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*Metodologías activas para la enseñanza, la evaluación y el aprendizaje:
Innovación en el aula*

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Active methodologies

Active methodologies are strategies and techniques that look for meaningful learning from the student. Among its main characteristics are: The integral training related to knowledge, the expertise, and the know-how; the students' role in their learning process; the mediating role of the educator in achieving new potential goals by the student; and the performance of activities related to real and authentic contexts.

Editorial



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At the end of the nineteenth and early twentieth centuries a pedagogical movement called *La Nueva Educación* emerged, in which students were in charge of their learning process. In Spain, a country that is characterized by this spirit of change, at the end of the last century and when the General Management of the Education System Law (LOGSE, 1990) was enacted, there was a significant turn in the teaching process. This involved the change from a behavioral approach, established by the General Law on Education (LOE, 1970) where the student was a passive being who was limited to receiving information, towards a constructivist approach where the student would be the protagonist of his/her learning process. And, currently, it is the approach that sustains and gives meaning to learning. Progress has been made from teaching-oriented teaching to learning-based teaching, accompanied by the increase of Information and Communication Technologies (ICT), attention to diversity and the contribution and development of key competences.

In recent times, these changes in the teaching-learning-evaluation processes have led to the dissemination and gradual use of active methodologies among professors, adopting the role of facilitator or guide of the student's learning. This aspect is student-centered, giving students more motivation, participation, cooperation, autonomy and, above all, making them more aware of their learning, being able to apply the knowledge outside the classroom. However, perhaps the biggest challenge of these methodologies is that they must be the generator of a true process of inclusion of all class members. Without this requirement, no supposedly active methodology should be considered successful.

The use of one methodology or another can facilitate or hinder the learning of students, since there are multiple experiences that show the consolidation of its use in different socio-educational contexts, with innovative and challenging proposals. However, these also pose dilemmas about the teacher training, its use —or abuse— as well as an enriching debate about the educational transformation process. Therefore, we must emphasize that methodology and evaluation are key learning processes that model the professional identity of the teacher.

The current issue of the Journal "Alteridad" aims to deepen the construction of this new look towards educational innovation, analyzing its possible definitions, characteristics, classification and evolution of active methodologies, the implications in the teacher training and the organizational and evaluation changes —or resistance to them— that innovation implies.

Thus, the first article of the **Monographic Section** "Review of Methodological Proposals: a Taxonomy of Categorical Grouping", seeks to establish the name of active methodologies from

a theoretical-methodological framework and, from a proven evidence, it presents a taxonomy of resources, strategies, techniques and instructional and active teaching methods that aims to consolidate with the time.

The section continues under the perspective of a space that allows to share experiences from different methodological approaches, highlighting the dilemmas and challenges faced by contemporary education with the implementation of active and dialogical methodologies. Therefore, the article entitled “The student and the configuration of the active classroom: Itinerary, learning and research” which shows that innovation and transformation of the classroom is a highly complex task since the competences between the different educational agents are necessary, provides an answer to the question that mentions if it is possible to generate participatory reflection in the teaching and learning processes.

Subsequently, the article titled “Twitter as a methodological resource in Higher Education: an educational experience with Social Work students”, presents the results of an innovation project in which the social network Twitter is used as a collaborative, collective and innovative methodological resource in Higher Education, analyzing the perception of students in relation to the usefulness of this instrument integrated in a participatory methodology and the collective creation of learning, from the collaboration and group cohesion.

The current combination of face-to-face and online education provides alternatives to the use of b-learning, which is a new modality for the integration of technologies into the new virtual learning spaces and, consequently, promotes the motivation of students. However, the involvement of students in learning processes through participatory methodologies should also include their incorporation into evaluation processes. Therefore, the article entitled “Evaluation and co-evaluation of learning in blended learning in higher education” presents how the elaboration of questions by the students and their incorporation into the evaluation process through the co-evaluation between peers improve their learning by integrating the evaluation as part of the training process with an active and autonomous role using technology.

Finally, the analysis of the performance after any type of learning process applied should be essential and shown as a logical consequence of the work done; though it is not always positive. However, the scientific literature accumulated over the last half century makes it possible to find that, in relation to the aforementioned formative evaluation processes, it is highly positive. Therefore, we conclude this section with the article entitled “Academic and formative performance and shared evaluation in the teacher training”, which analyzes what happens when students are offered the choice between three learning and evaluation options, the continuous (linked to the formative evaluation), the mixed (which attempts to combine the exclusively finalist approaches with the formative) and final or non-face-to-face. This experience shows the interest of students in testing new and interesting learning and evaluation options.

We are convinced that this monograph will serve as a great contribution to researchers and teachers interested in the active methodologies to co-build a knowledge that originates from the educational communities.

The articles in the **Miscellaneous Section** address various topics related to education. The article “Wikipedia in the Spanish education faculties. The vision of college students”, evidences that most of the students participating in the study know and use this encyclopedia on a regular basis, as well as blogs, wikis and forums, among other web 2 tools; however, it is still low the percentage of students editing this resource.



A topic relevant to the teaching process is “The meaning of the teaching practice, in the voice of its protagonists”, which proposes that the permanent and systematic transformation of the teaching practice involves aspects of the teacher’s role, requiring a collaborative understanding and construction of conceptions, based on a wide range of cognitive, affective and procedural experiences.

The article “Internal organizational media in public schools, Chile”, describes the means used by directives and teachers in some public schools in the city of Santiago with the purpose of improving communication processes. Meetings and newsletters are used more frequently, enabling the information among teachers, as well as motivation in their work and relational dimensions; however, there is a need to expand the internal organizational media.

On the other hand, with the intention of improving the management and execution of the graduate program, the “Study of graduates in a graduate program in education”, highlights, on the one hand, the high level of acceptance by its students due to their graduation profile, and on the other, the need to look for alternatives for the graduation process, as an opportunity to earn promotions in their career and continue their academic journey.

The Miscellaneous section includes the article “Validity and reliability in the evaluation of learning through active methodologies”, which introduces the discussion on the validity and reliability of the instruments for the evaluation of learning at the university, showing that one of the key elements for the interpretation of the results of the evaluation constitutes the quality of the instruments used.

Alteridad celebrates 15 years of uninterrupted publication, and it is the result of collaborative work, the support of the Publication Board and the Technical Secretariat of Communication and Culture of Universidad Politécnica Salesiana; the work of the Editorial Board, Scientific Board, thematic co-editors, international co-editors, International Board of Reviewers and Technical Board; and, above all, authors, readers and supporters; all with the intention to contribute to the socialization and debate of the scientific production in the field of Education. Congratulations to all of you.

In this journey, quality has increased thanks to the scientific community, its ethics and commitment, the editorial management, the rigor of the process, originality and relevance, visibility and access, and the impact and prestige. The commitment of *Alteridad* to our authors and readers implies to continue presenting monographs of educational research, and increasing the quality according to the indicated criteria.

You are invited to submit your manuscripts to be arbitrated in *Alteridad*. Calls are open for the following numbers: Learning-service as a cooperation strategy and social educational training (Vol. 16 No. 1; January-June 2021); Educational evaluation as an indispensable process for institutional and pedagogical improvement: Possibilities and limitations (Vol. 16 No. 2; July-December 2021).



Monografic section

(Sección Monográfica)

Active methodologies for teaching,
assesment and learning: Classroom-based
educational innovation

*“Metodologías activas para la enseñanza,
la evaluación y el aprendizaje: Innovación en el aula”*



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Review of methodological proposals: A categorical grouping taxonomy

Revisión de propuestas metodológicas: Una taxonomía de agrupación categórica

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Received: 2020-01-17 / **Revised:** 2020-05-26 / **Accepted:** 2020-06-05 / **Published:** 2020-07-01

Abstract

Currently, there is no taxonomy linked to the methodology that groups different methodological elements based on both their active and instructive nature and the educational stage where they are best suited in terms of use. Hence, the objective of this research was to establish a taxonomy taking into account 76 resources, strategies, techniques and teaching methods obtained after a review of the main national and international literature. In order to establish the taxonomy, the EVEMDT scale was developed and validated through the expert judgment procedure. The EVEMDT scale was administered to a panel of 30 experts who attended a training seminar conducted by the researchers, to assess both the instructive or active nature and the 76 methodological elements adaptation to the educational stage. Results shows a taxonomy composed of 25 and 51 didactic resources, didactic strategies, didactic techniques and didactic methods respectively, also classified according to the educational stage where they are best suited in terms of use. It was concluded that taxonomies to compare the results are reduced, so that this taxonomy could be a reference for teachers when deciding what resources, strategies, techniques and teaching methods to use depending both the students' educational stage and the role they want to give them in their learning processes.

Keywords: Teaching methods, taxonomy, methodologies, active education, traditional education, learning approaches.

Resumen

Actualmente, no existe ninguna taxonomía vinculada a la metodología que agrupe diferentes elementos metodológicos en función del carácter activo e instructivo de los mismos y de la etapa educativa a la que mejor se adecúen en términos de utilización. Por ello, el objetivo de esta investigación fue establecer una taxonomía considerando 76 recursos, estrategias, técnicas y métodos didácticos obtenidos tras una revisión de la principal literatura nacional e internacional. Para establecer la taxonomía, se elaboró y validó por medio del procedimiento de juicio de expertos la escala EVEMDT. La misma, fue administrada a un panel de 30 expertos quienes asistieron a un seminario de formación impartido por los investigadores, para valorar el carácter instructivo o activo y la adecuación a la etapa educativa de los 76 elementos metodológicos. Los resultados permitieron establecer una taxonomía donde aparecen 25 y 51 recursos, estrategias, técnicas y métodos didácticos instructivos y activos respectivamente, clasificados también en función de la etapa educativa a la que mejor se adapten en términos de utilización. Se concluye que, las taxonomías con las que comparar los resultados son escasas, aspecto que permite a esta ser un referente para los docentes a la hora de decidir qué recursos, estrategias, técnicas y métodos didácticos utilizar en función de la etapa educativa en la que se ubique el alumnado y el papel que quieran dotarle en sus procesos de aprendizaje.

Descriptores: Métodos de enseñanza, taxonomía, metodologías, educación activa, educación tradicional, enfoques educativos.

1. Introduction and state-of-the-art

The teaching methodology along with the school organization and educational evaluation are one of the most relevant elements of educational didactics and have an essential role in the teaching practice (Canton & Pino, 2014; Fernández-Balboa, 2003; López-Pastor, 2009; Marina et al., 2015), however, despite this relevance, it is complex to find a clear, comprehensive and unified methodological classification.

This problem arises because each author draws up his/her list of teaching methods based on the experience and knowledge, without taking into account the works carried out by other authors;

also because each author uses different terminologies to refer to similar methods and because there is a great dispersion when listing different teaching methods (Alcoba, 2010, 2012).

In addition, authors such as Alcoba (2012), Palomares (2011) and Zemelman et al. (2005), state that the terminology linked to the teaching methodology is excessively cryptic, which results in terms such as model, method, technique, strategy and resource being used as synonyms in many cases. This aspect generates a great terminological confusion in the educational community, in this way, in order to try to clarify it, a definition of each of the elements has been established in Table 1, relating an example linked to educational practice.

Table 1. Conceptual delimitation and exemplifications

Didactic method	Didactic method	Didactic strategy/ technique	Didactic resources
Educational components based on an educational theory that allows to determine the purposes, methods and resources to be used, as well as the organization and evaluation to be implemented during the teaching-learning process (Zemelman et al., 2005).	A set of actions that a teacher uses in order to achieve educational objectives, which makes sense as a whole and that responds to a name accepted by the scientific community (Alcoba, 2012).	Concretions based on a didactic method, organized and planned by the teacher; these aim to construct learning through activities and tasks in which they are integrated.(Alcoba, 2012).	Set of tangible or intangible elements, which students and/or teachers use as support and/or complement in their teaching and learning processes. (Díaz-Lucea, 1996).
Example	Example	Example	Example
Active model	Cooperative learning	Round Robin	Paper, pen, timer.

Source: Own elaboration

If we add to the above problems the creation of new methodological approaches as a result of the innovative excitement of many teachers (Pérez-Pueyo & Hortigüela, 2020) in the era of social networks, then it generates the perfect moment that makes it complex to classify them. Therefore, in this study, the aim is to establish a classification taxonomy of the main teaching resources, strategies, techniques and teaching methods based on 3 criteria: (1) active-instructive character, (2) typology (teach-

ing resource, strategy/technique and/or teaching method and (3) adequacy in terms of use in one or more educational stages (Childhood and Primary, Secondary and High School, Higher Education and all educational stages).

In this way, the teaching methods with an active character linked to criterion 1 are defined as: "Those methods, techniques and strategies used by the teacher to make the teaching-learning process into activities that promote the active participation of the student" (Andreu-Andrés



& Labrador-Piquer, 2011, p. 6). In this way, the use of these methodologies generates the teacher to take on the role of facilitator or guide of the student's learning. This aspect allows the students' prominence, giving them greater motivation, participation, cooperation, autonomy and self-regulation (Tourón & Santiago, 2015). As opposed to the active methods, the teaching methods with a traditional and instructional vision appear, which are defined as: "Those methods, techniques and strategies that seek the conceptual learning of the student, through the instruction of the teacher and the reception of the students" (Toro Arguis, 2015, p. 4).

To establish taxonomy, a bibliographic review was carried out in the databases Scopus, Web of Science, Dialnet, ERIC and Education Data. The review enabled the following 76 resources, strategies, techniques and teaching methods: Master lesson, participatory master lesson, self-regulation of learning, Work by corners, assembly, project-based activities, learning by simulation, problem-based learning, thought-based learning, learning communities, Flipped classroom, learning by portfolio, centers of interest, Reggio Emilia method, Montessori method, Waldorf method, workshops, total physical response (TPR), Pikler method, Aucouturier method, discovery learning, guided discovery, educational coaching, intelligence bits, cooperative learning, motor wedges or active breaks, self-regulated strategy development (SRSD), learning through discussion groups, case study, Inquiry-based learning, observation learning, mobile learning, CLIL methodology, attitudinal style, teaching contracts, mindfulness, Kolb cycle, learning by graphic organizers, use of the scientific method, interactive groups, open calculation based on number (ABN), e-learning, gamification, learning service, subject-subject tutoring or peer mentoring, learning by discussion or debate, just-in-time teaching, method of preparation and pre-study by automatic online evaluation (PEPEOLA), Amara Berri system, RULER method for emotional development, peer learning, virtual learning, Singapore method, meaningful learning,

teach method, phonics method, neurolinguistics programming (PNL), intelligent comprehension projects, learning through virtual or augmented reality (VR and AR), learning through discussion forums, cognitive modeling, cognitive shaping, systemic pedagogy, learning through copying, learning through dictation, learning through text readings, learning through video tutorials, learning landscapes, chroma key learning, learning via webquest, learning through social networks, game-based learning, challenge-based learning, scape room and educational break out and Kunsapsskolan (Andreu-Andrés & Labrador-Piquer, 2011, Blackshields et al., 2016; Blanchard & Muzás, 2016; Bournier, 1997; De Miguel, 2009; Educacyl, 2019; Hernández & Guárate, 2017; Luelmo, 2018; Nieto & Alfageme-González, 2017; Navaridas, 2004; Paños, 2017; Prieto et al., 2014; Rodríguez-García & Arias-Gago, 2019).

It was also necessary to consider the characteristics that make a methodology active since these served to establish the evaluation dimensions of the scale that allowed the taxonomy to be carried out. Thus, taking into consideration Borko et al. (2010), Crisol (2012), De Miguel (2009), Fernández-March (2006), Gil (2014), Palma et al. (2017), Palomares (2011), Rodríguez-García and Arias-Gago (2019), Silva and Maturana (2017), Toro and Arguis (2015), Vallejo and Molina (2011) and Zabalza (2003), it could be synthesized that the characteristics that cause a methodological approach to be active are the following: It must be based on the interests, needs and motivations of the students; students must learn by doing and by practicing in contextualized situations; it has to generate intrinsic motivation towards learning; creativity, criticism and a sense of initiative and entrepreneurial spirit should be promoted; should develop interpersonal relationships and the social insertion of students through cooperative and collaborative work; should be associated with a comprehensive and authentic evaluation with the characteristics of the student; it must be a means for students to achieve intellectual and moral autonomy; it has to be based on generating glo-



balized topics adapted to the interests of students; it needs to have a flexible organization of spaces, clusters and times; should be based on the collaboration and cooperation of students through the creation of heterogeneous groups; ICT must be used to generate integrated and motivating learning in students; the teacher has to act as a guide and facilitator of the learning process; it has to involve all members of the educational community (family, students, teachers and institutions); it has to be implemented with activities and tasks located in the area of development of the students; it must attend to the diversity of the students, allowing individualized and inclusive teaching with all the students; and it should encourage logical learning, the development of deductive hypothetical thinking, problem solving in contextualized situations, and critical thinking.

Therefore, considering the resources, strategies, techniques and methods, the characteristics presented and the educational stages, a valuation scale was created and applied to a number of experts with the aim of establishing a taxonomy based on objective criteria defining resources, strategies, techniques and teaching methods according to the active and instructive nature and to the adequacy in terms of use to one or more educational stages.

2. Methodology

2.1. Research design

A qualitative-quantitative mixed research design has been used, in which the integrative review method was initially used. According to Guirao (2015), it is characterized in establishing a synthesis on theoretical, methodological knowledge or research carried out in order to outline a theoretical construction and /or conclusion on a specific subject. The review was carried out on the Scopus, Web of Science and Dialnet multidisciplinary databases, focusing the search on educational areas. The ERIC and Education databases were also used, which are specifically linked

to the educational field. These databases were selected for integrating repositories, electronic bookstores and national and international high-impact Journals. Also, because they are available in the database catalog of the Universidad de León (Spain) (affiliation of the authors).

The review allowed to delimit 124 bibliographic sources that, after a review and analysis process, resulted in the obtaining of 76 resources, strategies, techniques and teaching methods. The main criterion of inclusion in the list resulted in each proposal or methodological element being cited, at least, in 3 different bibliographic sources.

Subsequently, using the information obtained from the integrative review, the scale for the assessment of cross-cutting teaching methodological approaches (EVEMDT) was developed, in which 76 resources, strategies, techniques and teaching methods have been included.

Once done the elaboration and validation of this scale, the other part was the *ex post-facto* quantitative research design (Colás et al., 2009), where the scale was applied to a panel of experts in active teaching service with extensive knowledge in the subject of teaching methods to establish the taxonomy on didactic methodology.

2.2. Participants

The sample consisted of a panel of 30 ($n=30$) professors who are experts in teaching methodologies and who were applied the EVEMDT scale. Out of these 30 participants, 22 ($n=22$) were active teachers who were pursuing the Master's Degree in Research in Psychology and Educational Sciences at Universidad de León and who attended as part of the planning of one of the subjects of the aforementioned Master's Degree to a 20-hour theoretical-practical seminar where the researchers instructed them on the 76 resources, strategies, techniques and teaching methods and, in addition, they developed a theoretical-practical work.

Other components of the panel of experts were doctors in Education and professors-doctors



of Universidad de León with extensive knowledge on the subject and who were instructed on the most uncommon approaches (n=4); also educational counselors graduated in pedagogy, who currently work in the Autonomous Community of Castile and León (n=2), who were also instructed on unknown approaches; finally, the study's own researchers (n=2), who also carried out the assessment using the scale and were responsible for instructing the expert panel.

The fact of being in active teaching service and coursing a master's and/or doctoral studies in the field of Education Sciences, as well as attending the theoretical-practical seminar on teaching methods, are the criteria that have been taken into account to consider participants as experts in the field.

2.3. Instrument

To establish the taxonomy, the EVEDMT scale was designed and developed *ad-hoc* to assess and classify the 76 selected resources, strategies, techniques and teaching methods. This procedure

was followed for the development and design of the scale:

Previous analysis of the literature: An integrative review was implemented with which the 76 elements cited were selected. This revision also served to set up the scale valuation dimensions.

Development of the EVEDMT scale: The scale was designed by specifying, drafting and sorting the 20 dimensions of the scale to which the 76 methodological approaches were associated (Table 2). Each dimension in each methodological approach was valued with a scale of 0 to 4 points, where 0 corresponds to the non-tenure of a characteristic and 4 with the maximum tenure. In turn, each resource, strategy, technique and method was associated with the educational stage(s) with which they are adapted in terms of use. For this purpose, each participant associated each element with one or more stages. In this sense, the categories linked to the educational stages were: 1. Childhood and Primary Education, 2. Secondary Education and High School, 3. Higher Education, 4. All educational stages.

Table 2. Indicators used for the taxonomy development

The methodological approach....	
1.	Is based on the interests of the student.
2.	Generates contextualized learning.
3.	Generates intrinsic motivation.
4.	Develops student creativity, critical thinking and entrepreneurship.
5.	Socially develops the student.
6.	Provides authentic and comprehensive evaluation.
7.	Develops autonomy and self-regulation.
8.	Is based on generator and globalized topics.
9.	Requires flexible organization of spaces, times and groupings.
10.	Requires collaborative work.
11.	Requires the use of ICTs.
12.	The teacher acts as a guide and learning facilitator.
13.	Involves the entire educational community.
14.	Requires exercises, activities, tasks, problems and projects that are located in the students' next development zone.
15.	It addresses the diversity of the students and promotes the individualization of the teaching process.
16.	Promotes the inclusion of students.
17.	Develops hypothetical-deductive thinking and abstraction.
18.	Develops the competence of the student.
19.	Develops the student's communication and language.
20.	Is based on real-world problem situations that encourage the practice of integrated situations

Source: Own elaboration



Scale validation: The expert trial procedure was used. For the validation of content, 5 experts intervened out of which 2 were professors-doctors of Universidad de León and experts in the field; 2 others were active educational counselors in the Autonomous Community of Castile and León; and the other advisor to the Center for Teacher Training and Educational Innovation of the City of León.

Determination of questionnaire reliability: Cronbach's Alpha procedure was used. The reliability of the scale was high with a value of .85, obtaining a $r=.856$ for the items, which surpasses, according to Castañeda et al. (2010), the lower limit considered to be reliable.

Final drafting of the EVEDMT scale: The scale was finally composed of 20 dimensions to be assessed in each of the 76 methodological approaches selected as a result of appearing in at least 3 sources of the revision. In addition, each element had to be integrated into the educational stage(s) that best suits in terms of use.

For the assessment of the methodological elements, once the scale has been completed for each of the participants, a system of categories was designed exhaustively and mutually exclusive (Table 3), with which to assess the active or instructive nature of each methodological approach.

Table 3. Comprehensive and mutually exclusive category system

Category	Scores
Resources, strategies, techniques and instructional methods	0-2
Resources, strategies, techniques and active methods	2,0001-4

Source: Own elaboration

For its part, to associate each resource, strategy, technique and method with a specific educational stage, it was established that, at least, there should be a minimum frequency of 10 selections; in this way, the bias that can be caused when a methodological element generates doubts in the participants when it is classified is reduced.

2.4. Statistical analysis

It was performed with version 26 of the SPSS program, considering the criteria of Tejedor and García-Valcarcel (2012) and implementing the following analyses:

Analysis of average and frequency values: The average values were used to establish the active or instructive character of the 76 methodological elements integrated into the scale depending on the established category system. In turn, frequencies were used to classify the 76

methodological elements into one or more educational stages.

3. Results

3.1. Teaching resources, strategies, techniques and instructional methods

The resulting classification after the valuation by the selected panel of experts is presented in Table 4, in which are shown from the highest to the lowest the instructional character, the different resources, strategies, techniques and methods selected in the review carried out. In this regard, the number of instructive methodological elements amounts to 25, a significantly lower number than the active elements that is composed of 51. In the classification, the type to which they belong (method, Technique/strategy



and resource) has also been assessed as well as the educational stage to which they best suit in terms of their use.

