53–71. [CrossRef]
- Kuckartz, U., & Rädiker, S. (2019). *Analyzing qualitative data with MAXQDA: Text, audio, and video*. Springer.
- Luque, J. L. Z., Ruiz, C. R. G., & Gómez, Á. H. (2021). Discurso de odio en la prensa digital: Alfabetización mediática en alumnado de Secundaria. *Didácticas Específicas*, 25, 128–149. [CrossRef]
- Madrid, M. J., León-Mantero, C., Maz-Machado, A., & López-Esteban, C. (2021). Matemáticas y educación matemática en la prensa española del siglo XVIII: Un instrumento para su análisis. In *Investigación en educación matemática XXIV* (pp. 401–408). Sociedad Española de Investigación en Educación Matemática, SEIEM. Available online: <https://www.seiem.es/docs/actas/24/Comunicaciones/401.pdf> (accessed on 3 June 2025).
- Marino, V., & Lo Presti, L. (2018). Approaches to university public engagement in the online environment: Insights from Anglo-Saxon higher education. *International Journal of Educational Management*, 32(5), 734–748. [CrossRef]
- Oliveira, L. (2020). A framework for the development of social media content strategies for higher education institutions. *Estudos em Comunicação*, 30, 21–48. [CrossRef]
- Опушко, Н. (2023). Дуальна освіта в університетах німецькомовних країн Європи. *Modern Information Technologies and Innovation Methodologies of Education in Professional Training Methodology Theory Experience Problems*, 57, 137–150. [CrossRef]
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Alonso-Fernández, S. (2021). Declaración PRISMA 2020: Una guía actualizada para la publicación de revisiones sistemáticas. *Revista Española de Cardiología*, 74(9), 790–799. [CrossRef]
- Parejo Cuéllar, M. (2015). *Los gabinetes de comunicación de las universidades españolas: Propuesta de modelo y análisis de las salas de prensa virtuales universitarias* [Doctoral thesis, Universidad de Extremadura].
- Peruta, A., & Shields, A. B. (2016). Social media in higher education: Understanding how colleges and universities use Facebook. *Journal of Marketing for Higher Education*, 27(1), 131–143. [CrossRef]
- Pérez-Torregrosa, A. B., Torres-Hernández, N., García-Fuentes, O., & Martínez Serrano, M. d. C. (2024). Integración de la formación dual en los títulos universitarios en España. In J. Cabero-Almenara, A. Palacios-Rodríguez, M. Montenegro-Rueda, & J. Fernández-Cerero (Eds.), *Tecnología educativa para una sociedad multimodal. Libro de actas EDUTEC'24* (pp. 911–914). Grupo de Investigación Didáctica.
- Pilz, M. (2016). Training patterns of German companies in India, China, Japan and the USA: What really works? *International Journal for Research in Vocational Education and Training*, 3(2), 66–87. [CrossRef]

- Real Decreto 822/2021, de 28 de septiembre, por el que se establece la organización de las enseñanzas universitarias y del procedimiento de aseguramiento de su calidad. (2021). BOE n° 233 de 29 de septiembre de 2021. BOE-A-2021-15781. Available online: <https://www.boe.es/eli/es/rd/2021/09/28/822/con> (accessed on 15 May 2025).
- Rogero-García, J., Tovar Martínez, F. J., & Toboso-Martín, M. (2022). *El nuevo discurso frente a la educación inclusiva en España*. Available online: <https://www.cedid.es/redis/index.php/redis/article/view/801> (accessed on 22 June 2025).
- Saiz de Lobado, E., & García-Delgado, B. (2022). Análisis de los desafíos dentro del contexto de la educación y la lectura durante la pandemia, en la prensa internacional de ámbito hispánico. *Teknokultura: Revista de Cultura Digital y Movimientos Sociales*, 19(2), 155–164. [CrossRef]
- Sarceda-Gorgoso, C., Allur, E., Raposo-Rivas, M., & Barberá, M. Á. (2024). Formación Dual Universitaria: Una revisión descriptiva. *Revista Practicum*, 9(2), 83–99. [CrossRef]
- Strauss, A., & Corbin, J. (2002). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Sage Publications.
- Tsertsvadze, V., Khurtsia, L., Bakradze, N., & Turkia, G. (2024, January 23). European best practices in dual higher education (DHE). *Journal of Politics and Democratization*. Available online: <https://journal.gipa.ge/2024/01/23/european-best-practices-in-dual-higher-education-dhe/> (accessed on 3 June 2025).
- Van Dijk, T. A. (2008). *Discourse and power*. Palgrave Macmillan.
- Virgós-Sánchez, M., Burguera-Condon, J., & Pérez-Herrero, M. H. (2022). La formación profesional dual en la empresa desde la perspectiva de sus protagonistas. *Revista Complutense de Educación*, 33(1), 27–39. [CrossRef]
- Zamora, A., & Thalheim, L. (2020). El modelo Mexicano de formación dual como modelo educativo en pro de la inserción laboral de los jóvenes en México. *Revista Iberoamericana de Educación Superior*, 11(31), 48–67. [CrossRef]
- Zeler, I., Capriotti, P., & Oliveira, A. (2023). 30 años de producción científica sobre comunicación institucional de las universidades: Evolución histórica del 1990 al 2020. *Estudios Sobre el Mensaje Periodístico*, 29(1), 235–246. [CrossRef]
- Zhibin, T., & Weiping, S. (2017). On the logic and process of collaborative innovation in higher vocational education and industrial development. *Chinese Education and Society*, 50(5–6), 458–468. [CrossRef]

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