In this way, in the stages of Early Childhood and Primary Education, the resulting instructional methods ordered according to the greatest instructive character are as follows: Total Physical response $\bar{x}=1.2$, Phonics $\bar{x}=1.25$, Teacch Method $\bar{x}=1.45$, strategic and self-regulated instruction method for writing learning (SRSD) $\bar{x}=1.6$, and CLIL method $\bar{x}=1.65$. For its part, the strategy/technique that appears in the stages of Early Childhood and Primary Education is the intelligence bits $\bar{x}=0.85$.

In Elementary and High School, the methods that appear are the following: Phonics $\bar{x}=1.25$, educational coaching $\bar{x}=1.5$, and CLIL method $\bar{x}=1.65$. Both educational coaching and the CLIL method are also suited to Higher Education and the Elementary and High School stages, respectively.

At the level of Higher or University Education, the only method that has been clas-

sified as instructive is the educational coaching $\bar{x}=1.5$, the use of which is also suited to the stages of Elementary and High School.

For its part, there are various methods, techniques/strategies and teaching resources that are adapted in terms of their use to all the above stages. In this way, the resulting methods are as follows: Master lesson $\bar{x}=0.5$, participatory master lesson $\bar{x}=0.6$, observation learning $\bar{x}=1$, Mindfulness $\bar{x}=1.45$, Kolb Cycle $\bar{x}=1.75$, and e-learning $\bar{x}=1.8$. In turn, the strategies/techniques integrated into the taxonomy are as follows: Learning through copying $\bar{x}=0.4$, learning through $\bar{x}=0.45$, teaching contracts $\bar{x}=0.7$, modeling $\bar{x}=0.75$, molded $\bar{x}=0.8$, learning using readings $\bar{x}=0.9$, video-tutorial learning $\bar{x}=1.35$, discussion groups $\bar{x}=1.65$, and learning landscapes $\bar{x}=1.95$. Finally, teaching resources such as the graphic organizers $\bar{x}=1.35$, the portfolio $\bar{x}=1.4$ and the discussion forums $\bar{x}=1.9$, are also adapted to all educational stages.



Table 4. Classification of instructional methods, techniques, strategies and teaching resources

Didactic resources, strategies, techniques and instructional methods (\bar{x} =0-2)																					
N°	Nomenclature	\bar{x}	Type				Educative phase				N°	Nomenclature	\bar{x}	Type				Educative phase			
			1	2	3	4	1	2	3	4				1	2	3	4	1	2	3	4
1	Learning through copying	.4		x						x	14	Video-tutorial learning	1.35		x						x
2	Learning through dictation	.45		x						x	15	Portfolio	1.4			x					x
3	Master class	.5									16	Mindfulness	1.45	x							x
4	Participative master class	.6	x								17	Teach method	1.45	x				x			
5	Teaching contracts	.7									18	Educative coaching	1.5	x					x		
6	Modeling	.75		x							19	SRSD method	1.6	x				x			
7	Molded	.8		x							20	Discussion groups	1.65			x					x
8	Intelligence Bits	.85		x					x		21	CLIL method	1.65	x				x	x		
9	Learning using readings	.9									22	Kolb cycle	1.75	x							x
10	Observation learning	1	x								23	E-learning	1.8	x							x
11	Total physical response	1.2	x						x		24	forum-based learning	1.9				x				x
12	Phonics	1.25	x						x	x	25	Landscape learning	1.95								x
13	Learning using graphic organizers	1.35																			

Notae. Type: 1. Method, 2. Technique/strategy, 3. Resource. Educative phase: 1. Kindergarten and Primary, 2. Elementary and High School, 3. Higher Education, 4. All phases

Source: Own elaboration



3.2. Teaching resources, strategies, techniques and active methods

As in the previous section, Table 5 explains the classification carried out by the panel of experts in which are located from the highest to the lowest active character the different resources, strategies/techniques and methods selected in the review carried out. In this classification, the number of elements included is significantly higher than in the previous case (51 to 25).

Continuing the grouping carried out in the stages of Early Childhood and Primary Education, have been included the following methods in function of the highest to the lowest of the active character: Amara Berri $\bar{x}=3.7$, Kunskapsskolan $\bar{x}=3.65$, Montessori method $\bar{x}=3.6$, Reggio Emilia $\bar{x}=3.4$, learning communities $\bar{x}=3.2$, Aucouturier method $\bar{x}=3.15$, Pikler method $\bar{x}=3.15$, intelligent understanding projects $\bar{x}=3.05$, open calculation based on number (ABN) $\bar{x}=2.95$, Singapore method $\bar{x}=2.9$, Waldorf method $\bar{x}=2.85$, guided discovery $\bar{x}=2.8$, areas or group work $\bar{x}=2.75$, Ruler method $\bar{x}=2.6$, assembly $\bar{x}=2.5$, systemic pedagogy $\bar{x}=2.4$, and neuro-linguistic programming (PNL) $\bar{x}=2.35$.

In Elementary and High School stages, the methods included are the following: Learning communities $\bar{x}=3.2$, intelligent understanding projects $\bar{x}=3.05$, mobile learning $\bar{x}=2.7$, systemic pedagogy $\bar{x}=2.4$, just in time teaching $\bar{x}=2.4$, method of preparation and pre-study by automatic on-line evaluation (PEPEOLA) $\bar{x}=2.15$ and virtual learning $\bar{x}=2.05$. In turn, the strategies/techniques integrated into the taxonomy were: Learning through social networks $\bar{x}=2.68$ and tutoring between peers $\bar{x}=2.1$.

In Higher Education or University, the methods included that were consistent with those of the Elementary and High School are: Mobile learning $\bar{x}=2.7$, just in time teaching $\bar{x}=2.4$, method of preparation and pre-study by automatic online evaluation (PEPEOLA) $\bar{x}=2.15$ and virtual learning $\bar{x}=2.05$. Additionally, the strategies/integrated are equal to Elementary and High School.

As in the previous case, there are various methods, strategies, techniques and teaching resources that are adapted and can be used in all educational stages mentioned. In this way, the methods integrated into this category are as follows: Project-based learning $\bar{x}=3.7$, Cooperative learning $\bar{x}=3.35$, problem-based learning $\bar{x}=3.3$, challenge-based learning $\bar{x}=3.25$, service learning $\bar{x}=3.25$, gamification $\bar{x}=3.25$, attitudinal style $\bar{x}=3.2$, case study $\bar{x}=3.1$, game-based learning $\bar{x}=3$, Centers of interest $\bar{x}=2.9$, Peer Learning $\bar{x}=2.85$, Self-Regulation of Learning $\bar{x}=2.82$, Discovery Learning $\bar{x}=2.8$, Workshops $\bar{x}=2.7$, Flipped classroom $\bar{x}=2.75$, inquiry learning $\bar{x}=2.65$, meaningful learning $\bar{x}=2.55$, and thought-based learning $\bar{x}=2.55$. In turn, the strategies/techniques integrated into the taxonomy according to their adequacy and use in all educational stages are: Escape room and educational break out $\bar{x}=3.35$, interactive groups $\bar{x}=3.1$, learning using virtual reality and augmented reality (VR and AR) $\bar{x}=3.05$, use of the scientific method $\bar{x}=2.7$, simulation $\bar{x}=2.65$, learning by debate $\bar{x}=2.6$ and motor wedges or active breaks $\bar{x}=2.1$. Finally, teaching resources such as webquest $\bar{x}=2.65$, learning via videos and movies $\bar{x}=2.45$, and learning using chroma Key $\bar{x}=2.25$, are adapted and used in all educational stages.



Table 5. Classification of active methods, strategies, techniques and teaching resources

Didactic resources, strategies, techniques and instructional methods ($\bar{x}=2.0001-4$)																				
Nº	Nomenclature	\bar{x}	Type		Educative phase				Nº	Nomenclature	\bar{x}	Type		Educative phase						
			1	2	3	1	2	3				4	1	2	3	1	2	3	4	
1	Project-based learning	3.7	x						x	27	Discovery learning	2.8	x							x
2	Amara Berri System	3.7	x					x		28	Guided discovery	2.8	x				x			
3	Kunskapsskolan	3.65	x					x		29	Workshops	2.78	x							x
4	Montessori method	3.6	x					x		30	Flipped classroom	2.75	x							x
5	Reggio Emilia	3.4	x					x		31	Work by corners	2.75	x				x			
6	Escape Room and Breakout	3.35		x					x	32	Mobile learning	2.7	x					x	x	
7	Cooperative learning	3.35	x						x	33	Scientific method	2.7		x						x
8	Problem-based learning	3.3	x						x	34	Social network learning	2.68			x			x	x	
9	Challenge-based learning	3.25	x						x	35	Inquiry based learning	2.65	x							x
10	Service learning	3.25	x						x	36	Simulation	2.65		x						x
11	Gamification	3.25	x						x	37	Webquest learning	2.65				x				x
12	Learning communities	3.2	x					x		38	Ruler method	2.6		x			x			
13	Attitudinal style	3.2	x						x	39	Debate-based learning	2.6			x					x
14	Aucouturier method	3.15	x					x		40	Significant learning	2.55	x							x
15	Pikler method	3.15	x					x		41	Thought-based learning	2.55	x							x
16	Interactive groups	3.1		x					x	42	Assembly	2.5		x				x		
17	Case studies	3.1		x						43	Learning using videos and films	2.45					x			x
18	VR and AR learning	3.05							x	44	Systemic pedagogy	2.4		x				x	x	



Didactic resources, strategies, techniques and instructional methods ($\bar{x}=2.0001-4$)																			
N°	Nomenclature	\bar{x}	Type			Educative phase				N°	Nomenclature	\bar{x}	Type			Educative phase			
			1	2	3	1	2	3	4				1	2	3	1	2	3	4
19	Intelligent under-standing projects	3.05	x			x	x			45	Just in time teaching	2.4	x				x	x	
20	Game-based learning	3	x						x	46	Neurolinguistic programming	2.35	x			x			
21	ABN	2.95	x				x			47	Chroma key learning	2.25			x				x
22	Interest centers	2.9	x						x	48	PEPEOLA learning	2.15	x				x	x	
23	Singapore method	2.9	x				x			49	Peer mentoring	2.1		x			x	x	
24	Peer learning	2,85	x						x	50	Active breaks	2.1		x					x
25	Waldorf method	2.85	x						x										
26	Self-regulation	2.82	x							51	Virtual learning	2.05	x				x	x	

Note. Type: 1. Method, 2. Technique/strategy, 3. Resources; educative phase. 1. Kindergarten and Primary, 2. Elementary and High School, 3. Higher Education 4. All the phases

Source: Own elaboration.



4. Discussion and conclusions

The study has assessed and classified a total of 76 resources, techniques, strategies and teaching methods, which have been selected after carrying out an integrative review process in the explicit databases. In this sense, it should be mentioned that no taxonomy has been found in the literature where different elements are classified in an eclectic way according to their active and instructive nature and depending on the educational stage(s) to which they best suit in terms of their use. In this sense, these focus on a specific stage or discipline. A clear example of the above is the classification established by Delgado (1991) in the field of physical education, where 6 classification groups of teaching styles are established: (1) traditional, (2) individual, (3) participatory, (4) socializers, (5) cognitive and (6) creative; in which different teaching styles are integrated according to criteria such as the attitude adopted by the teachers, the direction and organization of the class, the control of the teacher and the content and planning of the study among others. It should be mentioned that, in this classification, the taxonomy is carried out only with the analysis established by the author.

In the same field of physical education and more recently, it is noteworthy the classification of pedagogical models linked to Physical Education, in which 2 large classification groups similar to this taxonomy are established to integrate the different pedagogical models – consolidated pedagogical models and emerging models – (Fernández-Rio et al., 2018).

On the other hand, it is noteworthy the classification of university methodological approaches developed by Alcoba (2012) and Bourner (1997), in which, similar to our study, after following a bibliographic review and a panel procedure of experts, a total of 22 and 52 main methodological approaches were established respectively, although these were not classified into categories.

In parallel with the previous case, Navaridas (2004) establishes 4 classification groups of techniques, strategies, methods, models and teaching styles: (1) traditional methods, (2) cognitive-behavioral methods, (3) metacognitive methods and (4) support methods.

For its part, the classifications established by Borko et al. (2010) and OCDE (2016), present more similarities with this research. The first establishes 2 teaching method classification groups: (1) traditional approaches and (2) modern or contemporary approaches; and the second classifies various teaching methods according to the categories of guided learning, active learning and cognitive activation.

There are numerous empirical studies in which various methodological approaches are used as a dependent variable, where the criteria for their inclusion are not exhaustively delimited, although they have still served to establish this taxonomy (Crisol, 2012; Rodríguez-García & Arias-Gago, 2019). There are also other related to constructions and theoretical revisions that have also been considered (De Miguel, 2009; Nieto & Alfageme-González, 2017; Paños, 2017; Prieto et al., 2014; Silva & Maturana, 2017; Toro & Arguis, 2015).

To conclude, the established results materialized in an empirical taxonomy elaborated with the help of an expert group and applied at *ad hoc* scale have allowed to classify 76 resources, strategies, techniques and teaching methods in an eclectic way, according to their instructive or active nature and depending on the teaching stage to which they are best suited and adapted in terms of their use (Tables 4 and 5). Therefore, this taxonomy — the only one in the literature that considers the criteria mentioned — can help teachers in knowing and deciding which methods are more appropriate to implement based on the educational stage, the role they want to take in their teaching processes, and the role they want to give to their students in their learning processes—active or instructive). All these implications become more relevant due to the terminological complexity of this field of



didactics and the cryptic nature of the different concepts, which were clarified in the introduction of the paper to facilitate the understanding and allow the progress in this essential aspect of the teaching role.

Despite these implications, the research has a number of limitations: The first relates to the fact that this publication could not detail in depth the review established to select the 76 methodological elements of the taxonomy. In this sense, the aforementioned limitation opens a new line of research focused on the elaboration of a publication detailing the revision implemented. The second limitation relates to the low conceptual delimitation of each of the elements that make up the taxonomy, opening new possible lines of research where, on the one hand, each methodological element is defined in depth and, on the other hand, each method is associated with the related strategies and techniques. The last limitation is linked to the scarcity of national and international literature associated with taxonomies on methodological aspects. This circumstance provides added value to the research and offers teachers a reference in deciding what resources, strategies, techniques and teaching methods to use depending on the role that they want to give to their students and the educational stage in which they are located.

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The student and the active classroom configuration: Itinerary, learning and research

El estudiante y la configuración del aula activa: Itinerario, aprendizajes e investigación

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Received: 2020-01-29 / **Revised:** 2020-05-12 / **Accepted:** 2020-06-03 / **Published:** 2020-07-01

Abstract

To build a learning space in university education, a series of teacher skills is required, as well as active student participation. Innovating and transforming the classroom is complex, because the concurrence of skills among educational agents is necessary. The active classroom requires students to play a leading role in their learning, where the teacher is the mediation strategist. The objective of this article is to share the pedagogical itinerary that a group of students from the Quantitative and Qualitative Research Techniques in Communication course lived, based on consensus with their teacher. The one narrated here, is not properly the result of an academic investigation, but of an exercise of descriptive and purposeful analysis in which the intervention methodology used in the classroom and outside it is addressed, when presenting the pedagogical strategy, the way in which the students participated in the definition of an agenda to address the curricular contents of the second part of their course, corresponding to qualitative research techniques. From the achievements and results obtained by the students, the relevance of involving them as active subjects of their own learning is concluded, by helping to define their educational itinerary, in which virtual platforms, reference sources in multiple formats, the use of software and applications to produce evidence of learning.

Keywords: Learning, research, strategies, teaching, mediation, ICT.

Resumen

Para construir un espacio de aprendizaje en la enseñanza universitaria, se requiere una serie de habilidades del profesor; así como una participación activa del estudiante. Innovar y transformar el aula es complejo, porque son necesarias la concurrencia de competencias entre los agentes educativos. El aula activa requiere de los estudiantes el protagonismo en su aprendizaje, donde el profesor sea el estratega de la mediación. Es objetivo de este artículo, es compartir el itinerario pedagógico que un grupo de estudiantes del curso *Técnicas de investigación cuantitativa y cualitativa en comunicación* vivió, a partir del consenso con su profesor. Lo aquí narrado, no es propiamente el resultado de una investigación académica, sino de un ejercicio de análisis descriptivo y propositivo en el que sí se aborda la metodología de intervención empleada en el aula y fuera de ella, al presentar la estrategia pedagógica, la forma en que los estudiantes participaron en la definición de una agenda para abordar los contenidos curriculares de la segunda parte de su curso, correspondiente a las técnicas de investigación de corte cualitativo. A partir de los logros y resultados obtenidos por los estudiantes, se concluye la pertinencia de involucrarlos como sujetos activos de su propio aprendizaje, al contribuir en definir su itinerario educativo, en el que se emplearon plataformas virtuales, fuentes de referencia en múltiples formatos, el uso de software y aplicaciones para producir evidencias de aprendizaje.

Descriptores: Enseñanza, investigación, estrategias educativas, docencia, mediación educativa, TIC.

1. Introduction

The narratives that characterize the theoretical properties of the contemporary educational landscape present the role played by educational innovation, highlighting the configuration of educational environments that favor learning-focused teaching. It is said that the professor should assume a new role as facilitator, for which he/she must acquire and develop disciplinary competences, as well as others related to pedagogical and communication (MEN, 2013); which can promote the reinvention of the classroom, based on strategic management that measures the teaching-learning-evaluation process.

In the academic discourse, the reasons and the rationale behind the debates come from the recognition of the challenges posed by the world lived today as the cause of globalization and became the emergence of an education focused on skills development. In this scenario, the need to reform the education promotes curriculum innovation, the change in pedagogical models, provide technological infrastructure for educational institutions, train professors, being demands and commitments of educational institutions.

Proposals for this paradigm shift mostly focus on basic education, leaving the other levels behind, where transformations occur as a result of the situation that entails all transformations into an educational system. At the higher level, the institutions must find the mechanisms to implement the required changes, once education policy and regulatory bodies (national or supranational), have confirmed or promoted the relevance of transforming education to meet the challenges of the professional market.

The aim of this paper is to present an educational itinerary lived by a group of university students who, after a collegiate agreement, defined the agenda to finish a course aimed at learning, acquiring knowledge and skills related to the planning, design and use of qualitative cutting research techniques in the field of communication. In doing so, it is hoped to contribute

to the reflection and analysis that can be drawn to give viability to teaching innovation, based on the configuration of educational environments that seek to improve the learning of young university students based on their expectations, without betraying what should be promoted in the curriculum to contribute to the disciplinary profile of those who are about to graduate.

2. The theoretical dimension of the topic

Revising the specialized literature allows to understand that a theoretical frame has been created in the field of educational innovation, intertwining narratives ranging from the beginning of the twentieth century to the thresholds of the 21st century, which is a timeline that allows to recognize authors who have contributed to contemporary education: From Vygotsky (1896-1934) to Bandura (1925-), Piaget (1896-1980) to Morin (1921-), from Bruner (1915-2016) to Maturana (1928-) and Varela (1946-2001), epistemologists, theorists, scientists who have helped define educational paradigms with their contributions.

If the sociological and anthropological aspects are added to this, one has the possibility of understanding the arduous and complex paths of the professor, who has the dilemma of training a generation of students who - not always - find in their professor the authority role; an additional problem to the professor is the role of mobile devices today and, specifically, social networks that seem to recreate the social life, link and represent the world they inhabit.

University students have been a user profile that makes teaching difficult if —as they say— the attention in a classroom has been significantly reduced because of video games, new media consumption experiences on *streaming* platforms; extreme confidence in influencers and youtubers, dangerous humorous reductionism represented by memes, all this being a type of communication that privileges instant messaging and social media over other communicative practices.



While it is unquestionable to accept that thanks to mobile technology, there is greater access to diverse content, because as UNESCO points out, even though cell phones are almost always used to communicate, “they are also, and increasingly— a gateway to large texts” (2015, p. 13), reducing their costs when compared to printed editions; while acknowledging that a cell phone easily reaches remote places where a book hardly does (UNESCO, 2015). However, this condition is linked to variables such as the type of technology available, access to the Internet, as well as the education of users and their conditions for searching and downloading digital content; which does not prevent the understanding that: “The use of mobile devices in education is a fundamental element in the construction of knowledge, since the possibilities of interacting are increased, and communication is improved” (Elguea, 2014, p. 7), favoring the breaking of barriers between teachers and students.

The information and knowledge society (IKS) distinguishes for the same reason; which does not prevent us from accepting that in the classroom, technology can be a driver and can hinder the attention of university students. While as Alonso states (2017), that there are no studies that certainly demonstrate student’s attention times, it can be accepted that it is usually less than that of other times.

There are experiences such as those in France, where the 2018 school law banned the use of cell phones in schools at the upper middle and middle level (between 15 and 18 years of age), a law that confronted detractors and advocates of this initiative, the latter being the ones who claimed that “the use of telephones has a negative impact in the attention of the class, the school environment and reduces physical activity in the courtyards” (AFP, 2018 para. 5). In any case, access to technology— as always, is complex, and the truth is that ICTs are sociocognitive extensions, so it is necessary to continue thinking about their place in an educational context.

Additionally, the consumption and the ephemeral (Lipovetsky, 1996, 2007; Lipovetsky & Serroy, 2015), often forces the professor to design a learning environment: College students assume the here and now as a vital, almost unique condition, rather than thinking about their professional future, so it is often common in university classrooms to see habits of the disinterest and disorganization typical of a generation of students.

This psychosocial dimension becomes complex when in classrooms a high percentage of university students stop taking notes and show inability to use resources learned in middle education, such as: Conceptual maps, synoptic tables, schemes, among others; not to mention that the work in the classroom can wait a few minutes in its beginning, until the professor establishes the criteria for the use or not of the cell phone in the class, because it is hardly the young person’s will to stop using it.

Communication and pedagogical management play an important role in that moment, being resources that a university professor must use when his or her presence does not necessarily guarantee a status of authority. These two resources are important in teaching, when they are understood as competences that characterize the professor of the XXI century. Alongside this, the understanding to recognize that the variables previously described in relation to young people are part of the identities and properties that define the university student.

The new teaching skills combine disciplinary knowledge that allow it to be enabled and know how they can be used to design strategies that measure the student learning; these are “knowledge, skills and attitudes” to facilitate the student learning, to “design work plans, recognize the characteristics of students, innovate in their practice, evaluate teaching and learning processes, and build learning environments” (SEP, 2017, p. 202). In this regard to these competencies, León-Rodríguez states that “the new role of the professor requires new functions such as being a guide and facilitator of resources for



the education of students participating in their Own learning process”, where the work he/she does as a facilitator implies “a wide range of information and communication tools currently available and increasing” (2017, p. 30).

In this context, communication is a competence that “assumes the knowledge of the language system and verbal and non-verbal codes and the adequacy of linguistic action to different contexts and communicative situations” (Angulo-Marcial, 2017, p. 92); so in the classroom, the professor must make use the oral and written registers to inform, but also to interact, to nuance what is communicated from the recognition of sociolinguistic heterogeneity that distinguishes students, not only because of their codes used, but also because of the multiple intelligences, the different learning styles, the diverse and asymmetrical that distinguishes university students in the cognitive field.

Behold, the work of pedagogical management can be as arduous or difficult as the attributes that distinguish the teaching practices, because this student heterogeneity is among the professors. For this reason, it is said that a university professor must also incorporate research into the teaching work, to promote a better understanding of those problems typical of education, sometimes circumscribed, but in others overwhelmed by multi realities, as they may be social, economic, cultural, even historical.

The importance of developing digital skills among students as well as in professors is considered. Starting from the understanding that, as social subjects, both have incorporated technologies into their life, enabling their daily use, not guaranteeing that such skill, facilitates their educational use. Hence, educational institutions must contribute to the development and underpinning of skills and knowledge related to information and communication technologies (ICTs).

Updating or training professors in the educational use of ICTs, enabling them in the digital resources, in the production of teaching materials that allow them to diversify their methodologies or teaching strategies, is not always easy but cer-

tainly necessary; challenge that universities face, understanding fears, uncertainties, anxieties, or inability that are often seen when taking or teaching ICT training courses in teaching.¹

In narratives for educational innovation and the transformation of teaching at the higher level, a series of premises are promoted that seek to understand and implement changes in the ways of conceiving teaching itself. Pedagogical knowledge is incorporated, favoring the disciplinary content, competences that facilitate the implementation of learning environments that make the classroom a dialogical and open space.

When talking about teaching in the context of educational innovation as the use of ICT, one can talk about the development of a set of technological and communicative skills; pedagogical skills and a management ability to complement them with investigative competence. Authors like Sunkel et al. (2014); Torres Rivera et al. (2014); Pozos-Pérez and Tejeda-Fernández (2018), and bodies or agencies such as ANUIES (2019), for the case of higher education in Mexico or the Colombian Ministry of National Education (MEN), when talking about skills technologies, relate them to “select and use in a relevant, responsible and efficient way a variety of technological tools understanding the principles that govern them” (2013, p. 31). The communicative field conceives them to “the ability to express, contact and relate in virtual and audiovisual spaces through various means and with the management of multiple languages, synchronously and asynchronously” (2013, p. 32); therefore, the professors are asked to be trained to incorporate technologies into their teaching processes to promote the integral training of students, as well as “their Own professional development” (2013, p. 32).

It is interesting the place of pedagogical management by focusing on the ability of professors to use ITCs in the process of “planning, organization, administration and evaluation” of the teaching-learning process, “both at the level of pedagogical practices and institutional development” (2013, p. 33). Finally, it is said that



“Research can be thoughtful by researching the same practices through the observation and systematized recording of experience to self-assess and propose new strategies” (MEN, 2013, p. 33), competence which, together with the use of ITC, can contribute to the transformation and “generation of new knowledge” (2013, p. 33).

The writer considers that the Colombian body presents a number of relevant or acceptable competences for those who are university professors and have sized the new responsibility of being a professor at the higher level, where disciplinary knowledge is no longer sufficient, but also those that facilitate a more effective mediation of the educational process: Communicative to make the classroom a dialogical space; research to know the objects of study and their forms of methodological approach, where the pedagogical and efficient management would favor the configuration of learning environments.

The university professor must be a manager of educational processes, of curricular content through analog and digital resources that help in the training and preparation of their students; in the acquisition of skills that allow young people to develop knowledge related to their disciplinary field. In this perspective, disciplinary research should be an area in which the university student is also prepared being that, depending on the training discipline, it will be the place the student will work.

In the cross-sectional as in the curriculum, the professor must size his/her role as a facilitator of research powers at the university level. From the transversal point of view, know the properties that an activity must have to conduct the consultation and specialized sources for the elaboration of learning evidence. In the curriculum, to promote a set of knowledge and skills related to the construction of disciplinary study objects.

While there is a lot of literature that can help to understand the methodology of investigative processes (Gil-Villa, 2013; Gobato, 2013; Mendieta-Ramírez, 2015; Serafini, 2019), including articles on teaching research at the university (Saavedra-Cantor et al., 2015; Lorenzo, 2017;

Flores-Osorio, 2018; Böhm-Carrer & Lucero, 2018), professors not always have an investigative experience to translate, deal with theoretical and methodological content that motivate the research spirit in young people, who do not always find meaning in why to learn to research.

This is the disciplinary craft, the pedagogical ability to mediate with multiple resources and teaching materials that allow to recreate — collaboratively — curriculum contents for an active classroom. When talking about a collaborative space, reference is made to a pedagogical intervention where the socio-emotional and practical promotes student-centered teaching, in which the professor implements activities that affect learning, through multiple resources that contribute to cognitive development and the active participation of students, where ICTs can facilitate the appropriation of information and knowledge-achievement through various activities promoted by a professor committed to his/her task.

The experience of a pedagogical intervention strategy is then shared, which helped to activate new prominences among educational actors, particularly in the study of a university course that endorsed a teaching proposal to decide how they wanted to address the last part of a school year, where they would have to plan and design qualitative cutting research techniques.

3. Methodology of the pedagogical strategy

Making the classroom an active and dialogical space is not usually common from the experience of the writer. Recognizing a student as a leading subject in their learning is not always revealed in a course. Even with the above, it is possible to recognize paths and tactics that allow the professor to implement activities where the student makes the decision of what, how and where to learn. Below is the design of a strategy in which the students were responsible for their learning.

Quantitative and qualitative research techniques in communication, is an educational experience² that is part of the curriculum



of the degree in Communication Sciences of Universidad Veracruzana (UV), course that integrates the curriculum line of research³ and seeks the theoretical-methodological and disciplinary training of the student; subject that faces the challenge of bringing students closer to research in Communication from a teaching work with diverse profiles and trajectories, which affects the perception or conception that young people have about research training.

It was in this context that, in the second part of the course, students were asked to decide how observation and qualitative interview (as well as two complementary techniques: one quantitative and one qualitative) could be Addressed. Here the previously integrated equipment for the design of quantitative techniques was ratified. To facilitate the process, the following indicators were established: a) Research Techniques, b) Reference Sources, c) Teaching Material, d) Activities, (e) Learning Evidence and (f) Complementary Techniques.

The methodology for the implementation and monitoring of activities consisted of 4 steps or moments: 1) Organization of work teams: The group composed of 43 students was organized

into 8 working groups, composed of 5 students on average; (2) Conditions of implementation: General instructions on activities were agreed in the classroom, these were described on the EMINUS institutional platform, as well as the delivery of the learning evidence at the agreed stages; 3) Activity follow-up: Teams started their activities in the classroom, where they were fed back by their professors, and then he activities were uploaded to the EMINUS *Activities* folder for the final feedback. Having done this, the delivery was recorded in the *Evaluation* folder; 4) The evaluation of the work: The *Evaluation* folder described the instructions for the delivery of each work, where the rubric that the platform itself allows to design was visible to be used in the evaluation of each evidence of learning. This methodology favored the conditions of collaboration, co-responsibility and transparency of the teaching-learning-evaluation process.

Each of the teams delivered their proposals in a matrix that was revised and agreed on to address the qualitative techniques of the course program, such as the complementary proposals. The following table shows what was agreed.

Table 1. Proposed activities and products to address qualitative research techniques

Investigation techniques	Didactic material	Activities	Learning evidences
Ethnography/observation	<ul style="list-style-type: none"> Tutorial Presentation of the topic Movie streaming Use of the blog 	<ul style="list-style-type: none"> Reading of specialized sources Analysis of the firm Definition of the topic and time to observe Use of online forums 	<ul style="list-style-type: none"> Elaboration of an ethnographic work centered on the observation Elaboration of a resport based on the guidelines presented by the professor
Interview	<ul style="list-style-type: none"> Presentation using Prezi Streaming of an interview and it different types Use of the blog 	<ul style="list-style-type: none"> Revision of tutorials Definition of the interviewed individual* Planning and design of the interview guideline Use of online forums 	<ul style="list-style-type: none"> Interview Presentation of the interview in a video or podcast



Investigation techniques	Didactic material	Activities	Learning evidences
Discussion groups	<ul style="list-style-type: none"> • Presentatio in <i>Power Point</i> 	<ul style="list-style-type: none"> • Revision of specialized sources • Planning of a discussion group 	<ul style="list-style-type: none"> • Creation of a discussion group
Experimental design	<ul style="list-style-type: none"> • Conversation in groups about the topic 	<ul style="list-style-type: none"> • Conversation with a specialist 	<ul style="list-style-type: none"> • None evidence was planned

* Note: The interviewed should have known the problem, to relate the observation to the interview as ethnographic resources

Since it was explained how important the development of disciplinary, pedagogical, communicative, investigative, digital and management skills are, the students' proposal was broad

and diverse to reflect on what was required. Thus, the UV EMINUS platform was used as a hub of operations.

Figure 1. EMINUS, educational platform of Universidad Veracruzana



The basic premise was the opportunity to link the classroom to physical and virtual environments because of the type of activities proposed, the suggested educational resources and the teaching material to be used. Recognizing that not all students often work in "pairs", criteria were established and rubrics were designed to weight each product. In the context of the instructions, EMINUS was established as the site to present the evidence of learning, while, on the blog a text was published with instructions to guide the activities; so each student had to read it to know what to deliver individually and what as a team.

From the institutional *blog* of the professor it was possible to migrate to other sites where students could consult selected academic sites, view tutorials or material related to qualitative techniques, and know the instructions to participate in the virtual forum. The instructions: Each student would plan a topic, perform the protocol and agree on the topic they deemed viable and relevant to develop in the context of their learning. Hence, all students would live the same path to achieve the learning goal: To plan, design and execute qualitative cutting research techniques.



Figure 2. Academic blog of the professor

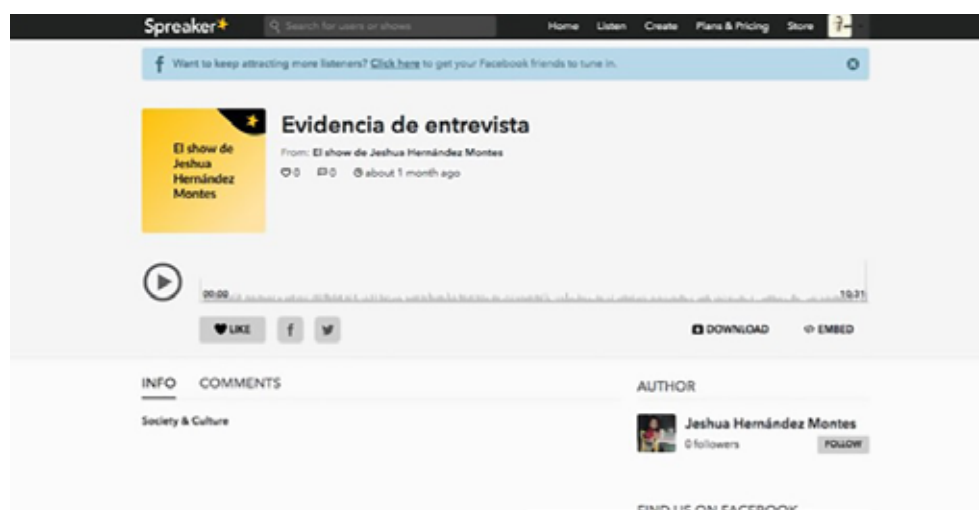


4. Strategy results

The first technique was the observation, first making the appropriate notes so that the use of this resource was understood in the context of broader work such as that required by ethnography, being that it is not a technique but a method

or methodology. Following the interview with a YouTube specialist, the literature was presented and consulted to plan and design a protocol that students should provide, composed of photographic evidence, cartography, vignettes or accounts of what was observed. Two evidences can be found in the following images.

Figure 3. The podcast: Evidence of fieldwork



For the interview, the students proposed to present them on video or *podcast*, based on the use of *software* and an application that did not require a sophisticated technical mastery

for the conduction, since it was not the objective of the course. For the *podcast*, the students were requested in the classroom to download an application that they should use on their cell



phones. The product that would be nested on the application site and shared in EMINUS. Whether on video or on the *podcast*, teams should present the evidence in an edited product that would not exceed 10 minutes. For the video version, it could be shared from YouTube channel or another site that would allow to link it to EMINUS.

Throughout the last month and a half of the course, students were able to demonstrate that they can be active subjects when there are conditions to. The classroom was a decision-making place. It came to life and became a collaborative and interaction space, based on the will and initiative of the young students who decided the methodology of the active learning, both for those techniques that were required in the program, as for the complementary ones.⁴

The results were broadly favorable: 7 observation papers allowed to assess whether students had understood how these research techniques are planned, designed and executed from the qualitative approach. 5 *podcasts* and 2 videos were resources to present the interviews conducted.

5. From the analysis

It could be noted that, in the execution of techniques and how to meet the delivery criteria, not all students follow the instructions as provided, even if they are told the pedagogical importance in meeting each criterion.

The opening of virtual forums to facilitate the participation of those who usually have a low profile in the classroom (in the opinion of the students themselves) facilitated to recognize their voices, but there was also a problem in handling and appropriating theoretical information in the context of a discussion, as well as to

incorporate them correctly as reference sources to their written documents.

Planning and designing activities from constructivism at the university level is often arduous for the preparation and investment of time, energy and intelligence; hence, it usually refers to an educational itinerary that starts in the classroom, bases on the daily-bases, and links to other environments such as virtual ones; decisions that allow to set up multi-determined learning environments, different from traditional ones.

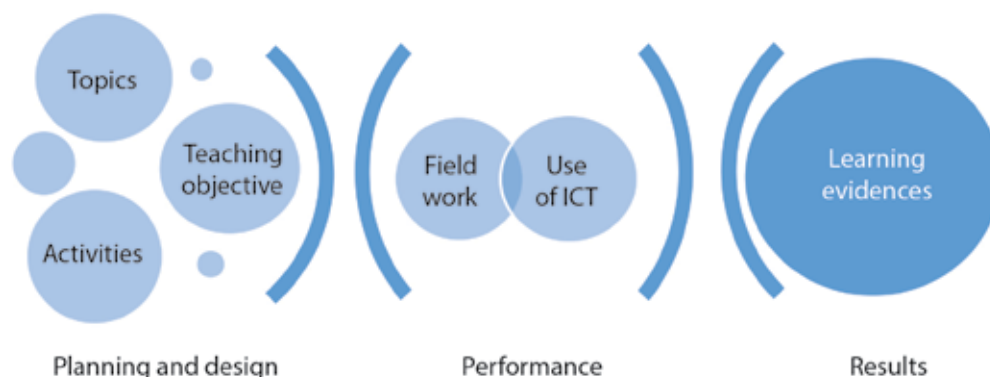
Thus conceived the classroom, it becomes an active and alive place by the way that educational agents share decisions, promote another type of role, where the professor communicates, manages, makes ITC resources to mediate and accompany the expectations of university students, who appropriate and produce evidence of learning from an active role.

The conduction of empirical activities outside the classroom to address the themes (phenomena or communicative problems) through observation and interview made the spaces of observation and dialogue with the subjects interviewed as a local learning. There were even groups that took advantage of the holiday (the day of the dead)⁵, to carry out their work in some locations where this festival is particularly significant. These experiences required the use of software to make videos or applications to create a podcast and share the learning evidence in EMINUS.

Among the most significant products was the interview with an artisan who designs folk masks, as well as the work on the use of mobile technologies in public spaces of the Veracruz-Boca del Río urban area. While there were observations in both papers, it should be recognized that students' evidence reached a level of experience of those living in communication research.



Figure 4. Model of the educational itinerary for an active classroom



6. Some conclusions

Facing the challenges of the XXI century education is complex if one recognizes the blurring that teachers have, who must train young people challenged by a highly technological world, in which social media, entertainment, fun and leisure are often common places to self-define.

Hence, the professor is required to have a range of different competences that allow him/her to manage the heterogeneity of any group of students. The conceptions of the role of the professor have changed. Today they are facilitators of

processes, to make the student the protagonist of their Own learning.

As a pedagogical and disciplinary resource, research broadens the horizons from which to understand and size the educational phenomenon. This paper has reflected on this, but an experience has also been shared where students decided, agreed and proposed how they wanted to approach two qualitative cutting research techniques. The execution of one and the other was an interesting experience because of the phenomena or problems addressed, as well as the quality of some evidence that was presented through videos or podcast.

Figure 5: Graphical resource in an observation protocol



What was done in the second part of the school year August 2019-January 2020 was undoubtedly significant. This leads to highlighting the need to size the role of the professor when designing learning environments by implementing activities that can transform the classroom into a space linked to the daily life of students. If, as it is said—teaching must be positioned for knowledge to reach the favorable thresholds of meaningful learning—it is up to the professor to be the one who plans and designs strategically, giving students a voice so that together they may find conditions that lead to novel educational itineraries.

In the disciplinary, pedagogical, communicative, research and management aspects, there are some competences that university professors must acquire, not only because supranational or national bodies propose them, but because there is empirical evidence and academic experiences that have been showing the ways to transform the teaching practices.

Thus, the classroom can no longer be a space for the reproduction of information, instead it must be a place to recreate the education, and recreating means to make that space an active dialogical experience.

Notes

- 1 The author has had the opportunity to design and teach courses for higher education teachers: one aimed at the production of teaching materials for research teaching and the other for the development of teaching skills for research teaching.
- 2 The Integral and Flexible Educational Model (MEIF) of Universidad Veracruzana states that an educational experience must be understood “not only as the one carried out in the classroom, but as the one that promotes learning, regardless of the field in which it is carried out” (UV, 1999, p. 33), since this contributes to the integral, professional, social and personal training.
- 3 The courses that define this line are: *Methods of Social Sciences, Quantitative and Qualitative Research in Communication and Reception Experience*.
- 4 For the experimental designs, a specialist from the faculty of UV Psychology was invited, theoretically and technically clarifying that an experimental design was not properly a research technique. For the discussion groups, a specialist could not be counted on, so the technique was presented and an exercise was implemented in the classroom, the proposed theme of which was: ITC and sexuality among university students.
- 5 Ancestral holiday that takes place in Mexico on November 1 and 2.

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Twitter as a methodological resource in Higher Education: an educational experience with Social Work students

Twitter como recurso metodológico en Educación Superior: una experiencia educativa con estudiantes de Trabajo Social

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Received: 2020-01-31 / **Revised:** 2020-06-03 / **Accepted:** 2020-06-08 / **Published:** 2020-07-01

Abstract

The profile of the university student is undergoing significant changes that are forcing universities to rethink new methodological strategies to favour teaching-learning processes. In this paper we analyze the main results derived from an innovation project supported by the incorporation of Twitter as a collaborative, collective and innovative methodological resource in Higher Education. The general objective of the study is to explore the educational impact of the use of Twitter as a teaching resource, and how students perceive the usefulness of this instrument integrated into a participatory methodology. The sample is composed of 137 first-year students of the Degree in Social Work of Pablo de Olavide University, Seville (Spain). It is an *ex post facto* and transversal study, which starts from a descriptive methodology, using instruments for the collection and analysis of qualitative and quantitative information. In general terms, the results obtained after the analysis of participation, of the comments made by the students and of the shared audiovisual content, address questions centred on the influence of the use of Twitter for the improvement of the natural dynamics of academic development in the subject of Introduction to Social Pedagogy, observing how it provides numerous benefits in the collective creation of learning, from collaboration, participation and group cohesion.

Keywords: Twitter, Higher Education, innovative methodologies, social networks, collaborative learning, participatory methodology.

Resumen

El perfil del estudiante universitario está experimentando cambios significativos que obligan a las universidades a replantearse nuevas estrategias metodológicas para favorecer los procesos de enseñanza-aprendizaje. En este trabajo se analizan los principales resultados derivados de un proyecto de innovación apoyado en la incorporación de *Twitter* como recurso metodológico colaborativo, colectivo e innovador en Educación Superior. El objetivo general del estudio es explorar el impacto educativo del uso de Twitter como recurso didáctico, y cómo perciben los estudiantes la utilidad de este instrumento integrado en una metodología participativa. La muestra se compone de 137 estudiantes de primer curso del Grado en Trabajo Social de la Universidad Pablo de Olavide, de Sevilla (España). Se trata de un estudio *ex post facto* y transversal, que parte de una metodología descriptiva, utilizando instrumentos de recogida y análisis de la información de corte cualitativo y cuantitativo. En líneas generales, los resultados obtenidos tras el análisis de la participación, de los comentarios elaborados por los estudiantes y del contenido audiovisual compartido, abordan cuestiones centradas en la influencia del uso de Twitter para la mejora de la dinámica natural del desarrollo académico en la asignatura de Introducción a la Pedagogía Social, observando como aporta numerosos beneficios en la creación colectiva del aprendizaje, desde la colaboración, la participación y la cohesión de grupo.

Descriptores: Twitter, Educación Superior, redes sociales, aprendizaje colaborativo, metodología participativa.

1. Introduction and state-of-the-art

1.1. Profile of the university student in the technological time

Society nowadays could not be understood without its linkage with the latest technological developments and their applications, and is characterized by having continuously interconnected citizens, thanks to the easy access to the internet and mobile phone communication, among other things. This new form of communication and understanding relationships has significantly transformed the way humans conceive what surrounds us and the way we adapt to the new realities (Halliwell, 2020). According to Martínez and Acosta (2011) and López-Noguero and Cobos (2016), Information and Communication Technologies (ICT) make it possible to instantly access a large amount of information, which must be managed considering that the exponential growth of these new technologies is reconfiguring communication situations and teaching and learning processes.

We live in a digitized society and, therefore, we must be aware that aspects related to coexistence, such as values, emotions, relationships that we establish, but also the way we communicate and the treatment we give to the information we create and share, are totally influenced by the way in which we use the technological tools that allow us access to these digital contexts. Whether we want it or not, new technologies are means that educate and socialize (Morón et al., 2017), so it is essential to work on skills related to these issues from Higher Education.

Currently, students who study at the university are part of the first generation educated in natural coexistence with new technological advances. This circumstance forces universities to adapt to the new characteristics of a changing and constantly evolving society, transforming and developing their educational practice in these new realities (González-Hernando et al., 2020).

Therefore, methodologies should be contextualized taking into account the needs of this new student profile, considering all the characteristics of this new generation. In this sense, this novel educational context requires more participatory pedagogies in all educational stages, including Higher Education. Pedagogies that revolve around social learning, that generate spaces for teaching, learning and the evaluation of competences, with an active and motivating aspect (Noguera, 2015; Paredes et al., 2020).

According to Martínez-Rodrigo and Raya-González (2013), the new profile of university student requires a teaching process that allows to achieve competences such as the ability to work in interdisciplinary teams, create and share information and educational content in different interactive and dynamic formats, be active participants and protagonists of their Own learning.

Recent international studies demonstrate the interest of this new profile of the university student. Research with high scientific impact, which has been published in recent years, analyses issues such as the use of smartphones in university contexts by students, with the aim of promoting the use of mobile technologies in teaching activities in Higher Education (Aguirre et al., 2019). On the other hand, Jami and Taheri (2019), develop a study in which they measure the effects of the personality traits of university students on the behavior when exchanging knowledge on social networks, while Gavilán et al. (2017) discuss how social media can become a very useful tool to empower citizens, from an active and critical perspective.

As can be seen, new trends in research consider emerging profiles of students' behavior and their new social realities, trying to approach empirical results that demonstrate the need of higher education institutions to adapt. On this issue, authors like Valeria et al. (2018) conduct a longitudinal study focused on cognitive and motivational factors that influence the risk of abandonment in university students, trying to identify which cognitive strategies can be strengthened to promote learning and minimize the abandonment of studies.



1.2. Methodologies for new educational realities in university classrooms

Almost twenty years after the Bologna Declaration, which initiated the creation of a new European Higher Education Area (EEES), one can see how the teaching function has undergone major changes related to the adoption of innovative methodologies, where the main protagonist of the educational process is the student. Innovative methodologies are understood as those that depart from the traditional vision of teaching and learning, and propose new ways of addressing teaching, using all kinds of resources to improve educational processes.

In this sense, the new profile of the professor of Higher Education must provide students with certain skills that transcend the scientific-academic knowledge, as well as promote the active role of people to their Own learning (García & Carmona, 2014; Garcías et al., 2020).

In this regard, García and García (2015) reflect on the innovative pedagogical principles that are given in Higher Education, and focus on the necessary transition towards conceiving a university education focused on the students and their formative processes. Because of the latter, ICT and the educational possibilities generated by internet access are key elements that directly affect current educational dynamics, improving the quality of pedagogical processes and functioning as a catalyst for active and collaborative learning (Alonso & Alonso, 2014; Juma et al., 2019; Cotán et al., 2020).

On the other hand, it is necessary to promote techniques of exchange of knowledge, experiences and feelings in the collaborative solution of problems in the classroom through a participatory methodology, promoting the active involvement of students during the development of teaching and learning processes, promoting the critical attitude to information and the acquisition of a series of specific skills related to the digital time.

In this sense, authors such as Bautista and Cipagauta (2019) have an impact on the importance of teaching innovation and the ability professors must have to generate new learning environments that promote the self-management of knowledge by students. These researchers identify collaborative learning and project-based learning as the most widely used innovative teaching methodologies in Higher Education, and warn a trend towards the use of active learning methodologies in pedagogical practices.

According to Rodríguez and Restrepo (2015), the use of ICT as a resource of education at the university has increased over the last few years, mainly due to the numerous advantages it offers to the development of the teaching and learning processes, and evaluation of knowledge and skills. Among the main benefits that ICT has in these educational contexts are that they facilitate access to the teaching content, and increase the amount and variety of educational resources in different audiovisual formats (Castro & Chirino, 2011; Sánchez-Saus & Crespo, 2018; Arango et al., 2020).

Similarly, teachers and students use the technological resources available to establish communications that improve the planning and development of training, and stimulate the critical construction of thought and autonomy from a continuing educational approach (Bidarian et al., 2011; Corujo-Vélez et al., 2020).

On the other hand, there are studies on the use of ICT in teaching that indicate the importance of educating in the correct use of new technologies, since there are a number of risks assumed, such as excessive and uncontrolled use that generates social and educational problems mainly related to addictive behaviors, dependence, insecurity and poor management of accessible information (Garrote et al., 2018; Plaza de la Hoz, 2018; Gairín & Mercader, 2018), as well as problems arising from the manipulation and control of digital networks (Machado, 2018; Da Silveira, 2017).



1.3. Social media as a methodological resource: the case of Twitter

Today, social networks are commonly used for the social interaction in socio-educational spaces, highlighting the social network Twitter among the university population. The incorporation of this social network in Higher Education has been the subject of many studies in specialized literature, among which are those of Grosseck and Holotescu (2008), who point to the educational potential that this social network provides by promoting the development of information synthesis skills in a context of immediate interaction.

Other authors such as Thoms and Eryilmaz (2015) or Htay et al. (2020), indicate that this type of tools promotes the autonomous learning of students, making them true protagonists of the education, enhancing informal learning (Tess, 2013; Dommett, 2019), facilitating the social interactions of people involved because of the collaborative work (García-Suárez et al., 2015; Fernández-Ferrer & Cano, 2019; Malik et al., 2019) and encouraging the integration of new methodologies in Higher Education.

Current high-impact scientific studies collect evidence of Twitter's usefulness in Higher Education spaces. For example, Eaton and Pasquini (2020) explore how educational communities encourage the student's learning and academic development in a participatory environment, where the structure of leadership is shared by the two-way nature of online relationships.

On the other hand, Abella-García et al. (2019) deepen their research into how the social network Twitter can potentially increase reflection, learning and collaboration among university students, helping to improve the quality of teaching-learning processes. On the other hand, Hortigüela-Alcalá et al. (2019), look into the pedagogical use of social media and how Twitter significantly influences the increased motivation, learning, participation and degree of academic achievement of students. In this line of research, Gleason and Manca (2019) address the issue of

the educational use of Twitter and its impact towards the fulfillment of educational objectives such as digital literacy and professional development from a participatory paradigm.

Finally, it is interesting to mention the work of Acar et al. (2019), who explore the relationship between the use of social networks and creativity, and obtain significant data that concludes that an active profile on the social network Twitter, where the student expresses his/her ideas and opinions and reflects and creates a discursive environment on educational topics of interest, is related to a high-level creative activity.

According to Vázquez-Cano and Sevillano (2019), the social interaction of students at the university and the teaching-learning processes that occur in this environment of Higher Education, transcend physical spaces into new complementary virtual contexts, based on ubiquity and facilitated by new emerging technologies.

The current profile of students is characterized by accessing and interacting, in the same way, in physical and virtual environments. In addition, it is very common for the internet user to have an active profile on social networks, because it helps to maintain professional or relationship contacts and personal intercommunication in a participatory and proactive way. In addition, in these spaces it is possible to create and share valuable information and knowledge, understanding that all meaningful learning arises from interaction with the social environment and its relationship with the educational context of students (Van der Krogt, 1998; O'Keeffe, 2019; Al-Dheleai et al., 2020). Therefore, it is necessary to innovate in teaching methodologies that use this type of tools of content creation and information dissemination (Adams et al., 2018).

Digital social networks facilitate continuous interaction and learning, and encourage online communication (Siemens & Weller, 2011; Ruiz & Fachinetti, 2018), creating learning communities where participants generate content, interact with each other and share knowledge (Van Puijenbroek et al., 2014; Cela-Ranilla et al., 2017). In this sense,



Fernández-Ferrer and Cano (2019) indicate that the usefulness of social networks in training processes of Higher Education is justified, due to its great potential as a teaching tool at the service of students and professors, from a participatory and collaborative perspective.

This type of networks, used as a tool for higher education, provide added value to the teaching process, as they involve social attraction and motivation for students, encourage communication and the establishment of working groups, enabling common actions at the teaching level (De Haro, 2009; Saeed & Sinnappan, 2011; García & García, 2012; Domingo-Coscollola et al., 2020).

Specifically, Twitter is considered a micro-blogging tool, which makes it possible to write and query messages publicly and free of charge, known as tweets. The size of the message is restricted to 280 characters, Twitter also allows to include multimedia elements such as images, short videos or links to web pages. Authors such as Freitas (2017) consider that "Twitter is not only a social network, but a massive means of interaction" (p. 70) since, on the structure of information exchange, it is found the use of the so-called hashtags or tags, in addition to other options for the user such as the indication of mentions to user profiles of professors or the possibility of tracking other profiles of interest.

Pérez et al. (2012) describe the advantages of using this social network for the university community, including increased attention to academic activities, a significant increase in the sense of commitment and membership of the class group, and the promotion of active participation in knowledge creation. Likewise, the use of this social network allows to expand the teaching-learning processes beyond a physical space and a certain time (Peña et al., 2018; Ribeiro et al., 2020).

Likewise, it is important to note that the information created in this social network can be commented on by any user, and argument sequence of comments can be generated. This can be easily shared using the retweet option, exponentially expanding the impact of the tweets that the

community generates. In short, the accessibility and simple management of this digital social network tool, facilitates its integration as a methodological part in university teaching, promoting participatory pedagogies with a clear orientation towards the impulse of learning and collective construction of knowledge (Prestridge, 2014; Vizcaíno-Laorga et al., 2019; Rojprasert et al., 2020).

Finally, if we address the use of social networks in the educational field, we cannot overlook that there are also negative aspects that must be taken into account when designing methodological proposals. In this regard, Marín-Díaz and Cabero-Almenara (2019) reflect on the need to generate more scientific research that provides reference models for the use of these technologies in university fields. Another fundamental aspect to take into account is that, at the outset, there is a widespread negative vision on the part of professors and students to incorporate online social networks as a methodological element in higher education teachings (Andreev et al., 2020; Van Dijk, 2020), along with a concern of the user about issues related to security, privacy or lack of control over messages issued on the network (Sai et al., 2020; Miller, 2020; Ozer et al., 2020).

2. Material and methods

The aim of this research is to examine the educational impact of the use of Twitter as a teaching resource in Higher Education, and how students perceive the usefulness of this technology inserted into a participatory methodology.

The sample consists of a total of 137 first-year students of the Degree in Social Work of Universidad Pablo de Olavide, Seville (Spain). Specifically, 67 students from the teaching group or line 1 (L1) and 70 students from group or teaching line 2 (L2). In this sense, according to the data collected in the Academic Report 2018/2019 of Universidad Pablo de Olavide (2019), there are a total of 705 students enrolled in the Degree in Social Work, divided in four courses of this Degree. The selected sample represents 18.2% of the total population enrolled in these higher studies.



The research is part of a teaching innovation project called "Twitter as an innovative teaching tool and collective construction of knowledge in Higher Education", carried out at Universidad Pablo de Olavide during the academic year 2019/2020. The project consists of a series of actions or teaching activities related to Twitter, which were carried out during the progress of the subject Introduction to Social Pedagogy.

The activities were carried out in groups, in order to promote collaborative learning and the cooperation of the educational community. To this end, professors encouraged the interaction of students through Twitter during different moments of the sessions. In this sense, during the sessions, students wrote tweets regarding the contents discussed in the session using hashtags (#) to identify messages on a specific topic. Hashtags that were established as methodological protocol of action were (#IPS) (#L1) (#L2), all along with the mention @Lopez_Noguero.

During the sessions, students synthesized ideas, expanded available information, and worked preconceptions cooperatively, as they often grouped out the tweets and «retweeted», and commented or «liked» peer posts.

With these performances, the idea was to expand the educational processes developed beyond the space and time of the university classroom, promoting students to enter and interact in a wider universe, that of the web 2.0 (López-Noguero & Cruz-Díaz, 2018). At the end of some sessions, professors encouraged to share the most important content published via Twitter. This task facilitated the work of synthesis, generating a log that often helps students a lot.

Similarly, professors used the Twitter account to advertise and announce subject issues (remembering outstanding work or activities, sharing the professor guide, providing some information about the subject, etc.). In addition, it favored the formulation of questions, dissemination of links of interest and recommendations of expert accounts on specific topics, all with the aim of being dynamic and mediating learning in a didactic way.

The research methodology used to collect and analyze the data generated in this educational

experience is descriptive, using tools for the collection and analysis of qualitative and quantitative cutting information. In this sense, on the one hand, a detailed descriptive analysis of the activity of the students in this experience was carried out, considering issues such as the number of tweets and hashtags generated by the educational community involved, the linking of the content with the subject, presentation of arguments and informational contributions considered of interest to the study. For this purpose, the Twitter Analytics tool was used to assess the activity data of students involved during the teaching experience. On the other hand, a satisfaction questionnaire was designed to collect the data, which was subjected to a validation process through expert judgment and applied to the sample through the university's virtual classroom using the Google Forms app. Likewise, the questionnaire was subjected to the Cronbach Alpha test to measure its reliability, obtaining a score of 0.887 that positions it as acceptable (Mateo, 2004).

For the statistical processing of the data collected in this satisfaction survey, the Statistical Package for the Social Sciences (SPSS V26) software was used, carrying out basic descriptive analyses (response percentages, mean, median, mode, deviation and variance) that, in general, reflect the importance that students provide to this type of experience.

In addition, information from students' comments on the use of Twitter in the subject of Introduction to Social Pedagogy was analyzed under a qualitative approach. To do this, and trying to use Bardin's approaches (2002), a coding system was created based on analysis categories related to the key content of the subject taught: theoretical approaches of interest, references to fundamental authors of social pedagogy, methodologies for socio-educational intervention, outstanding learnings, mentions among colleagues, raised doubts, proposals and suggestions.

3. Analysis and results

Below are the data collected in the research carried out with the aim of knowing the educational



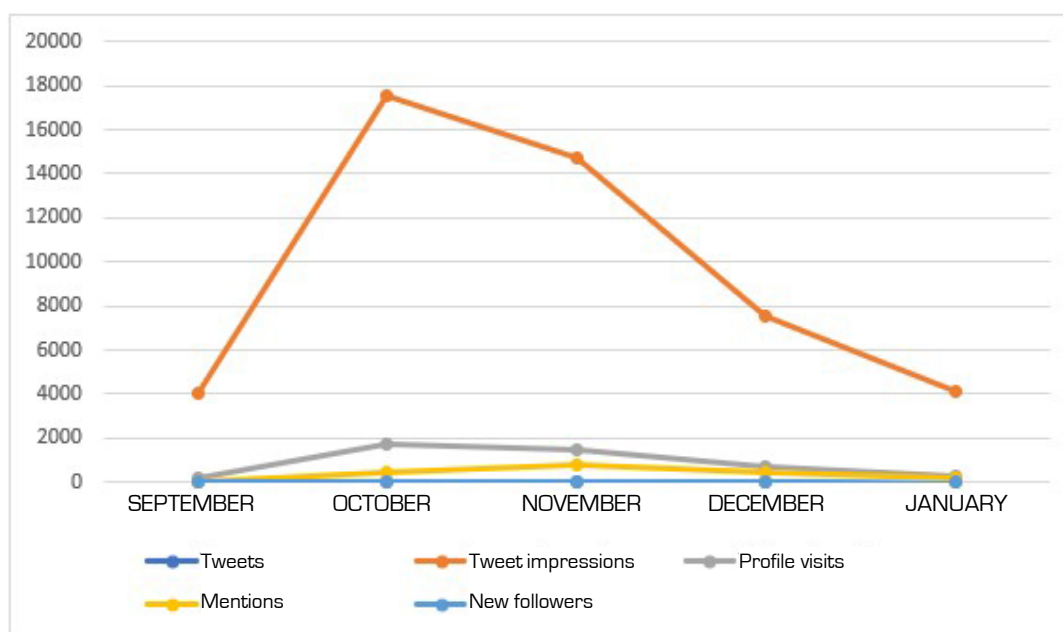
impact that the use of Twitter has had in the subject of Introduction to the Social Pedagogy of the Degree in Social Work.

3.1. Descriptive analysis of the students' activity on Twitter

First, it can be seen that the profile of the professor responsible for the innovation project

experienced a significant increase in the number of tweets, tweet impressions, profile views, mentions and new followers, since the educational experience started in the classroom in October 2019 and ended in January 2020.

Figure 1. Evolution of teacher profile @Lopez_Noguero



Source: Own elaboration based on Twitter Analytics.

This data demonstrates the increase in the participation of students in this social network during the development of the subject, creating and sharing a large amount of content. As an example of this, if looking at the last 100 tweets of students categorized in the different hashtags used to identify the comments (#IPS, #L1 and #L2), it can be seen how a total of 82 contributions are in text format and using the combination #IPS #L1, these contributions received 17 comments and 1 retweet. On the other hand, taking into account the combination #IPS #L2, of the last 100 written

tweets, 52 are in text format and accumulate a total of 6 comments and 37 retweets.

Below is a compilation of some of the tweets created by students:

Pedagogy has an important value in education that has not been completed so much today as to formally integrate it into the educational field. (E1)

Social pedagogy is a theoretical and practical science. (E2)

Another function of the social worker is to prevent possible causes of conflict, both individual and collective. (E3)



I find this subject very interesting and important. I believe that through it we know the fundamental bases for the change of society and how to know how to deal with it. (E4)

Thanks to the group dynamics that we have done in class I have better knOwn my peers and a very beautiful bond has been created. (E5)

The descriptive analysis of the information provided by students' tweets demonstrates the dissemination of knowledge and relevant aspects related to social pedagogy, and reflects the promotion of the learning community and group cohesion. At the end of the experience, students conducted an assessment of the process through the answer to an open question about the usefulness of the Twitter tool. The responses issued by the participating sample find the experience, broadly speaking, as positive and highly rewarding, as confirmed by this selection of the students' opinions:

I think twitter has been a great tool during the subject, since it has allowed me to know the different points of view of my peers and get to know the Social Pedagogy better. (E6)

From my point of view, Twitter has helped in the subject of Introduction to Social Pedagogy, because at the end of the classes two or three tweets were written summarizing in a few words what we had learned that day. In this way, the information was much clearer. (E7)

After having written the tweets, it was our turn to interact with the teammates. For me, this is one of the most useful and fun moments of the activity, since we could comment the opinions of the rest, see the common opinion, who disagree... (E8)

In my opinion, the use of Twitter as an educational tool is something innovative that I had never done before, but it has seemed to me a very positive contribution to the teaching of the subject, since it has served us to interact between the peers, in addition to learning in a more collaborative, dynamic and interactive way. (E9)

The use of Twitter seems to me truly new, dynamic and enjoyable. I think it is useful because it makes us go over the learning agenda in a fun way. (E10)

Analyzing the contributions, we appreciate how students positively value the integration of this tool into the participatory dynamics of the subject. Particularly they highlight the possibility that has offered them to connect and interact with other students and know their opinions regarding the content presented in class, appreciate the collaborative learning that has been generated, the dynamism and interactivity, and express a significant interest in their teaching use, highlighting the playful and creative aspects that social networks provide in these university contexts.

3.2. Analysis of twitter satisfaction questionnaire data at the university

At the end of the course, students conducted a satisfaction survey related to the use of Twitter as a teaching tool, in which a total of 107 students participated, 16 men and 91 women. The 8 items that make up the questionnaire collect information on different dimensions of study such as: the previous knowledge of the Twitter tool by students, the ease of use during the educational experience, the convenience of the protocol established to organize the contributions and the usefulness of the social network as an integrated part of the teaching methodology, among others. The answers to the different items are in Likert format, with ratings ranging from 1 to 4, being 1 «completely disagree» and 4 «completely agree».

The question that asked whether they previously knew the social network Twitter, 80.4% of respondents answered "completely agree" with the proposed statement for this item. Thus, it is assumed that the majority of respondents had a prior knowledge of the tool, and knew how to use it fluently, although a significant 8.4% were completely unaware of this application.



Table 1. Frequencies and percentages for item 1 «I already knew the social network Twitter as a user before using it in the Social Pedagogy class»

		Frequency	Percentage	Accumulated percentage
Valid	Completely disagree	9	8,4	8,4
	Disagree	2	1,9	10,3
	Agree	10	9,3	19,6
	Completely agree	86	80,4	100
	Total	107	100	

Source: Own elaboration based on the satisfaction survey data.

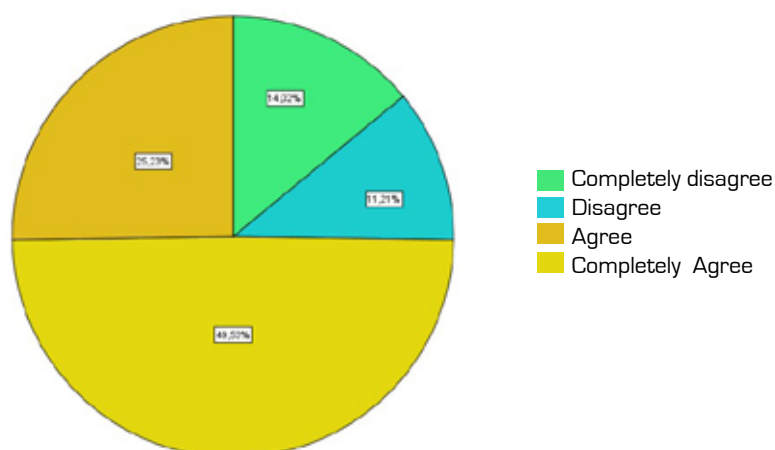
On the other hand, the data collected confirm that 86.9% of the sample found it easy to use Twitter during the course of the subject (item 2). The remaining 13.1% expressed difficulty in using the social network.

This last fact about item 2 encourages to analyze the possible causes that may have hindered the dynamics posed. In this sense, the results obtained indicate that the protocols set to establish communications on Twitter were adequate (item 3). Since 49.5% completely agree with the statement of this item, and 46.7% agree.

As for items 4 «Using Twitter as part of the subject methodology has been helpful» and item 5 «Thanks to this activity with Twitter, we have been able to strengthen and expand the knowl-

edge about the content of the subject», it can be said that the results are quite positive. Although there is a significant percentage of students who have not found useful the activities by using this social network (25.23%), or who indicate that they have not improved in strengthening and expanding knowledge on the subject (31.8%). This data requires to rethink the design of this activity within the framework of the subject for future academic courses, trying to solve the difficulties that arise and improve the teaching-learning system posed. It is essential to motivate each and every student so that they can engage in collaborative processes in a way that is useful for their learning.

Figure 2. Response percentages for item 4. «Using Twitter as part of the subject's methodology has been helpful»



Source: Own elaboration based on the satisfaction survey data



Table 2. Frequencies and percentages for item 5. «Thanks to this activity with Twitter, we have been able to strengthen and expand the knowledge about the content of the subject»

		Frequency	Percentage	Accumulated percentage
Valid	Completely disagree	15	14	14
	Disagree	19	17,8	31,8
	Agree	50	46,7	78,5
	Completely agree	23	21,5	100
	Total	107	100	

Source: Own elaboration based on the satisfaction survey data.

Regarding item 6. « Twitter tool helped us to interact with each other and to learn collaboratively», 77.5% express that they agree or completely agree to this statement. 74.7% of the total sample thinks that incorporating social networks such as Twitter into university education is cur-

rently essential (item 7), and 76.6% positively value the inclusion of the social network Twitter in the classes of Introduction to Social Pedagogy (item 8).

Below is the table of basic statistics for each of the items used:

Table 3. Basic statistics of the questionnaire items

Item	N	Mean	Median	Mode	Deviation	Variance
1. I already knew the social network Twitter as a user before using it in Social Pedagogy class	107	3,62	4	4	,886	,786
2. I found it easy to use Twitter during the subject	107	3,38	4	4	,809	,654
3. The protocols set to establish communications on the Social Network Twitter were adequate	107	3,44	3	4	,632	,400
4. Using Twitter as part of the subject methodology has been helpful	107	2,86	3	3	,956	,914
5. Thanks to this activity with Twitter, we have been able to strengthen and expand the knowledge about the content of the subject	107	2,76	3	3	,950	,903
6. Twitter has helped us to interact with each other and to learn collaboratively	107	2,96	3	3	1,009	1,017
7. I think that incorporating social networks like Twitter into university education is essential today	107	3,03	3	3	,936	,877
8. I welcome the inclusion of Twitter in the Introduction to Social Pedagogy classes	107	3,03	3	3	,936	,877

Source: Own elaboration based on the satisfaction survey data



4. Discussion and conclusions

The inclusion of innovative methodologies based on new technologies in higher education contexts is an increasingly tangible reality. This type of pedagogical experiences represents a step towards the adaptation of university to the new contexts and social realities of this era of dramatic changes.

The profile of the university student has changed, the patterns of behavior towards learning are different compared to past times, and the university has a responsibility to adapt to those changes to offer a meaningful and quality education, in accordance with the new demands that society demands nowadays.

The results obtained in the research carried out, show the positive impact that has generated the inclusion of Twitter as a teaching tool in the subject of Introduction to Social Pedagogy, taught in the first course of the Degree in Social Work. In this sense, the students who have participated in this innovation project have demonstrated an active participation in the activities related to the dissemination of information on the digital social network, as well as the involvement in interaction with their fellow students.

A stable learning community has been established, increasing group cohesion and stimulating cooperation and collaborative work. Students have experienced a development of their ability to synthesize, present arguments and critical reflection, as well as to improve their digital skills.

Generally, the sample under study considers it appropriate and beneficial to incorporate Twitter into the university's academic activities, helping them to strengthen learning and expand their knowledge. The evaluation of the innovation project has been processual, continuously assessing the learnings achieved by students.

The teaching use of Twitter, as well as the competencies that students have acquired in this process can be transferred and contextualized in any subject or degree. Likewise, the domain

of Twitter as an instrument of search and dissemination of information, communication and interaction, implies a learning process that will accompany the student even outside the academic environment, delving into the professional and relational scenarios.

Similarly, we consider that this type of experience encourages an important involvement of students, with a particular influence on the motivation of students for the construction and dissemination of knowledge, and in the acquisition of their Own learning from the interaction they establish with the process.

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Evaluation and co-evaluation of learning in blended learning in higher education

Evaluación y coevaluación de aprendizajes en blended learning en educación superior

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Received: 2019-10-14 / Revised: 2020-05-28 / Accepted: 2020-06-06 / Published: 2020-07-01

Abstract

The study examines the use of technological tools to implement self and peer-assessment based on students' autonomous learning and formal evaluation carried out by the teacher, taking advantage of the potential of instant feedback from the tools available in Virtual Learning Environments (VLE). The extensive implementation of VLE in higher education makes blended learning an emergent modality, automating and facilitating the monitoring of learning progress, through the pedagogical management of effective practices. The innovation proposal aims at fostering students' autonomy and their central role in the achievement of their learning. The methodological design is correlational seeking to establish the association between the preparation of questions and online test resolution by the students and their level in performance tests administered by the teacher. It was carried out in six groups of the 2016 and 2017 cohorts in the Educational Research subject within initial teacher training programs at a Chilean university. The main results show a significant correlation between the use of the virtual environment in the construction and application of a self and peer assessment instruments in a test- typed format and their results in performance tests. It is concluded that student learning is enhanced by integrating assessment as part of the teacher train-

ing process with an active and autonomous role of students supported by educational technologies.

Keywords: Autonomy, online evaluation, co-evaluation, learning, blended learning, higher education.

Resumen

El estudio evalúa la utilización de herramientas tecnológicas para implementar evaluación y coevaluación realizada por los estudiantes, en función del aprendizaje autónomo y la evaluación por parte del profesor, aprovechando el potencial de la retroalimentación instantánea de las herramientas que disponen los Ambientes Virtuales de Aprendizaje. La extensa implementación de estos ambientes virtuales en la educación superior hace que el blended learning sea una nueva normalidad, automatizando y facilitando el monitoreo de los avances en el aprendizaje, a través de la gestión pedagógica de prácticas efectivas. La propuesta de innovación propende al desarrollo de la autonomía y protagonismo de estudiantes en el logro de sus aprendizajes. El diseño metodológico es correlacional que busca establecer la asociación entre la confección de preguntas y resolución de test online por parte de los estudiantes y su nivel de desempeño en pruebas de conocimiento administradas por el profesor. Se aplicó en seis grupos de las cohortes 2016 y 2017 en la asignatura Investigación Educativa para carreras de pedagogías de

una universidad chilena. Los principales resultados apuntan a una significativa correlación entre uso del ambiente virtual en la construcción y aplicación de instrumento tipo test y los resultados de desempeño en pruebas de conocimiento. Se concluye que el aprendizaje de los alumnos se potencia, al integrar la evaluación como parte del proceso formativo con un rol activo y autónomo de los estudiantes con apoyo de tecnologías.

Descriptores: Autonomía, evaluación online, coevaluación, aprendizaje, b-learning, educación superior.

1. Introduction

Computing emerges in the mid XX century by a set of technologies responsible for the storage and automation of information that with the technological growth penetrated various social areas, particularly in basic educational centers, media and university. Currently, higher education has incorporated Information and Communication Technologies (ICT) into teaching processes, in order to support the teaching-learning processes of students and teachers (Luna et al., 2018). This generates demands for new teaching strategies that deal with it by incorporating strategies that include new technologies (Bahamondes & Ponce, 2012).

Innovation in education systems has become an imperative need in higher education, as it seeks change and greater dissemination of successful experiences, as the university needs to change at all levels to survive and thrive in the new “educational market” (Quesada et al., 2017). For professors, this means a significant use of resources and time, which makes it necessary to analyze its effectiveness in the academic result and the quality of teaching through the application of these new techniques (Vivel-Bua et al., 2015).

The integration and intensive use of digital technologies, specially web-based technologies, are transforming universities around the world (Duart & Mengual, 2015; Boelens et al., 2018; Dziuban, et al., 2018). Higher education institutions have incorporated media-rich technology platforms for the evaluation, as well as “personalized or adaptive courses and web

conferencing tools, capable of connecting students for synchronous distance activities, which are becoming common solutions for blended learning (b-learning, BL) designs” (Alexander et al., 2019, p. 12), as technology has the potential to increase access to education, improve learning experiences and reduce the cost of providing high-quality postsecondary education (Protopsaltis & Baum, 2019).

1.1. B-learning modality

B-learning modality constitutes the new normal in education, given its extensive adoption in higher education as an effect of the integration of technologies which enable new learning spaces, new teaching strategies and evaluation by professors. Different authors offer different definitions with an emphasis on either technology and how it is used in the face-to-face and online, or in strategies or pedagogical processes. Thus, Picciano et al. (2014) say that there is no consensus on a definition, however there is a common element, which according to Vaughan (2010, p. 23) is a “combination or integration of the face-to-face and non-face education based on Information and Communication Technologies (ICT)”. Therefore, as Roza et al. (2019) conclude, the BL does not exclude one educational modality depending on the other, on the contrary, it proposes to use more and better the potential available in each modality for meaningful learning to occur through effective practices.

In terms of the effectiveness of the BL, there are good academic results in terms of lower abandonment rates (Lopez et al., 2013) and higher academic performance, with different degrees of statistical significance of the BL modality, compared to the traditional face-to-face (Carranza & Caldera, 2018; Essam, 2010; Halverson & Graham, 2019; Li et al., 2014; López et al., 2013; Rienties & Toetenel, 2016); although students’ positive perception of BL courses does not always reflect an improvement in the learning outcomes (Sajid et al., 2016).



From the emergence of the BL revolution, new possibilities of interactivity are generated from the didactic perspective, in which “new ways of teaching and learning must be designed, studied and understood in their interactions with new means and learning contexts” (Bartolomé et al., 2018, p. 35). These new learning contexts and environments generate learning communities that facilitate and support learning while promoting interaction, collaboration, and building a sense of belonging among members, key elements of BL’s success, which must be conducted in a dynamic, flexible and adaptive process.

1.2. Virtual classroom

Among the computer tools used in educational processes are virtual classrooms, whose greatest advantage in a face-to-face teaching model is that it frees the teacher and student from the temporal and spatial coincidence typical of traditional teaching by easing personal itineraries of process, exploratory and visualization capacity development (Barberà & Badia, 2005). Thus, the interaction occurs in a period of time and space where the student is able to work autonomously according to his/her own pace and learning times. This platform represents an attractive pedagogical tool that operates in e-learning modality as b-learning.

The use of ICT introduced changes in the educational system, for example, in distance learning (Cardona & Sánchez, 2010), given the emergence of Virtual Learning Environments (VLE) or Virtual Learning Spaces (VLS) supported by the Learning Management System (LMS) platform. The LMS is a type of software intended for the pedagogical service and designated to manage content and training activities of a specific organization (Arias & Venegas, 2013), which are distributed in virtual classrooms (a VLS) or traditional study classroom, whose difference is the communication channel that can be synchronous and/or asynchronous.

There may or may not be a time match in the virtual classroom, i.e., synchronous or asynchronous learning. Depending on the virtual context, synchrony translates into workshops, seminars or debates that require the coincidental presence in time, albeit distant, between the professor and the students, while in asynchronous they may not coincide in time and space (Rojas et al., 2014), allowing the student to become an active learner, and professors to move from a classic model to a facilitator of learning (Careaga & Fuentes, 2012).

The virtual classroom must be conceived as a social and educational tool due to its functions as a socializer, informative, formative, motivator, evaluator, communicative, organizer, analytical, innovative and researcher (Barberá & Badia, 2005), which give meaning to its inclusion in schools. It also facilitates the e-learning profile (development of distance learning), because it has generated that the b-learning model, typical of the undergraduate programs whose academic format combines face-to-face classes and activities in an e-learning way, incorporates it in the procedures by promoting a collaborative methodological design.

In this perspective, García-Beltrán et al. (2016) state that the main advantages of using virtual environments for co-evaluation through objective testing lie in the individualized monitoring of the student’s learning, facilitating the establishment of a continuous evaluation in the learning process, the evaluation of knowledge and skills, the reduction of design, distribution and development time, and provides “a great flexibility and spatial temporal flexibility of the system, both for the configuration of exercises and its performance. In this sense it can be especially useful to allow the student to follow his or her own pace of learning” (2016, p. 4).

1.3. Objective testing in virtual spaces

Objective response tests in a virtual environment have the specificity of being implemented in a



simple way and having automatic correction and feedback. These can also be used to motivate and guide students in the training process and even as a means of self-assessment of each lesson or content of a subject (García-Beltrán et al., 2016). According to Pacheco et al. (2014) the use of the virtual classroom as a tool for the evaluation of content allows a follow-up to training processes and group learning through collaborative activities, in addition to ensuring teacher-student dialogue and promoting continuous monitoring of academic progress, which requires the student to prepare permanently.

In particular, the virtual classroom of Universidad Católica Silva Henríquez (UCSH) has the questionnaire activity (objective answer testing system) that allows the professor to design and propose exams with multiple choice questions, true/false, coincidence, short answer and numerical response. On the configuration of this activity, the professor can regulate the number of attempts allowed, set a time limit, formulate the test with sorted or selected questions from the question bank, have a summative and automatic grading for each attempt in the gradebook (except the essay-type questions) and determine when the correct results are presented, feedback and answers are displayed (UCSH, 2016). Immediate feedback from co-evaluations in virtual environments is critical in the learning process as a motivating and guiding element for the student (García-Beltrán et al., 2016).

1.4. Questions from autonomy

The concept of autonomy has a loose definition and is a typical example of the semantic diversity that terms have in the field of education. Autonomy is associated with the ability to make decisions according to one's own criteria and is opposed to "heteronomy", which means executing the decisions emanating from others (Sarramona, 2011). For Kamii and López (1982) autonomy is the ability to think with originality and critical sense from various points of view, where exchange-

es of information and negotiations with peers are important in the intellectual development. The autonomous student achieves a lasting, continuous learning and an attitude towards knowledge, from a collaborative, meaningful, synchronous and asynchronous teaching that requires a methodology to develop in the student the skills of self-training, association of the study with the formulation of questions and answers, search of information and promotion of the critical and creative mentality (Massié, 2010).

Autonomy must be understood as the ultimate end of education, which represents learning to learn, a person's own faculty who consciously directs, regulates and evaluates his/her training (Manrique, 2004). According to Castillo et al. (2006) learning to learn implies a reflective capacity on the means that generate learning, competence by which flexible and qualified strategies are developed to guarantee the mastery of adequacy. Learning strategies are a set of methods that favor the study, of which the following stand out:

- Pre-reading: it establishes the purpose of the reading. Specifically, it activates previous knowledge and develops predictions or questions.
- During the reading: are applied while interacting directly with the text, such as underlining an important phrase, creating notes or elaborating concepts.
- Post-reading: it occurs after the reading, the most typical are summaries, define main ideas and ask questions with their answers.

The formulation of a good question is an indicator of a positive learning process, because the ability to design good questions is an essential competence to develop critical thinking (López, 2011). Such skill is key in procedures to understand a text, its use supports the achievement of obtaining deeper levels of understanding, since the formulation of questions requires the reader



to be aware of the understanding processes, i.e., asking an adequate question involves having the ability to evaluate one's intellect and generate particular knowledge for the precise formulation of a question (Silvestri, 2006). For Morón (2015) the formulation of good questions is sometimes more important than the answers due to the cognitive process that occurs, which is suitable for acquiring the competence to learn to learn.

1.5. Evaluation from the constructivist theory

In recent years, the new culture of consumption, social demands and the need to be accountable to educational administration have brought about changes in the approach to learning assessment (Parra, 2008). This has made evaluation a phenomenon that causes anxiety in students and academic conflicts (Bausela, 2005). However, Alfaro (2000) notes that in a context where students are measured from a constructivist approach, evaluation is a fundamental, complex and relevant tool in the teaching work. Under these terms, the evaluation must be permanent in the teaching process, in addition to promoting the possibility of generating new learning in education, i.e., the evaluation is not only a mean of knowledge assessment, but also a form of teaching (Parra, 2008).

However, evaluation as an educational element has a political characteristic, so it can be addressed from different perspectives such as the conservative (the professor has absolute power) or progressive (power is distributed between the professor and the student) according to Quesada et al. (2017). In the field of didactics, it is required to encourage the participation of students in their evaluation through self-assessment and co-evaluation, so that they develop their autonomy and ability to learn to learn (González et al. 2007) by collaborating with the professor in the evaluation task.

In this sense, the co-assessment for teachers in training is an opportunity to develop the ability to create reliable assessment tools within

their acquired competences as observed in the pedagogical standard 6: “[the teacher] knows how to apply evaluation methods to observe the student's progress and knows how to use the results to give a feedback of the learning and the pedagogical practice” (Ministerio de Educación de Chile, 2012, p. 43). The co-evaluation is defined as the moment in which a student measures the achievement of the learnings of his/her peers (Parra, 2008) and is part of the formative evaluation in the teaching-learning process, as it regulates and improves the learning of the student (González et al., 2007). This process has three important features (Alvares, 2008):

- Allows the student to evaluate the knowledge fact that is traditionally attributed to the teacher.
- Develops skills for the evaluation and design process of measuring instruments.
- The student self-evaluates his/her knowledge.

One of the techniques that have had the greatest dissemination in the evaluative pedagogical field is the *One Minute Paper*, which means questions that students must write at the end of each class and once the professor has reviewed the answer the professor will present the results obtained focusing on errors or deficiencies. This technique can incorporate the identification of key concepts, formulation of examples, drafting of ideas and opinions on the subject addressed, etc. However, the time required to review these questionnaires is excessive, so it is presented as one of its drawbacks, hence random sampling or the use of new technologies are recommended (Vivel-Bua et al., 2015).

2. Methodology

2.1. Participants

The study participants are students of a sample of 6 groups of the subject Educational Research



of the first and second semester, which is in the penultimate year of the initial teacher training, prior to the bachelor's degree seminar in education and professional practice of the General Pedagogical Training Program, common to all careers of initial teacher training of the UCSH.

2.2. Question and research hypotheses

The research question is: is there a relationship between the use of the virtual classroom through the assessment in the construction and application of a co-assessment instrument in a test format designed by the students and the performance in knowledge tests related to key concepts of educational research?

Based on the theoretical reference, the hypothesis is that there is a positive and statistically significant association between the score of the questions created by the students, a test that groups these developed in the virtual classroom and the performance in a knowledge test.

The approach adopted is quantitative with a non-experimental design and a correlated descriptive scope. Thus, through quantitative indicators added to the use of the virtual classroom (the assessment in the elaboration of questions and a related test resolution), it was sought to relate such intensity of activity to the level of performance of students in the knowledge test items related to key research concepts. The delimited variables are the use of virtual classroom (V1) and the performance knowledge tests (V2).

2.3. Description of the variables

Variable 1 (V1) use of the virtual classroom: it corresponds to the assessment of the use of the virtual classroom in the construction and application of a co-assessment instrument in the test format, designed by students of the subject Educational Research. The values of V1 are obtained from the average between the subvariable valuation of the questionnaire elaboration

(V1.1) and the subvariable qualification of the online questionnaire response (V1.2).

Subvariable V1.1 refers to the objective assessment of the quality of multiple selection questions generated by the students, with the justification of the correct alternative and qualified by an expert on a scale from 1 to 7. Subvariable V1.2 is the grade obtained by the sample of students in each online questionnaire formulated with a selection of questions about the highest-rated total of subvariable V1.1.

The V1.2 subvariable is obtained by averaging the grades (scale from 1 to 7 with 60% requirement) obtained by the students in solving online questionnaires for each period. Each questionnaire has the possibility to use two attempts, where the students will test and evaluate their knowledge from the grade obtained in the first attempt, in addition to receiving feedback with the correct answers. These questionnaires include selected questions from the V1.1 subvariable among those whose achievement level is the highest. The question and answer behavior of the questionnaires is random so that the student does not memorize the alternatives, but instead remember the correct question and answer in order to promote the learning of key concepts from self-assessment and co-assessment.

Variable 2 (V2) knowledge domain: it corresponds to the performance results in knowledge tests in the grade (scale from 1 to 7) obtained by the students in the multiple selection item belonging to the first test of knowledge on basic concepts of the subject Educational Research of the semester with a requirement of 60% over a total of 16 questions.

2.4. Description of the variables

The V1 variable corresponds to the average between two subvariables named V1.1 and V1.2. The variable V1.1 (questionnaire processing assessment) is an objective assessment of the quality of multiple selection questions generated by the students, with the justification of the correct alternative and qualified by an expert. The



variable V1.2 (online questionnaire response grade) is the qualification obtained by the sample of students in each online questionnaire formulated with a selection of questions on the total with the highest assessment of the variable V1.1.

The V1.1 variable was obtained by averaging the grades (scale from 1 to 7) obtained by the students in the stages of developing questions related to understanding the text "Research Methodology" (Hernández et al., 2012) and "Educational Research" (McMillan & Schumacher, 2005).

The V1.2 variable is obtained by averaging the ratings (scale from 1 to 7 with 60% of requirement) obtained by students when solving online questionnaires for each period. Each questionnaire has the possibility to use two attempts, where the students will test and evaluate their knowledge from the grade obtained in the first attempt, in addition to receiving feedback with the correct answers. These questionnaires include selected questions from the V1.1 variable among those whose achievement level is the highest. The question and answer behavior of the questionnaires is random so that the student does not memorize the alternatives, rather remember the correct question and answer in order to promote the learning of key concepts from self-assessment and co-assessment. The variable V2 corresponds to the qualification (scale from 1 to 7) obtained by students in the multiple selection item belonging to the first test

of knowledge on basic concepts of Educational Research of the semester with a requirement of 60% on a total of 16 questions.

2.5. Instruments

The objective assessment in the construction of questions on compulsory literature (V1.1) lies in the criterion of an expert, who bases the analysis on the rules of construction of Parra's multiple selection (2008), given the intention of keeping distance and ensuring objectivity in the process, as well as ensuring the correct content of the questions. To measure learning by using online questionnaires from the co-assessment content (V1.2) a scale from 1 to 7 is used with a requirement of 60% on the total of questions. The questionnaires were built with selected questions of the V1.1 variable among those with an achievement value of 7.0.

The virtual tool allows: Randomly sort both test questions on each attempt and the alternatives of each question and configure the display of the questions, present the results and the feedback instantly, limit the resolution time of the questions and solve or answer from anywhere in the world.

3. Results

The following describes in a single aggregate table a summary of the results obtained in the different categories:

Table 1. Statistical data

Statistics V1.1 and V1.2 2016(2)					
V1.1			V1.2		
N	Valid	47	N	Valid	47
	Lost	0		Lost	0
Mean		3,2			4,3
Median		2,7			5,2
Mode		1,8			1
Standard deviation		1,96			2,11
Variance		3,8			4,46
C.V.		61,25%			49,06%



Statistics V1.1 and V1.2 2017(1A)					
V1.1			V1.2		
N	Valid	115	N	Valid	115
	Lost	0		Lost	0
Mean		3,8			4,4
Median		4			5,3
Mode		1			1
Standar deviation		2,1			2,1
Variance		4,4			4,4
C.V		55,26%			47,72%
Statistics V1.1 and V1.2 2017(1B)					
V1.1			V1.2		
N	Valid	47	N	Valid	47
	Lost	0		Lost	0
Mean		3,9			4,9
Median		4			5,9
Mode		1			1
Standard deviation		2,23			2,18
Variance		4,96			4,76
C.V.		57,17%			44,49%
Statistics V1 and V2 second semester 2016					
V1			V2		
N	Valid	47	N	Valid	43
	Lost	0		Lost	4
Mean		3,75			4,2
Median		3,8			4,4
Mode		1,4			4,4
Standard deviation		1,72			1,65
Variance		2,99			2,73
C.V.		45,86%			39,3%
Statistics V1 and V2 2017(1A)					
V1			V2		
N	Valid	115	N	Valid	95
	Lost	0		Lost	20
Mean		4,15			3,86
Median		4,6			3,8
Mode		1			3,2
Standard deviation		1,78			1,07
Variance		3,16			1,14
C.V.		42,89%			27,72%



Statistics V1 and V2 2017 (1B)					
V1			V2		
N	Valid	114	N	Valid	91
	Lost	1		Lost	24
Mean		4,37			4,07
Median		4,85			3,8
Mode		1			2,9
Standard deviation		1,99			1,14
Variance		3,97			1,29
C.V.		45,53%			28%

Keys: V1: Use of the virtual classroom; V2: Knowledge domain; V1.1: Quality of the questions; V1.2: Online questionnaire qualification; 2016(2): students of the second semester of 2016; 2017 (1A): Students of the first semester of 2017, Group A, 2017 (1B): Group B

3.1. Correlational analysis

The relationship between the V1 variables, V1.1, V1.2 and V2, as V1 is the result of averaging V1.1 and V1.2 does not apply to seek a relationship between them and a correlation between V1.1 and V1.2 has no relevance to the problem, so the unwanted relationships are V1.1-V2, V1.2-V2 and V1-V2.

Pearson's correlation coefficient was used to measure the degree of relationship between variables, because these variables are continuous quantitative and linear. In addition, to prove that they are actually related and are not at random a statistical hypothesis test was applied to find the significance of that coefficient, i.e., to wonder about the probability that such a coefficient

derives from a population whose value is zero. In this regard, there are two possible hypotheses:

$$H_1 : x_{ry} = 0 \rightarrow$$

The correlation coefficient obtained comes from a population with zero correlation ($p=0$).

$$H_0 : x_{ry} = 0 \rightarrow$$

The correlation coefficient obtained comes from a population whose correlation is higher than zero ($p>0$) and is expected to prove that are positively related.

3.2. Correlation V1.1: Quality of questions; V2: Knowledge domain

Table 2. Correlation V1.1-V2

Correlation V1.1-V2 second semester 2016		
Correlation		
Second semester 2016		V2
V1.1	Pearson Coef.	0,185
	T test	0,235



Correlation V1.1-V2 first semester 2017 (A)		
Correlation		
First semester 2017 A		V2
V1.1	Pearson Coef.	0,278
	T test	0,006

Correlation V1.1-V2 First semester 2017 (B)		
Correlation		
First semester 2017 B		V2
V1.1	Pearson Coef.	-0,002
	T test	0,985

3.3. Correlation V1.1: Quality of questions; V2: Knowledge domain

Table 2. Correlation V1.1-V2

Correlation V1.2-V2 second semester 2016		
Correlation		
Second semester 2016		V2
V1.2	Pearson Coef.	0,457
	T Test	0,002

Correlation V1.2-V2 first semester 2017 (A)		
Correlation		
First semester 2017 A		V2
V1.2	Pearson Coef.	0,054
	T Test	0,601

Correlation V1.2-V2 first semester 2017 (B)		
Correlation		
First semester 2017 B		V2
V1.1	Pearson Coef.	-0,046
	T Test	0,659

For the variables V1.2-V2 second semester 2016 the correlation is 0.457, i.e., moderate positive. In relation to the significance, the null hypothesis is rejected with 95% confidence since the result of the t-test is less than 0.05. Therefore, V1.2 is moderately and positively related to V2.

For variables V1.2-V2 first semester 2017 (A), the correlation is 0.054 very low positive. In relation to the significance, the null hypothesis is not rejected with 95% confidence, since the result

of the t-test is higher than 0.05. Therefore, statistical data are not sufficient to ensure a relationship.

As for the variables V1.2-V2 first semester 2017 (B) the correlation is -0.046 very low negative. With respect to significance, the null hypothesis is not rejected with 95% confidence, since the result of the t-test is higher than 0.05. Therefore, statistical data are not sufficient to ensure a relationship between these variables.



3.4. Correlation V1 Use of virtual classroom; V2 Knowledge domain

Table 4. Correlation V1-V2

Correlation V1-V2 second semester 2016		
Correlation		
Second semester 2016		V2
V1	Pearson Coef.	0,377
	T Tes	0,013
Correlation V1-V2 second semester (A)		
Correlation		
First semester 2017 A		V2
V1	Pearson Coef.	0,222
	T Tes	0,03
Correlation V1-V2 first semester 2017 (B)		
Correlation		
First semester 2017 B		V2
V1	Pearson Coef.	0,022
	T Tes	0,839

In short, in the first two cases there is a positive, moderate or low correlation between the use of the virtual classroom (V1) and the knowledge domain (V2), which is statistically significant with 95% of confidence, confirming the research hypothesis. On the other hand, this situation does not occur in the third case.

4. Conclusions

B-learning is an effective modality in relation to the student learning, as well as the development of work skills and self-learning. The professor can extend the work in the classroom and monitor the work of the students by facilitating his/her role in the feedback through automation and instant delivery of the results.

Regarding the experiences in university teaching that favor the curriculum integration of computer resources and that innovate the evaluative strategies starred by students in the construction of their learnings, remain being a

pending and scarce task in professors (Quesada et al., 2017), even more so if they are aimed at future educators in the context of their research training. Thus, the strategy of developing learning evaluative skills with an instrument as well as the elaboration of questions were statistically associated, only in one case out of the three studied, with knowledge domain. However, Silvestri (2006), Macías and Maturano (2010), among others reveal that the creation of good questions about reading has a positive effect on learning.

With regard to the research hypothesis of the work on the existence of association between the variable use of the virtual classroom and knowledge domain on key concepts of educational research, it can be said that in most cases this association occurred, but it is low.

The implications and applications of the study results suggest the innovation of the teaching practice in higher education. Particularly, this becomes much more efficient if it is integrated into the teacher training, as relevant teach-



ing professional development skills converge. In addition, the ease of recording almost the entire process in the Virtual Classroom allows to show the effectiveness of the experience.

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Academic performance and formative and shared assessment in teacher education

El rendimiento académico y la evaluación formativa y compartida en formación del profesorado

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Received: 2020-01-31 / Revised: 2020-06-06 / Accepted: 2020-06-08 / Published: 2020-07-01

Abstract

In the last decade a high interest is being aroused by the advantages that the application of a formative assessment seems to have in university teaching. The purpose of this study is to analyze whether the Formative and Shared Assessment in Pre-service Teacher Education helps students obtain better academic results. It's a case study is carried out with 37 students of the subject of Expression and Body Communication in Early Childhood Education in the fourth year of the Early Childhood Education Degree. Students can choose between three ways of learning and assessment: Continuous track, mixed track and final or non-face route. After the analysis of the official records of mark, the results obtained show that the Formative and Shared Assessment has influenced their academic performance, and the students who have opted for the continuous assessment pathway have obtained a better academic performance. Most students have opted for this way of learning and assessment. 97.3% of students have passed the subject and the average of the students' grades is remarkable. For this reason, it seems necessary to investigate further the topic with larger samples and, especially, in the face of the new situation of confinement and online teaching.

Keywords: Formative assessment, shared assessment, academic performance, pre-service teacher education, physical education, early childhood education.

Resumen

En la última década se está despertando un elevado interés por las ventajas que la aplicación de una evaluación formativa parece tener en la docencia universitaria. El presente estudio tiene como finalidad analizar si la Evaluación Formativa y Compartida en la Formación Inicial del Profesorado ayuda al alumnado a obtener mejores resultados académicos. Para ello se realiza un estudio de caso con 37 alumnos de la asignatura de Expresión y Comunicación Corporal en la Educación Infantil de cuarto curso del Grado de Educación Infantil. El alumnado puede elegir entre tres vías de aprendizaje y evaluación: Vía continua, vía mixta y vía final o no presencial. Tras el análisis de las actas oficiales de calificación, los resultados obtenidos muestran que la Evaluación Formativa y Compartida ha influido en su rendimiento académico, y el alumnado que ha optado por la vía de evaluación continua ha obtenido un mejor rendimiento académico. La mayoría del alumnado ha optado por esta vía de aprendizaje y evaluación. El 97.3% del alumnado ha superado la asignatura y la media de las calificaciones es de notable. Por esta razón, parece necesario investigar más a fondo el tema con muestras más grandes y, especialmente, ante la nueva situación de confinamiento y enseñanza on-line.

Descriptores: Evaluación formativa, evaluación compartida, rendimiento académico, formación inicial del profesorado, educación física, educación infantil.

1. Introduction and state-of-the-art

For years, the university professors in charge of Initial Teacher Training (ITT) is looking for a change in the assessment, seeking to move from “the exam culture” or “banking learning” to “culture of assessment” or “dialogical learning” (Dochy et al., 2002). The “exam culture” is a traditional methodology, based on the master lessons in which knowledge is focused on the teacher and only the final results are evaluated, while the “culture of assessment” aims to create assessment processes providing feedback to generate greater learning in students and improve the teaching-learning process; in this way, not so much importance is given to the grades (López-Pastor et al., 2020). Therefore, many authors consider that to improve the teaching-learning process, it is necessary to carry out processes of Formative and Shared Assessment (FSA) (Cañadas et al., 2018; Carter-Thuillier, 2015; Gallardo et al., 2019a; Gallardo et al., 2019b; López-Pastor et al., 2020; Romero-Martín et al., 2016), with a special attention on feedback and participation of students in the learning process (Biggs, 2005; Black & William, 2003; Boud, 2010; Boud & Falchikov, 2006; BrOwN & Glasner, 2003; Falchikov, 2005; Nicol & Macfarlane-Dick, 2006).

According to Castejón et al. (2011), formative assessment focuses on improving learning teaching processes. In this sense, López-Pastor et al. (2020) state that formative assessment seeks to generate processes of improvement and learning in three ways: (a) improve the learning processes of students and the quality of their productions; (b) gradually improve the teaching practice; and (c) reconstruct the teaching-learning processes that are carried out in the classroom, throughout the subject and course by course.

López-Pastor and Pérez-Pueyo (2017) define shared assessment as the individual or group dialogues that are carried out between teachers and students about the teaching-learning processes previously conducted. The shared assessment promotes the participation of students in the assessment process and has shown that it also improves the learning process of students (Gallardo et al., 2019a; Carter-Thuillier, 2015; Moreno et al., 2019; López-Pastor & Pérez-Pueyo, 2017).

Currently, several studies defend the importance of student participation in assessment processes (Boud, 2010; Boud & Falchikov, 2006; BrOwN & Glasner, 2003; Falchikov, 2005; Ibarra et al., 2012; Herranz, 2013). In addition, López-Pastor and Pérez-Pueyo (2017) defend the participation of students in the assessment process through different techniques, which can be summarized in the following table (see table 1):

Table 1. Participation techniques of students in the evaluation (obtained from López-Pastor & Pérez-Pueyo, 2017)

Self-assessment	It is the assessment that a person performs on himself/herself. It can assess the process and/or the personal result obtained. This technique can be performed on an individual or group.
peer-assessment	It is the assessment between pairs (individually or in group).
shared assessment	Dialogue processes that are carried out between teachers and students on the teaching-learning processes previously conducted. It can be individual, in small groups or big groups.
Self grading	The student sets a grade he/she thinks the student deserves. It is important to establish qualification criteria by the teacher in advance. These criteria should be mentioned since the beginning of the subject and it is appropriate to agree with students.
Dialogue graded	It is the process that is carried out between teachers and students to discuss the final grade. To do this, it is also important that the qualification criteria are previously established. This process can be given individually, in small groups or in large groups.

Source: López-Pastor and Pérez-Pueyo (2017).



Some studies on the development of FSA experiences can be found in Latin America. Gallardo et al. (2017) review the perception of students, professors and graduates of a Chilean university about the possible application of such systems during the ITT. Subsequently, they investigate the extent to which the application of FSA systems influences the self-perception of competences acquired in ITT (Gallardo et al., 2018), as well as the advantages and disadvantages of applying this type of assessment in the ITT in Chilean universities (Gallardo et al., 2020). Additionally, Moreno et al. (2019) conduct a discursive study on the formative assessment and participation of students in a feedback activity at a public university in Mexico. Three categories of data analysis are performed: peer-assessment, peer-assessment, and self-assessment. The results show that students receiving feedback participate in their assessment by questioning and adding relevant data for a better learning.

There are studies that indicate that thanks to the implementation of FSA systems, students improve their academic performance (Angelini, 2016; Arribas, 2012; Gallardo et al., 2020; López-Pastor, 2008; Castejón et al., 2011; Fraile et al., 2013; Romero-Martín et al., 2014). It is understood that academic performance refers to the grades students get at the end of the subject.

López-Pastor (2008) conducts a case study in the ITT of physical education in which the author finds a high academic performance of the students. In addition, there are a number of reasons in this study that indicate why it is beneficial to implement FSA systems in the ITT: (a) because it allows to improve the teaching-learning processes, and as a consequence it increases their motivation and involvement in these processes; (b) because it is the most coherent assessment if active methodologies and systems focused on student learning are used; and (c) because these systems develop responsibility, autonomy and self-criticism in learning processes.

Castejón et al. (2011) conduct a study on the use of FSA systems in the ITT of physical edu-

cation to improve the academic performance of students from three Spanish universities through a descriptive statistical analysis. Students have the option to choose the learning process according to the type of assessment: continuous or final. The high attendance and participation of students in the assessment processes are very important to be able to carry out the continuous assessment. These authors conclude that the use of FSA can help achieve better academic performance for students who opt for continuous assessment, compared to students who choose the final assessment. On the other hand, Fraile et al. (2013) conduct a study to analyze the influence of FSA on ITT on the academic performance. A descriptive statistical analysis and ANOVAS are performed on academic performance data from 19 Spanish universities in 52 different subjects. Students are offered several means of assessment and the FSA vs mixed or final exam is compared. The percentages of students working in the subject developing FSA are 83% suitable (mostly notable), 8% did not present and 9% suspense. Therefore, the results obtained seem to indicate that students who chose FSA achieve better grades than students who opt for the final exam. In addition, in American universities, Boud and Falchikov (2006) conduct studies on the reliability of the participation processes of students in the assessment, obtaining positive results. Boud (2010) says it is good to involve students in their assessment process because it actively improves their learning.

On the other hand, Arribas (2012) conducts a study on academic performance according to the assessment system used, using a sample of 2192 students from fourteen Spanish universities. The results indicate that the assessment system used has an influence on the academic performance of students and that continuous assessment is the one that generates the best academic results. Likewise, Romero-Martín et al. (2014) analyze the influence of FSA on the ITT of fifteen Spanish universities, with a sample of 3625 students from 30 different subjects through a descriptive statistical analysis and ANOVAS.



The results presented indicate that students who experience FSA improve their academic performance and are satisfied with this type of assessment because they participate and their learning improves. Another study by Romero-Martín et al. (2015), analyze the divergences of teachers and students in the ITT after applying FSA, indicating that although the FSA is very demanding for students, the final grades of the subject were good.

Gallardo et al. (2020) conduct a study at a Chilean university on the perception of ITT students of physical education and professional training Technical University Sports on the FSA used in diversity care subjects. The results show that students positively value the FSA that has been carried out during the subjects, even though they consider that it requires mandatory attendance, continuity and greater time and effort. These drawbacks to the assessment system used are considered to be rewarded with greater learning and improved academic performance.

Lopez et al. (2016) state that the use of FSA is related to the use of active learning methodologies. In this sense, López-Pastor et al. (2020) highlight the importance of using active methodologies and FSA as an alternative to traditional methodologies, because it is the most logical assessment. According to Castejón et al. (2011), there seems to be a link between the use of active methodologies and FSA systems, since the professor and the student work together through constant feedback to improve the teaching-learning process: it guides the decision-making of professors and students, it regulates teaching actions, it establishes reflection-action cycles, etc.

Therefore, the main objective of this research is to analyze whether FSA in the ITT help students to obtain better academic results through the continuous learning compared to the final learning.

2. Materials and methods

The design of this research is a simple case study since only a case is analyzed in a group of stu-

dents. According to Martínez (2006), the case study method measures and records the behavior of people of the phenomenon that wants to be studied through a scientific rigor that demonstrates validity and reliability in the results. A case study is characterized by being a descriptive study that has a single sample, either a person or a group of people (Montero & León, 2005). This research will analyze a specific case of a single subject in a real ITT context.

The context in which this study is carried out is a Faculty of ITT in Segovia (Universidad de Valladolid, Spain), specifically in the subject of Expression and Body Communication in Early Childhood Education that takes place in the first semester of the 2019-2020 course. It is an optional subject of 6 ECTS credits (150 hours). The exhibition is composed of 37 students and fourth-year students of the Children's Education Degree and fifth year of the Joint Undergraduate Studies Program in Early Childhood and Undergraduate Education in Primary Education. Teacher degrees in Spain last four years and are equivalent to 240 ECTS credits. The Faculty of Education of Segovia offers two types: Degree in Early Childhood Education and Degree in Primary Education. In addition, a Joint Undergraduate Study Program in Early Childhood and Grade Education is offered for 5 years. In the last course of the degree, the student should choose the specialization, composed of five subjects specialized in the chosen subject. The specializations in the Degree of Early Childhood Education at this center are: (a) Expression and Artistic Communication and Motor Skills; and (b) Observation and exploration of the environment. The specialization for the Degree of Primary Education are: (a) Music Education; (b) Physical Education; and (c) Environment, Nature and Society.

The course is developed during thirteen weeks, scheduled from September to December. Two hours of practice, one hour of theory and one hour of seminary a week are taught. In Table 2, a forecast of students' dedication to the subject is developed.



Table 2. Student dedication hours to the subject

In-person activities	Hours	Remote activities	Hours
Theoretical-practical classes	30	Research and individual autonomous work	40
Practical classes in the classroom	23	Research and autonomous group work	40
Seminars	7		
Group tutoring			5
Evaluation			5
In-class total	60	Remote Total	90

Own elaboration

The study focuses on one of the results generated by the assessment system used, and it will be explained with more detail in this section of the context. When the organization of the subject is presented and explained the first day of class, students are offered three learning and assessment options: (a) continuous, (b) mixed and (c) through final or remote (see table 3). Students can choose the option that best suits their personal situation, although sometimes and depending on the subject, there are people who go continuously through the mixed option.

According to Castejón et al. (2011) and Biggs (2005), students choose the learning and assessment system in the context of active methodologies and FSA systems.

Table 3 presents the requirements that students must meet for each type of assessment, as well as the percentages on the final grade granted to each learning activity. It is important to note that, on the first day of class, students are discussed to see if they agree on the weighting of each activity on grading, or if they want to make any changes.

Table 3. Requirements for the different learning and assessment option and weighting in the final grade of the subject

Continuous	Mixed	Remote
Attendance to all classes (students can only miss 15% of classes if justified) Requires to present all the works of the subject There is a partial exam with peer-assessment	Attendance to all classes (students can only miss 15% of classes if justified) Requires to present all the works of the subject There is a partial exam with peer-assessment	Attendance is not mandatory Works are not presented Final exam: theoretical and practical
Weighting of the final grade		
Tutored Learning Project (TLP): 35% Dossier with notes and concept maps: 10% Session sheets: 20% Recensions and individual work (rehearsal, dialogical talks...): 15% 2nd exam with peer-assessment or peer evaluation: 20%	PAT: 30% Hands-on works: up to 20% 2nd term exam with peer-assessment: 50%	TLP: 30% Final exam with a theoretical part (50%) and a practical part (20%) and the presentation of a report on the TLP that accounts for 30% on the final grade.

Own elaboration



Students have descriptive scales with the assessment and grading criteria for each learning activity. It is important to note that, in order to be able to approve, the student needs to overcome each section. All dedicated learning jobs and activities are returned corrected by the teacher within a week, and thanks to the feedback provided, students can improve the work in the same time frame.

On the continuous option, the students follow a continuous and formative process, with constant follow-up and feedback, without the need to take a final exam. On the mixed option, there are students who cannot attend 100% of the classes of the subject, but do perform work and follow the usual functioning of the classes. The final or remote option is for students who do not attend any class and have not done any learning work or activity; it is based on a final and summative assessment.

During the subject, different learning activities are carried out and these are briefly explained.

- **Tutored Learning Project (TLP):** is a group work in which each group chooses a topic from those provided by the teacher and texts are assigned to develop a theoretical framework and session plan according to the topic. The hands-on session takes place with the rest of the colleagues and the theoretical framework is presented in 10 minutes. After the implementation, they should make a report reflecting on the practice. Throughout the process, tutoring is carried out to correct the documents.
- **Dossier of notes and conceptual maps:** during theoretical sessions, students must expand and reinforce the contents of the dossier provided to them on the platform. In the dossier there are activities on theory: questions, tables, bibliographic quotations, etc. In addition, for each topic of the dossier a conceptual map is elaborated in which students must show that they know the contents and are able to relate the information.
- **Session sheets:** practical sessions are held every week and each group of students must

draw up a session sheet that must follow the following structure: session narration, advantages, disadvantages and improvements of the proposal, a personal experience, a brief analysis of the teaching competences.

- **Recensions and individual work:** three dialogical talks are held throughout the subject. Two texts are provided on the virtual platform and each student must read one of them and choose at least three paragraphs and justify why they have done so. Then, during in-classroom classes, small group discussions are established about the paragraphs that each partner has chosen. In addition, in this section they also write an essay: it consists of doing a brief work of 2000 words on a subject of physical education of their interest. The essay should have an abstract, an introduction, a theoretical framework, a small work proposal, advantages and disadvantages, conclusions and bibliographic references.
- **Partial exam:** this is a knowledge test where students collaborate in the elaboration of possible questions. An assessment and correction process is also carried out between pairs at the end of the exam, with a template provided by the teacher.

The data collection tools are the official degrees of qualification of the subject and the teacher's journal. The procedure followed by the data collection of each student has been carried out through the collaborative folders. These folders are delivered on the day of the partial exam and represent a collection of all the learning activities they have performed throughout the subject. Both the first installments and corrections must be after the feedback from the teacher.

The professor reviews each collaborative folder, both the individual and the group part, and the final grade is obtained based on the qualification criteria established at the beginning of the subject.



3. Analysis and results

Table 4 shows the number of students who have opted for each learning and assessment option.

Table 4. Number of students in each learning and evaluation option

	Percentage	Nº of students
Percentage	Nº of students	34
Mixed option	2.7%	1
Final or online option	5.4%	2
Total	100%	37

Most students have opted for the continuous learning and assessment option (91.9%). By contrast, only 2.7% of students have opted for the mixed option because they have not been able to submit all the work at time, and 5.4% of the students have chosen the final or remote

option because they could not attend the classes. In Table 5 is presented the overall results of the subject. It is important to highlight the high number of students who have passed the subject in the first call of the subject (97.3%).

Table 5. Overall results of the subject

Final grade	Percentage	Nº of students
With honors	Percentage	Nº of students
Outstanding	21.62%	8
Good	54.06%	20
Approved	16.22%	6
Reproved	0	0
Did not present	2.7%	1
Total	100%	37

The final grades of the students of this course are quite good, there is only a 2.7% who have not passed the subject because they have not taken the exam. The rest of the students have passed the subject with quite high grades. The

average grade of the subject is 7.72 points out of 10. Table 6 shows the percentages of each grade according to the learning and assessment option chosen by the students.

Table 6. Percentages of each grade according to the learning and assessment option chosen by the students

Options	DP	Reproved	Approved.	Good	Out.	With Honor	Total
Continuous	-	-	13.52%	51.36%	21.62%	5.4%	91.9%
Mixed	-	-	2.7%	-	-	-	2.7%
Exam	2.7%	-	-	2.7%	-	-	5.4%
Total	2.7%	-	16.22%	54.06%	21.62%	5.4%	100%

Considering this data, academic performance is different depending on the assessment

method chosen. First, all the students who have followed the continuous option have passed the



subject and, in addition, have obtained the best results. 2.7% of students who have opted for the mixed option have obtained an approved grade. With regard to the final exam option, there are two cases: 2.7% which has passed the subject with a remarkable score and 2.7% who did not take the final exam. The results show that the highest grades are obtained through the continuous option of learning and assessment: mostly good and outstanding. While the final or remote option only 2.7% manages to pass the subject with a remarkable grade; a number that is not usual.

4. Discussion and conclusions

This work shows the results obtained after the implementation of FSA, combined with the use of active methodologies in a fourth course of the Master's Degree in Early Childhood Education. On the one hand, this experimentation seems to show that the use of FSA is most consistent with the use of active methodologies in the ITT.

Students are offered the choice of one of the three learning and assessment options: continuous and FSA, mixed and final (final exam). The final exam option is usually chosen by students who do not want to be continuously involved in their teaching-learning process or who are unable to attend class. In this case, most students have chosen the continuous option, even if it involves more work and there are more requirements (attendance, works, etc.). These results are similar to those found by Julian et al. (2010), Martínez-Mínguez et al. (2015) and Vallés et al. (2011), who collect experiences of ITT students who positively value the experience of FSA during their training and are quite satisfied with the experience, because they generate greater learning, even though it involves more involvement and more working time for students and teachers.

On the other hand, the results show a high academic performance that, in addition, seems to be different depending on the learning and assessment option chosen by the students.

Similar results have also been found in studies with other samples and contexts (Angelini, 2016; Arribas, 2012; Buscá et al., 2010; Gallardo et al., 2020; López-Pastor et al., 2013), who indicate that the development of FSA in ITT improves the academic performance of students in Spain and Chile. Due to the high percentage of students who have passed the subject (97.3%), it can be concluded that it seems that the development of FSA seems to improve the academic performance of students. These data can also be found in studies such as the ones conducted by BrOwN and Glasner (2003) and Castejón et al. (2011).

There are several works that state that academic performance is usually better following a continuous assessment option, in which there is a process of improving the student learning thanks to the rapid feedback of the teacher (Black & Wilian, 2003; Boud, 2010; Boud & Falchikov, 2006; Fraile et al., 2013; López-Pastor, 2008; Romero-Martín, 2014 and 2015).

The results of the mixed option are ambivalent: on the one hand, there are usually people who are unable to attend all classes and, on the other hand, people who do not present the work or who do not meet the minimum criteria required. In this situation, students often pass the subject (2.7%). These results can be contrasted with those presented by Castejón et al. (2011), Vallés et al. (2011) and López et al. (2011).

Regarding the final test option, 2.7% who did take the test have obtained a good grade, while the remaining 2.7% did not present the test. This is not usual in this option, as can be seen in the studies of Arribas (2012) and Fraile et al. (2013). In addition, Castejón et al. (2011) refer that normally this option helps accumulating the final work at the end of the semester, having an impact in the academic performance, which is usually low.

As the main limitation of study, it can be pointed out that it is a single subject and one group only, therefore the results cannot be generalized in any case, but can be transferred to another context. Since this is not an experi-



mental study, each student freely chooses the assessment and learning option that they prefer. This increases the number of students on the formative and continuous assessment, which could also be a limitation of the study.

This article may be of interest to ITT teachers who have initiated in active methodologies and FSA, and to teachers who already apply these systems in their classrooms and/or research on the influence of FSA on students' academic performance or on the different learning and evaluation options that can be offered to students in higher education.

Based on these results, it seems appropriate to carry out studies with broader samples and with different subjects using FSA systems in the ITT, or comparative analysis of academic performance obtained in successive courses in this same subject. But, most relevant in these times of mandatory online classes in many countries due to the COVID19 pandemic, would be to analyze the extent to which this remote and distance learning situation has affected the development of FSA systems in the ITT.

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ALTERIDAD
REVISTA DE EDUCACIÓN

p-ISSN: 1390-325x / e-ISSN: 1390-8642

Vol. 15, No. 2/ july-december 2020

Miscellaneous Section

(Sección Miscelánea)



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Wikipedia at the spanish faculties of education. The vision of university students

*Wikipedia at the spanish faculties of education.
The vision of university students*

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Received: 2019-09-05 / Revised: 2020-06-02 / Accepted: 2020-06-05 / Published: 2020-07-01

Abstract

Since the beginning of the 21st century, there has been a change in the way people connect to the Internet, interacting more with the creators of web sites and spending more time connecting to several tools that have been called Web 2.0, such as social networks, wikis and blogs. One of the best-known wikis is Wikipedia, free online encyclopedia collaboratively edited by users around the world. In this research we have applied an online questionnaire designed ad hoc to see if Spanish university students use this tool, if they know it and if they attach importance to their studies. The results have been obtained after the completion of 1173 questionnaires by university students of Education throughout Spain. Students say they use social networks, online documents and Wikipedia. Only 5.4% of respondents indicated that they do not use this tool. They make sure they know how it works, and only 1.74% admitted to not knowing it completely. However, they do not give it much importance to their studies, as the other Web 2.0 tools. In addition, most of them know that they can edit it, but they cannot provide information, so the number of editors is very low.

Keywords: Wikipedia, wikis, higher education, university students, collaborative writing, quantitative.

Resumen

Desde los comienzos del siglo XXI se ha constatado un cambio en la forma que tienen las personas de conectarse a Internet, que interactúan más con los creadores de las páginas web y dedican más horas a conectarse a varias herramientas que se han denominado Web 2.0, como las redes sociales, los wikis y los blogs. Uno de los wikis más conocidos es la Wikipedia, enciclopedia en línea libre editada colaborativamente por usuarios de todo el mundo. En esta investigación hemos aplicado un cuestionario en línea diseñado ad hoc para constatar si los estudiantes universitarios españoles usan esta herramienta, si la conocen y si la conceden importancia de cara a sus estudios. Los resultados han sido obtenidos tras la cumplimentación de 1173 cuestionarios por parte de estudiantes universitarios de Educación en toda España. Los alumnos afirman usar mucho las redes sociales, los documentos en línea y la Wikipedia. Solo un 5,4% de los encuestados indicó que no utiliza esta herramienta. Aseguran conocer su funcionamiento, y tan solo un 1,74% admitió desconocerla totalmente. Sin embargo, no la dan mucha importancia para sus estudios, como al resto de herramientas de la Web 2.0. Además, la mayoría sabe que pueden editar en ella, pero no se ven capaces de aportar información, por lo que el número de editores es muy bajo.

Descriptores: Wikipedia, wikis, educación superior; estudiantes universitarios, trabajo colaborativo, cuantitativo.

1. Introducción

One of the most important tools on the Internet is Wikipedia, which is usually among the ten most consulted pages in the world (Alexa, 2020), and it is also among students and university professors (Brox, 2019; Wannemacher & Schulenburg, 2010). After introducing 26 random terms from different areas of knowledge in Google search, only one of these did not present in the first position the Wikipedia article regarding that term, demonstrating the ease of access that this virtual encyclopedia offers to Internet users.

The number of people accessing to consult information on the Internet on topics as relevant as health and education has increased considerably in just four years, according to surveys conducted between 2015 and 2019 by the National Statistical Institute (National Statistical Institute, 2019). Another survey, conducted among U.S. college students, showed that more than half frequently consulted Wikipedia, including its use in research papers, but mainly in the initial moments of these (Head & Eisenberg, 2010).

In France, the most confident users when consulting Wikipedia are students, while the least confident are workers in higher intellectual professions. In turn, young people between the ages of 18 and 24 were the most confident compared to the rest of the age ranges (Foglia, 2008). Both cases are similar to those exposed in research developed at other universities, which find a widespread use of Wikipedia in students (Margaryan et al., 2011; Pozzali & Ferri, 2010; Shen et al., 2013).

In Spain the data are similar. At the University of Oviedo Wikipedia is consulted as a first choice by 15% of students, as a second option for 35% and as a third option for 25% (Alonso & García, 2013), while at the University of Salamanca more than 75% uses it occasionally, and 53% claim to do so in their class work (Sánchez, 2014).

There are numerous authors and teachers who oppose to the use of Wikipedia in the class-

room, and in general for the search for information, negatively influencing their students (Garrison, 2018). Several schools have stated having problems with some Wikipedia content and the confusion of many teachers regarding its use must also be taken into account (Meishar-Tal, 2015).

Many students in their last high school year (18-19 years) admit that their teachers do not allow them to use it, but even at the risk of finding erroneous data they prefer to use it because they can find the information they need (Valverde-Crespo et al., 2019). High school students sometimes present papers copied literally or with very few modifications, in addition to not showing in them the references from where they obtained such information (Sormunen & Lehtiö, 2011).

Other reasons for not using it are the lack of reliability, that it is an unqualified source, it has abundant incomplete or inconsistent content, it generates intellectual laziness, it favors copy-paste, it has schematic articles and low narrative quality (García, 2010). Professor Pierre Assouline stated in the preface to the book *La Révolution Wikipédia* (Gourdain et al., 2007) that students do not know how documentary research was conducted before Wikipedia existed. However, this should not replace documentary research. Wikipedia is not a primary source, so any user should consult the primary sources that indicate the articles at the bottom (Los cinco pilares, 2020).

Doubts about its quality are one of the biggest limitations for teachers (Chen, 2010), although there are also other causes such as the social image of Wikipedia, the lack of acceptance in educational institutions and the little support received for training in the use of applications such as Wikipedia. It is also important to take into account the remarkable influence that an individual's opinion can have on the environment, since the opinion of teachers influences that of their students (Lim, 2013), and even other teachers often influence the opinion of their peers, because a positive opinion could lead to peers also using it (Eijkman, 2010; Lladós et al., 2013). Some authors have said that a group of people who work for free



hinders the prospects of work for scholars, and for this reason they are more critical of Wikipedia (Hastings-Ruiz, 2015).

As time goes on, the amount of research becomes more numerous (Park, 2011), activities with Wikipedia in the classroom are more common (Brailas et al., 2015; Brox, 2016; Christensen, 2015; Dawe & Robinson, 2017; Di Lauro & Johinke, 2016; Petrucco, 2019; Zou et al., 2020) and the opinions of the experts become more positive than the first studies (Barnhisel & Rapchak, 2014; Josefsson et al., 2014; Soler-Adillon et al., 2018). The latest studies even state that the active academic use of Wikipedia has a positive influence on the academic performance of students (Meseguer-Artola et al., 2019), recommending in any case being caution when consulting the sources (Eijkman, 2010).

University students admit that Wikipedia is reliable and useful, although what they value most is its topicality, as opposed to completeness (Meseguer-Artola, 2014). In Australia, 24% of college students find it very useful, and 87.5% use it for class work (Selwyn & Gorard, 2016). One of the most elaborate research on the use of Wikipedia by university students in the United States was the work done by Head and Eisenberg (2010), who found that 30% always consulted it, 22% frequently and 23% occasionally.

Regarding the percentage of publishers among students, they are at a very low level, 1% admit to editing frequently, 20% rarely do so, while 77% have never done so. 0.3% write articles frequently, while 83% never did (Kleimann et al., 2008). The students of agricultural studies had the highest percentage of reliability granted to Wikipedia, 69%, while the results among philosophy students granted 38% of reliability.

The reality is that only one-fifth of students from high school to university have received explanations of how Wikipedia works, and of these, more than 30% were assisted by friends or family (Sahut et al., 2015), which can cause problems if those people do not have in-depth knowledge in the subject. Additionally, it was

found on the research of Forte and Bruckman (2010), that the students have not been properly trained, and for that reason they see an added complexity to the fact of providing references to their work. Students consult sources they do not consider reliable, and do not even know how to use them (Judd & Kennedy, 2011), while the reaction of teachers is more passive than active in the process of teaching students how to use them (Meishar-Tal, 2015). Students will often consult Wikipedia even admitting that it is not reliable, but by the fact of being well positioned and possessing almost any article encourages them to continue using it (Valverde-Crespo & González-Sánchez, 2016).

Based on this reality, the aim of this work is to determine what perception the university students have about the knowledge, use and importance that it gives to Wikipedia in their academic training.

2. Methodology

2.1. Instrument and procedure

We design and validate a quantitative information collection tool, an *ad hoc* questionnaire (Obregón & González, 2016). Content validity studies were conducted through a pilot test, completed by 73 first-year students of the Master's Degree in primary and child education specialties, and a panel of experts, as proposed in the Delphi technique, composed of ten university researchers. In the calculation of reliability, a result of .878 was obtained in the Alpha of Cronbach. The questionnaire consisted of 93 items at the beginning of the design and validation, and 79 in the final version after taking into account the proposals suggested by the expert judges, based on criteria of clarity, relevance, order and effectiveness. This latest version was distributed in four dimensions: personal data, general part of the Internet and Web 2.0, specific part of the consultation and editing of Wikipedia. It was sent via email, with the con-



sent of the deans of the Faculties of Education involved, by linking it to the online application.

The quantitative information provided by the questionnaire items was analyzed with the SPSS 19 program for reliability, descriptive, inferential statistics (Kruskal-Wallis, Wilcoxon and Mann-Whitney U tests) and relational (Kendall's Tau and Spearman's coefficients), exploring the use of Wikipedia by the students, the knowledge they have of it and the importance they give it.

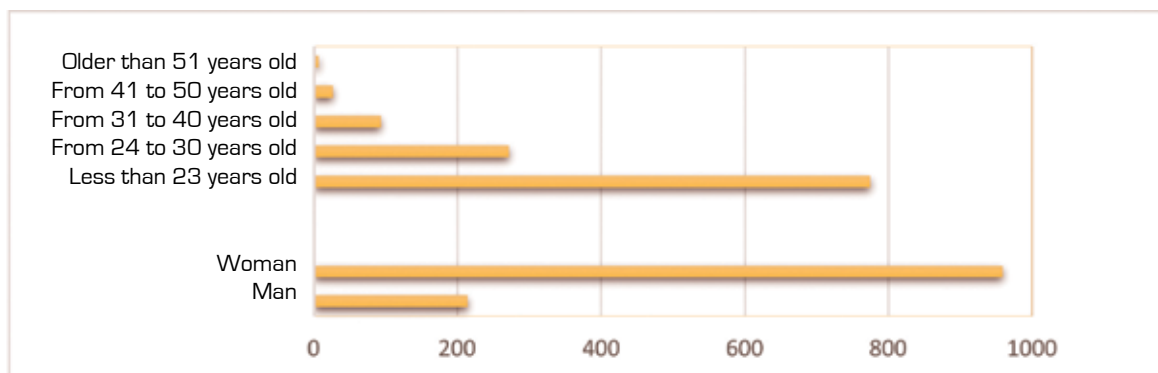
2.2. Participants

The number of students in undergraduate, first and second cycle studies enrolled in all public and private universities in Spain in the area of Education was 156,986 students. With this data, the minimum number of questionnaires

to be completed was 1060, with 1415 responses obtained after the due time. After eliminating the invalidated responses, this research analyses the data provided by 1173 university students of Education in Spain.

As can be seen in Figure 1, 959 women and 214 men participated, mostly (66%) under the age of 23. All courses in university education were represented, in the degrees in Teaching in Primary Education (36.4%), Children (23.4%), Pedagogy (13.2%), Social Education (11.2%), Children and Primary (3.8%) and also in various types of master's degree (11.9%). More than half of the Spanish universities responded to the questionnaire, highlighting the answers of the universities of the east peninsular, since the universities of the Valencian Community and Catalonia represented 40% of the total.

Figure 1. University students who took part in the questionnaire



Source: Own elaboration (2020)

3. Results

The questionnaire was used as an information collection tool to understand the current reality about the use, importance and knowledge of web 2.0 tools, and specifically Wikipedia, by Spanish university students in Education studies. Students were asked about social media, video-based social media, microblogging, blogs, wikis, Wikipedia, storage platforms, online documents and forums.

From the answers obtained, it was observed that university students in Spain very often use social networks such as Facebook or Instagram, specifically 96.3% admitted to using it little, a lot or too much. Video-based social networks such as YouTube, online documents and Wikipedia are also widely used, but not so blogs, wikis and forums. This may be because forums and blogs have been replaced by social media, where it is possible to review, comment and follow others in a simpler way.

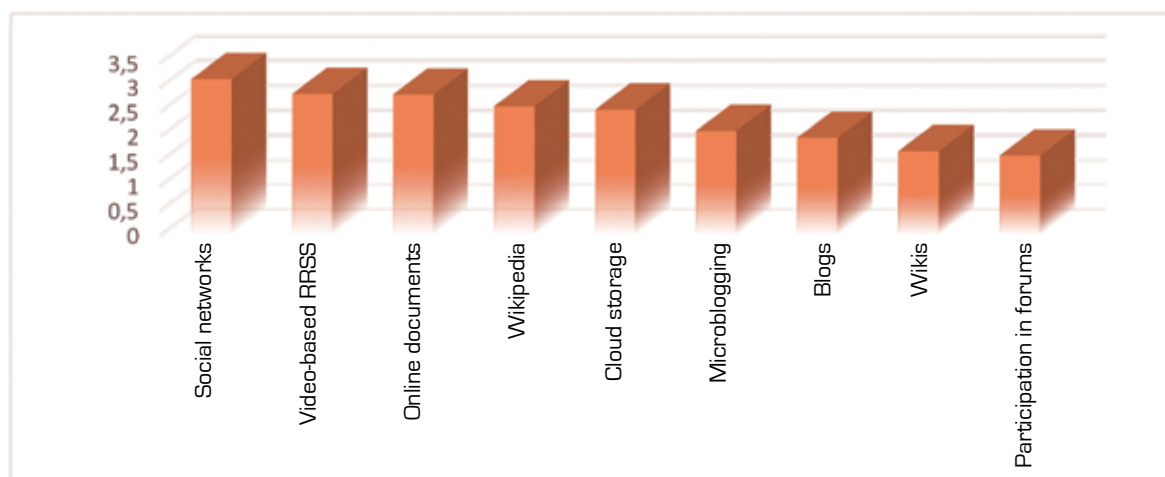


After conducting Kruskal-Wallis and U Mann-Whitney tests applied to the “Use_Social_Networks” dimension, it was observed that younger students and lower courses use social media more ($p < ,003$ among those under the age of 23 and other age groups and $p < ,008$ between the 24 to 30 age group and older). As they increase in course ($p = ,012$ between first and fourth and p students $p = ,040$ between second and fourth students) or acquire a degree they stop using them as often ($p < ,036$ in all cases comparing students without a degree and those with C.F.G.S., diploma or bachelor's degree). The more time university students browse the Internet ($p = ,000$ in all cases where dedicated hours are compared) and as their computer knowledge increases ($p = ,002$ between the basic and advanced level and the $p = ,005$ between the middle and advanced levels), the more they use the web 2.0 tools. As for the tools for file transfer, online documents and forums, students under the age of 23 are those who use this type of tools the least ($p = ,000$ among those under 23 years of age and among those who are between 24 and 30 years of age and $p = ,001$ among those under 23 and those between 31 and 40 years old), and their use increases as age increases. Students who

are in master's degrees, and those who already have a higher degree, also use this type of tools more frequently compared to students who only have a bachelor's degree ($p < ,008$ among students without a degree and graduates or graduates, $p = ,006$ among students with C.F.G.S. and those with postgraduate degrees).

The use of Wikipedia is intermediate, being 2.61 its average, slightly higher than that of the scale (2.5). Students who use Wikipedia the least are those who already have a training cycle, compared to students who have another type of degree (high school, bachelor's degree and postgraduate degree). Additionally, students with basic computer level consult Wikipedia less (average of 2.49), and as their level of knowledge increases their use also increases (3.11 experts). Finally, users who spend more than four hours on the Internet use Wikipedia more than other users who browse for less time ($p < ,025$ in all cases compared to the other options). In addition, there were differences between students with a basic level of computer knowledge with respect to those who claimed to have an advanced level ($p = ,012$) and expert ($p = ,004$), mid-level students with the experts ($p = ,008$) and the advanced with respect to the experts ($p = ,034$).

Figure 2. Use of nine tools by university students



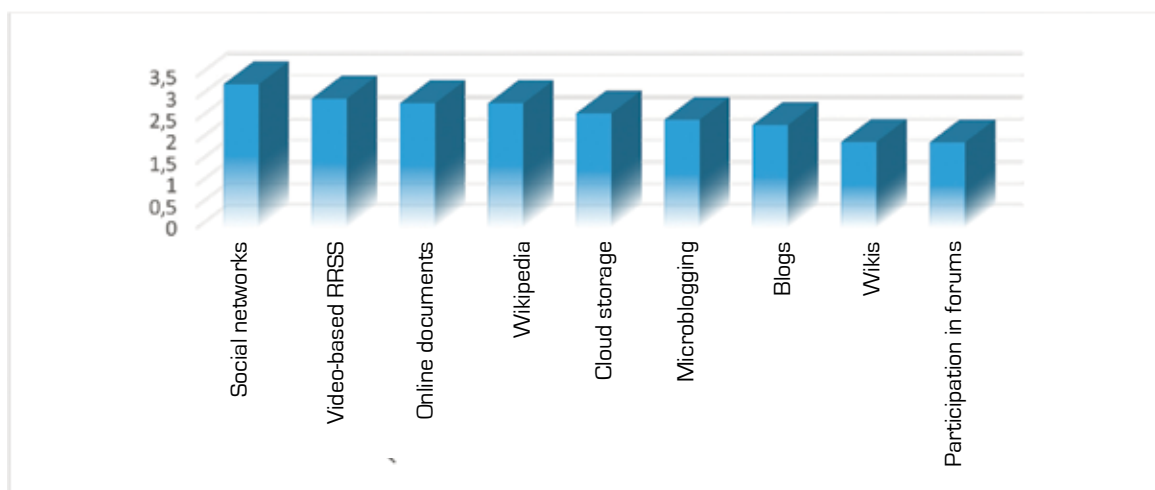
Source: Own elaboration(2020)



The knowledge of Web 2.0 tools by university students in Spain is medium, maybe due to the ignorance of two of its main tools: forums and wikis. The knowledge of the other tools is intermediate, except for social networks such as Facebook or Instagram, in which they admit to possessing high knowledge. It is also observed that the knowledge of the students in the tools of the Web 2.0 is high and increases the more time they spend on the Internet ($p = .000$ in all cases of comparison between dedicated hours) and greater computer knowledge they possess ($p = .000$ in all cases compared to computer levels). In addition, the youngest claim to have greater knowledge of Web 2.0 tools compared to older students ($p = .010$ among those under the age of 23 and those from 31-40, $p = .012$ between those under the age of 23 and those from 41-50, $p = .034$ between students from 24-30 and 31-40, and $p = .024$ between students from 24-30 and 41-50 years old), while as they course other levels their knowledge increases ($p = .008$ between first and second and $p = .014$ between first and fourth grades).

As for the knowledge that Spanish university students have of Wikipedia, it can be said that it is medium-high, as indicated by the average of this item (2.88) and the fact that only 1.74% claims to have zero knowledge of Wikipedia. It has been found that the higher the level of computing that students have, the more knowledge they have about Wikipedia, reaching a very high knowledge of computer experts ($p = .000$ in all compared cases except $p = .006$ among the advanced and the experts). In addition, it is observed the same effect in students who spend more hours on the Internet, the more hours spent the more knowledge they claim to possess ($p < .020$ in comparisons between students who spend less than an hour and the rest, $p = .002$ between those who spend 1-2 hours and those who spend more than 4 hours and $p = .010$ between those who spend between 2 and 4 hours and those who spend more than 4 hours). As for the correlation between the use of Wikipedia and their knowledge of it, there is a moderate correlation ($\rho = .479$ was the result of Spearman's Rho correlation coefficient).

Figure 3. Knowledge of university students of nine tools



Source: Own elaboration (2020)

Spanish university students provide little importance to forums, social media or blogs

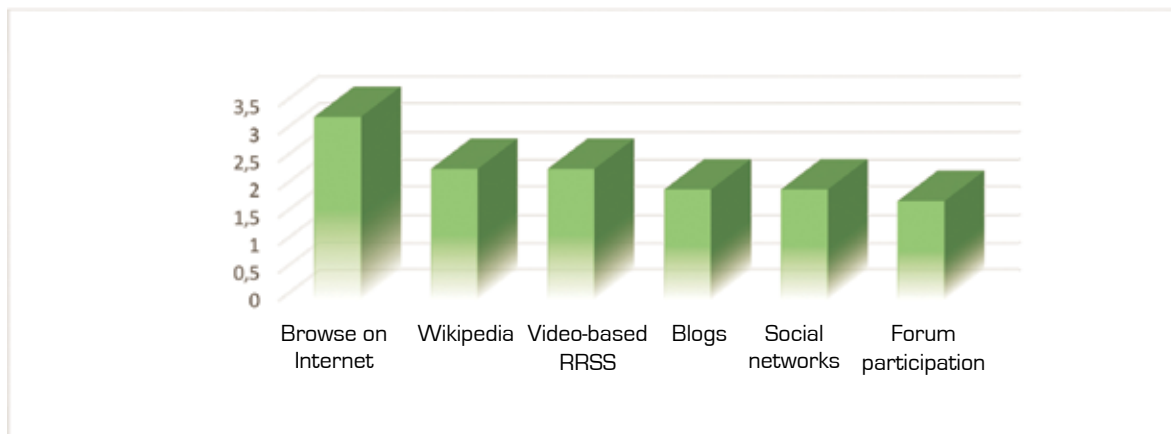
for their studies. However, Internet browsing is very important to them. If taking into account



that this is not a tool of the Web 2.0, then it is concluded that the students give little importance to this type of tools for their studies (the average, without including Internet browsing, is 2.10). Some students consider Web 2.0 tools more important than others, as is the case of those older than 23 years ($p < .033$ compared to the rest of age groups), students studying at the universities of the south of the country ($p < .035$ compared to the rest of the universities of the country), those who study master's degrees ($p < .037$ compared to the rest of the specialties), who spend the most hours to browse ($p < .016$ in all comparisons made except among students who connect between 1-2 hours and between 2-4 hours with a $p = .215$), those who have the greatest knowledge in computing ($p < .008$ in all cases except among those who have advanced level and expert who with $p = .057$) and those who already have a bachelor's degree ($p < .033$ in all compared cases).

The result of the analysis of the importance that University students of Education give to Wikipedia in their studies allows to affirm that Spanish university students give an intermediate-low importance to Wikipedia. The mean is 2.37, the median values are typically 2.00, and only in six cases the category values of each item exceed the scale mean (2.5). Men ($p = .010$), students between 31 and 40 years old compared to those under 31 ($p = .002$ in both cases), those who study at a university in southern Spain ($p < .043$ in all cases), those who have a bachelor's degree, compared to those with a high school degree ($p = .002$) or a C.F.G.S ($p = .006$), those who have a level of expert computer knowledge regarding intermediate ($p = .032$) and basic ($p = .014$), and those who spend more than 4 hours browsing the Internet, compared to those who spend between 1-2 hours ($p = .022$) and between 2-4 hours ($p = .032$) give more importance to Wikipedia for their studies than the other categories.

Figure 4. Importance given by college students to six tools



Source: Own elaboration(2020)

In addition to this data, 92.2% of college students knew that anyone could edit on Wikipedia, but 5% did not know it and use it quite or much. Regarding the number of students who have ever edited on Wikipedia, it was only 12% of the total, while 0.38% have done so frequently or very often.

4. Discussion and conclusions

The objective of this research focused on knowing the current reality about the use, importance and knowledge of the tools of the Web 2.0, and specifically Wikipedia, by the students studying



at the Spanish Faculties of Education. From the results of the questionnaire, it is possible to see that a high percentage of students use social networks (96.3%), data similar to those presented by the National Statistical Institute (2019), which indicates 91.1%. Also noteworthy is the high number of students who use social media, online documents and Wikipedia, contrary to the low use they give to blogs, wikis and forums.

Several research has noted that more than 80% of students use Wikipedia (Gilles, 2015; Sánchez, 2014). The average obtained by the research carried out at the University of Salamanca was 2.81 (Sánchez, 2014), while in our case it was 2.61, slightly lower, but above the scale average. There is a greater coincidence with Gilles' research (2015), which states that 5.7% of its respondents did not use Wikipedia, compared to the 5.4% we have obtained in this case, demonstrating a regular use of it.

Regarding the knowledge and importance of Web 2.0 and Wikipedia, we observe that Spanish university students have an average knowledge in most of the tools of the Web 2.0, except on social networks, of which they claim to have a high knowledge. Regarding Wikipedia, their knowledge is medium-high and only 1.74% claim to have zero knowledge about it. Their use of the encyclopedia gives them, according to them, knowledge of the tool and of its inner working.

They hardly give importance to Web 2.0 tools, highlighting the low importance they provide to forums, social media and blogs. Mainly, for their studies they use other resources such as classroom books, questions to the teacher and their classmates, or internet browsing, as Gilles mentioned (2015). Wikipedia is mainly used for leisure topics, but they give it intermediate-low importance for its use in their studies.

Flanagin and Metzger (2011) found that although most of the students surveyed knew Wikipedia, 22% did not know that everyone could participate. This percentage has reduced due to the increased knowledge that university students have of the functioning of Wikipedia,

since this research has found that only 7.8% did not know that they could edit.

As for the participation percentage, Kleimann et al. (2008) obtained that only 0.3% of students created articles frequently, while 83% had never done so. Cuquet and García-San Pedro (2019) claimed that 7% of ESO students and 14% of Baccalaureate had edited once, while in our case, only 12% had done it once, being only 0.38% who have done it frequently or very often. The main reason they set out not to do so is that they do not think they can give a significant contribution.

In short, this article contributes to a better understanding of students' knowledge of the technological tools they use on a daily basis. Wikipedia offers a wide variety of possibilities, enabling collaborative learning, and encouraging active learning.

As limitations of this study we can indicate the fact that the data collection focused solely on Bachelor's degrees from the field of Education and from a quantitative approach.

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The meaning of the teaching practice: the voice of its protagonists

El significado de la práctica docente, en voz de sus protagonistas

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Received: 2020-01-31 / Revised: 2020-05-27 / Accepted: 2020-06-04 / Published: 2020-07-01

Abstract

This article stems from the education professionals' pressing need to bring up their experiences and knowledge at the discussion table in order to reshape their pedagogical thinking. In an attempt for the empirical sphere to inform what has been said thus far about the teaching practice, this document seeks to collect the educators' voices, thereby contributing new knowledge to the teaching field. Thus, the proposed objectives of this research are: To know the aspects that make up the essence and the tasks involved in the teaching occupation; to interpret the meanings that educators give to their pedagogical performance; and to understand their construction of their Own pedagogical knowledge in relation to their work. The study followed the type of qualitative methodology known as case study, which allowed for a detailed, in-depth examination of 43 student teachers from different generations who took the subject of «Teaching Practice Analysis» as part of a master's degree program in Ciudad Juarez, Chihuahua, Mexico. One of the results found showed that the subjects involved know that their praxis involves their way of thinking, reasoning and valuing the world and that it is also highly influenced by multiple interactions. The research concluded that critical and reflective analysis of teachers' actions requires both a collective dialogue and an interpretation of their actions.

Keywords: Teaching practice, teaching, case study, teaching knowledge, education professionals, qualitative research.

Resumen

La existencia del presente artículo obedece a la necesidad apremiante por parte de los profesionales de la educación de poner en la mesa de discusión sus experiencias y saberes, a fin de reconstruir su pensamiento pedagógico. El presente documento, en un intento por conocer desde la empírea lo dicho hasta el momento sobre su ocupación, busca recuperar su voz y con ello aportar conocimiento al área de la práctica docente, razón por la cual se plantean como objetivos de investigación: Conocer los aspectos que conforman el ser y el quehacer en esta actividad; interpretar los significados que construyen acerca de su actuación pedagógica; así como comprender la construcción de su saber pedagógico en relación con su labor. La metodología de investigación se aborda desde una postura cualitativa, mediante el estudio de caso, este posibilita la revisión exhaustiva de 43 maestros estudiantes de diferentes generaciones que cursaron la materia de «Análisis de la Práctica Docente» de un programa de Maestría en Ciudad Juárez, Chihuahua. Uno de los resultados encontrados, rescata que estos actores en cuestión saben que su ejercicio involucra sus percepciones sobre el entorno que le rodea, entorno impregnado de múltiples interacciones. Como conclusión, el análisis crítico y reflexivo de

su actuar requiere tanto de un diálogo colectivo como de una interpretación de acciones.

Descriptores: Práctica docente, docencia, estudio de caso, saberes docentes, profesionales de la educación, investigación cualitativa.

1. Introduction and state-of-the-art

“Since Mexico joined the OCDE in 1994, education reforms have been constant... However, the educational crisis deepened, negatively impacting the Mexican population” (López, 2013, p. 61). As a result, in February 2013, Mexican education reform was declared constitutional by the federal legislature and in the same month it was enacted and published by the federal executive. It should be noted that such an educational crisis is not the sole responsibility of teaching, however, the education professional needs to analyze his/her performance in order to observe his/her part of the problem in the aforementioned crisis. In this regard, Rodríguez (2016) states that education cannot be addressed from the passivity and ignorance of the professor, because it requires greater responsibility from the professor.

Therefore, the review of the teaching work requires to study aspects that make up this practice to achieve it, but without forgetting that it is part of a whole. This analysis involves exploring its areas of opportunity and its strengths to be located and recognized within this educational act (Fierro et al., 1999, p. 26), which allows the understanding of this reality with a broader view of the educational process; reading that aims to generate a transformation and lead to personal and professional growth, which can be understood as re-resigning it, and thus recovering the value and meaning of the profession. In this sense, the presence of reflexive practice, which according to Domingo (2013), is the methodical and intentional attitude necessary for the professor. Such spaces and their dynamics generate the interest to address research that manages to understand this educational

exercise from the perspective of the faculty, through the review, analysis and reflection of their daily practice, as well as the construction of their pedagogical knowledge. Thus, it starts from the idea that this work is full of peculiar, different and unique interactions and situations, which makes it complex to understand. The participants in this inquiry process are 43 teachers who are studying the subject of «Analysis of the Teaching Practice» of a Master’s program in Ciudad Juárez, Chihuahua, who according to Terrón (2019), read, write and reflect on what they think and do of their profession, in order to “be objective in their decisions about the profession” (p. 169).

According to El Sahili (2011) the educational profession is complicated due to all the aspects that revolve around it, and especially those that relate to teaching problems; additionally, there are “personal competences [conceived] as a cross-cutting axis of the competitive profile as they are associated with the ability of the teacher as a subject to mobilize and integrate the cognitive and motivational resources in the regulation of the quality of the professional performance” (González et al., 2017, p. 133); so that conducting this analysis leads to the confrontation of knowledge and convictions.

To carry out a conscious review, at first it is sought to recognize the teacher as an individual, with a particular life history where it is possible to address a reflection of the present and future of the teacher. On the other level, it is identified that the work of the teacher is a collective action, because in a reciprocal way, the professional of education brings to the institution — like that ideal space for socialization — is/her knowledge, ideas and experience.

Obviously, this exercise is imbued with interpersonal interactions, because relationships are made with students, other teachers, managers and parents, which by their very nature tend to be complex. The institutional climate is generated in an area where these relationships take place, impacting on the performance of the



teacher, since the performance and the decisions for the various activities are at stake. At the social level, “the teaching practice attempts to recover a set of relationships that refer to the way each teacher perceives and expresses his or her task as an educational agent whose recipients are various social sectors” (Fierro et al., 1999, p. 33). In other words, it is to reflect on the meaning of the work with regard to the historical moment the teacher is experiencing, a reality that places him/her in opposite realities in relation to other education professionals.

Inevitably, in order to address the teacher’s work, it is essential to consider the teaching practice, i.e., to think about how each teacher decodes and encodes the knowledge to be worked with and by their students, about how he/she conducts teaching situations in this educational space, such as the academic problems faced. In addition, the review needs to be addressed by the value aspect, as it is recognized that the work of this professional contains an axiological reference, since the professor puts into play his/her whole being (values, attitudes and knowledge) within the educational dynamics, recognizing the influence that the teacher has on the way in which he/she could interpret the realities lived by the students (Fierro et al., 1999).

In addition, the teacher has to do with the institutional values that define the guidelines of the educational system, which in turn are present in the curricula, which serve to design the teaching situations; in the same way it allows to examine the daily life of the institution with the intention of recognizing the type of values lived in the campus. On the basis of what is stated, it is necessary to theoretically address the following aspects:

2. The teaching practice and its conceptualization

It is important to state the concept provided by Davini (2015), who says:

When we talk about “practices” we do not exclusively refer to the development of operational, technical or “do” skills, but to the intervention and teaching ability in complex real contexts and in situations that include different dimensions and necessary reflection, decision-making and, often, even the contextualized ethical challenges or dilemmas in social and institutional environments. In other words, practices deal with genuine situations and problems (p. 29).

In this regard, the intention is to try to avoid it by reducing that activity to that simple “doing”; contrary to this, it encourages the recognition of the dimensions or elements that make it up in order to understand it in its entirety; in this regard, Fierro et al. (1999) state that “the teaching practice [is] regarded as a social, objective and intentional practice involving the meanings, perceptions and actions of the agents involved in the process” (p. 21). Vergara (2016) complements that in addition to being dynamic, contextualized and complex this practice has a characteristic aspect “an agent [who] carries out the activity on a certain reality” (p. 75). In addition to this, the current conditions in which education is developed, along with the subjective elements in the acting of each of the people involved in the educational process, make it a multi-determined social exercise. Therefore, this is “an intentional practice... which involves the actions taken by the teacher to “facilitate” the student to be taught” (Loredo et al., 2008, p. 4).

This work transcends the idea of thinking simply about acting as an education professional, because, in addition, it is imbued with nuances offered by the institutional, political, social, organizational and economic contexts; as well as the characteristics of the students, fellow teachers, managers and their particular way of being, all of this is interpreted as lives that converge, build and reconstruct the activity that is the responsibility of the education professional.



3. Meaning of the teaching performance

The action of the teacher transcends the four walls of the classroom, since the performance is also present in each and every institutional area where teacher works; the teacher is also involved with theoretical and empirical experiences, beliefs and knowledge, which allow him/her to understand the world where he/she lives; in other words, the teacher puts into play a series of personal and social constructs, as well as a theoretical framework of reference that underpins the decision-making. In this regard, Sacristán (in Vergara, 2005) states that:

When talking about meanings, there is no reference to theory, but to the knowledge, beliefs, values that help to prefigure the way a teacher performs the work, since it can be said that, according to how the educator “understands” his/her practice, it is the way he/she performs it. (p. 692)

For this reason, beyond being interested exclusively in the work, it is interesting to know the structure of beliefs, assumptions and intentions that underpin the teacher’s action; even if “to analyze the reality produced by the intervention of subjective processes and identify how teachers... [perform their] practice and how they bring their Own meanings, is not an easy task” (Villalpando-Sifuentes, 2015, p. 92); however, it helps to achieve an understanding of their work and the meaning of it. In this sense, the environment where the teacher works is assumed as a reference, because the institutional scenario, the circumstances that surround it, as well as the changes and uncertainty of the profession, are some of the many factors that build the essence of those meanings.

As far as can be said, the meaning of the teaching practice is intimately related to the aspects and realities that frame it, and as Evangelista (2015) says, teachers start from their work to link it with different aspects of social

reality, in order to build the representation of their exercise. This individual in his/her knowledge, know-how and motivation is immersed in a myriad of ideas generated throughout his/her profession and this is due to the subjective nature of the work and the social character of the aforementioned contexts.

Then, in an attempt to come to an understanding of the perceptions built by the professional of education, it is not only necessary to honestly review the beliefs, knowledge or intuitions that underlie his/her professional life, nor the way to approach the teaching (Montanares & Junod, 2018); but to be able to frame and connect the realities of his/her personal history, the historical context and the educational facts and pedagogical schemes aimed at bringing the work to life; these edges of education recognize the uncertainty and confusion generated by the teacher throughout the career.

4. Constructing the pedagogical knowledge

Undoubtedly, educational institutions are one of the main spaces where teachers create their pedagogical knowledge; however, there are scenarios that assist in such construction, which are reconstructed throughout the professional life by the various interactions the teacher experiences. According to Diaz (2006), “pedagogical knowledge is knowledge, constructed formally and informally by teachers, values, ideologies, attitudes, practices” (p. 95); everything that comes from their interactions. The direction that leads the creation of this knowledge is directed towards the scientific knowledge required to give life to the school contents, in the same way, to the development of the expertise necessary in the use of teaching strategies in the management of the curriculum; as well as the knowledge of their students and their learning processes. According to Diaz (2006), teachers, whether intentionally or not, daily create theory, which could contribute to the understanding of their professional practice.



On the other hand, one that arises from the exchange and professional reflection from processes of observation and discussion of the practice and which results in the assessment of the impact of educational practices can be called knowledge of the faculty” (Minakata, in Vertegui, 2019, p. 171); in this sense, it would be wrong to set aside the idea of conceiving pedagogical knowledge as a social construction of reality, which serves different interests both personally, politically, educationally and socially; because teachers, in addition to exercising their practice in front of the group throughout their professional career are immersed in different contexts –conferences, workshops, meetings, etc. – surrounded by people related to education. These interactions are potentially powerful spaces for the construction of pedagogical knowledge, as they represent an invaluable tool aimed at configuring and reconfiguring the latter (Hurtado et al., 2015).

In this same sense, Torres et al. (2014), state that in addition to the growing responsibilities of the profession, new challenges are being redefined, which are due to the constant changes that are being experienced; thus the knowledge generated enables a new understanding of educational reality, which is important in the teaching practice, whether in the decision-making at the pedagogical level or in action at the institutional level; this involves the development of a thoughtful process of knowledge based in each and every one of these spaces, creating the basis for understanding their actions.

5. Methodology

The intention is to understand teaching as a dynamic and multifactorial process, thus the qualitative methodology was selected “as a scenario of interpretive activities” (Denzin & Lincoln, 2011, p. 55), along with the interpretative paradigm that is addressed from axiology, epistemology, ontology and methodology (Denzin & Lincoln, 2012), since its purpose lies in the knowledge of the individual in all its subjective

complexity; it is also sought to “recognize that knowledge of human reality implies not only its operational description, but the understanding of its meaning by those who produce it and live it” (Sandoval, 2002, p. 39); in other words, the understanding is sought from the other’s vision (Quecedo & Castaño, 2002). This investigation is guided through a case study, which “involves an inquiry process characterized by detailed, comprehensive, systematic and in-depth examination of the case of interest” (Rodríguez et al., 1996, p. 92). For this document, the cases to be studied are the total population — 43 teachers — of the groups that have taken the course “Analysis of the Teaching Practice” of the first semester of a graduate program in Ciudad Juárez, Mexico, during a year and a half.

Due to the analysis that involves the review of the activity of the education professional through this methodology, dialogue plays a leading role. In this regard, Fierro et al. (1999), affirm that the dialogue carried out constantly generates criticism within thought, reason for which during the classes this activity is the protagonist in the development of the techniques used with the intention of retrieving information, for example from interviews and focus groups. These techniques were chosen because they aim to listen the teachers’ experiences and knowledge, reconstructing their pedagogical thinking, and always keeping in mind that “the teacher is a subject under construction” (Tovar & García, 2012, p. 885).

In the case of the interview, Rodríguez et al. (1996) mention that it is considered to be that relationship between two subjects who establish a communication on the basis of a particular topic; in this case, on the analysis of the practice itself. Such interaction takes place in different school spaces between researchers and participating teachers. On the other hand, a similar action is carried out, but in small groups, which Leiner (2005) mentions as a focus group; this is a kind of interview, but between the researcher (who serves as a moderator) and a dozen sub-



jects studied, who in addressing the same topic, provide information that is essential to the development of this research.

From the qualitative field, the researcher is attracted to the multiplicity of realities of the subjects studied, and the researcher uses the triangulation in order to address and know them (Denzin & Lincoln, 2013). Therefore, with the purpose of understanding this practice from the point of view of the teaching, and in view of the need to guarantee the validity of this study, the triangulation of data is made, which as a technique allows to compare and balance the diversity of information collected (Rodríguez et al., in Aguilar & Barroso, 2015), because it is ideal to interpret and understand this reality.

6. Results

In order to address this paragraph, it is interesting to start from the idea presented by Perrenoud (2001):

A thoughtful practice is not only a competence in the service of the legitimate interests of the teacher, but is also an expression of professional conscience. Teachers who reflect only out of necessity and stop raising questions from the moment they feel safe are not thoughtful practitioners. (p. 48)

Because of the latter, the result of this inquiry is considered to be unfinished, since the complexity inherent in the exercise of the teacher is in constant movement and frames it in a reality of a subjective nature, so it acquires relevance in the field of education. The discussion can be enriched by the fact that the communicative process is favored from different directions, in order to establish a reciprocity of information among the actors of the educational event (Castillo & Montoya, 2015). In order to reveal what the teacher constructs around his/her activity, three specific approaches are made that allow to nurture the inquiry, because qualitatively the relationship between these meanings and the daily work of teachers is manifested.

7. Being a teacher and the performance in the teaching practice

For the teachers studied, their work represents this set of activities and actions that they develop not only in the classroom, because rather it has been developed from the design of the planning to the evaluation process of its action; in other words, the work is far from limit the “doing”, because it involves thinking, reasoning and the assessment of the world, as well as the notions and perceptions of what teaching and learning is, which determine the implementation of the work in educational environments.

The teaching practice is a fundamental element in education; because on the basis of the decisions made, education finds its way; however, it does not determine its success or failure, because it must consider that there are political, social and institutional aspects that affect it. Likewise, elements provided by the subjects with whom they work as the families of their students, their context, their life stories, are essential aspects in all school dynamics, as well as the curriculum, and administrative and academic procedures; therefore, it can be admitted: the work is interpreted as complex and multifactorial that gives life to various educational spaces. In this regard, Vergara (2005) states that, in order to understand the work of the teacher, it is necessary to connect the events that occurred in educational environments from a global perspective with the environments where these occur, in order to give them sense and know that there is a lot more beyond the teacher's duty. In that same wording, one of the teacher states:

Our work is very noble, and I like it very much, but there are times when I am overwhelmed by the amount of things that we have to do; lot of things to do at the administrative level and another thing that has nothing to do with academics or the educational aspects; i.e., in addition to the curriculum, we must consider other aspects which have to do with new education policies. (D2)



In addition to the statement, the teachers in this research agree that being a teacher and their performance are essential aspects in the educational process, such as commitment, responsibility, dedication, updating, as well as love and emotional competence; they also recognize that their work has different nuances, typical of their personality and the educational level where they work; however, the practice goes beyond that, as it requires aspects of public policy and education reforms that have become inconsistent with school realities.

8. Meanings of pedagogical performance in the classroom

The practice makes sense and can give meaning from the experiences, history and personal perceptions of each teacher, along with professional decisions and actions; however, it is reconstructed when it is shared, regulated and reflected with other teachers, as stated in this commentary:

I think that our pedagogical performance has to do with the decisions we make not only individually in the classrooms, but with the colleagues, with the principal, and this includes the meetings that we have scheduled, the informal talks that we have in the corridors, which makes me think that this says a lot about the commitment we have to our students. It is just that we are always thinking about what to do with x person because constantly misses classes, or how to teach x problem to x student in order for him/her to understand. (D39)

To combine what was expressed, in the words of Vergara (2005), the teacher “bases his/her actions on the meaning of the things of his/her world; it is considered that it is there that the teacher “builds” the meaning from the social interactions the teacher has” (p. 685), without obviating the reflection and interpretation processes. Every decision that the educator makes to perform the role is due to the meaning that the teacher gives to his/her work, to education, to

learning, to the evaluative processes, as well as to the relationships developed in the classroom and in the institution; therefore, it can be said that these constructs determine his/her action with regard to the professional commitment, so the actions have a reason to be.

As already mentioned, the teaching practice is governed by the ideas and beliefs of teachers regarding what is taught and learned, what Zabalza (2012) believes “it is in the interest to consider not only what people do, but why they do it, what previous structures, knowledge or experiences support their plan of action” (p. 32); in this regard, the teachers in this study lack a solid theoretical base to make their decisions, since they claim that in most cases they ask for help from their peers to attend academic problems, and they implement actions that in the past were useful to them, leaving aside the contributions that theorists or professionals have offered. According to Vergara (2005) “the actions performed as a teacher are determined by their meanings, but the teacher is also fully aware of it... this is an individual act performed by the individual to appropriate experiences in a personal manner, without intermediaries” (p. 695).

In short, the decisions that teachers have made both for the development of their class and in immediacy, are supported by their experiences, knowledge and even by their intuition. It should be noted that these decisions, from the point of view of teachers, are considered appropriate to deal with each particular situation.

9. The construction of the pedagogical knowledge in relation to the teaching practice

Within the construction of the pedagogical knowledge of the teachers of this graduate program is present, in the first instance, the theory acquired by the teacher to base the teaching practice in the classroom, a theory that is related with the conceptions with regard to the learning of the students and the way of teaching, which



allows to design, organize, and evaluate the actions that drive those processes. According to Vitarelli (2005):

The field of knowledge is a space made up of discourse... the case of pedagogical knowledge and the concept of knowledge allows us to explore the teaching practice, the school and the teacher from practical situations to conceptual situations of the teaching practice. (pp. 11-12)

In this regard, the teachers of this research make a distinction between graduated teachers and those who have different profession, and say:

Graduated teachers are the ones that provide the foundations and the tools to train as teachers, with respect to the classmates who do not have the teacher training, because it is notorious that they lack of some didactics. (D20)

This reality is observed in the classroom; however, when it comes to giving life to school content, it is recognized that pedagogical knowledge has to do with how the teacher translates the «scientific knowledge» into «knowledge taught», in order to enable students to achieve their understanding; it should be noted that this also requires to identify the strengths and areas of opportunity in the teaching and learning process. They also recognize that pedagogical knowledge is built from experience; but it is hardly achieved individually, since socialization with colleagues is required in the different spaces shared, in order to support their work.

Whereas the education professional adapts the formal curriculum to the current curriculum in order to teach the academic content to the students, the full mastery of scientific knowledge – related to the subjects he/she teaches – in practice is not decisive for the success of the class; however, the techniques and teaching dynamics for working such content within the classroom are indispensable. It should be noted that this does not mean that it is acceptable to lack the scientific knowledge of the content being taught when teaching a class. On the other hand, mas-

tering the theory of the subject does not automatically imply the acquisition of knowledge by the student. In this same sense, Shulman (2005) states that the teacher retrospectively performs an analysis of his/her work, with the intention of reconstructing the events, in other words, this reconstruction is understood as the learning that the teacher acquires through the experience.

Discussion and conclusions

The teaching practice is interrelated with various elements, which according to Reyes et al. (2018), makes it complicated, and this is due to everything that surrounds the educational environment; however, this critical analysis requires the orderly and methodical exercise that has to do with the analysis and understanding of actions, as well as a collective dialogue, which helps teachers to understand the difficulties and challenges faced in everyday life, also to raise awareness of educational problems; otherwise, it would be an obstacle to changing the daily basis.

Thus, the teacher is in optimal conditions for the transformation and professionalization of the duty performed, in order to respond to the difficulties and unpredictability of situations that occur in the educational reality. In this sense, Guerrero (2016) considers that “the permanent and systematic transformation of the pedagogical practice is its purpose, however, guidelines to that restructuring are needed” (p. 17), initially by recognizing its successes and errors.

A specific set of relationships is presented in each of the spaces, characterizing the work of each teacher, which means that each practice is unique, particular and unrepeatable, due to the diversity of the personal and the professional history, along with the characteristics of the institutions and their members. Therefore, the performance of the teacher corresponds to his/her personal characteristics, the professional training, the institutional conditions where he/she works, the characteristics of the students and other educational agents. In consistency



with Tardif (2005), the exercise of the teacher is closely related to each of the interactions he/she establishes with the students during the education process.

The teacher faces his/her work as a being imbued with values, who throughout the work has constructed the performance by joining fragments of his/her personal life and the academic exercise and also including the experiences of other actors of education; so it is possible to recognize how complex it is to examine the teacher's exercise because of its multifactorial nature. In addition, Blanco (2013) states that the social relations developed in this field allow the opportunity to understand and reflect on this practice by recognizing the close connection between it and discourse.

With regard to the construction of pedagogical knowledge, the teacher requires having acquired, throughout the professional preparation, a series of knowledge obtained through courses offered by the various schools; but it is recognized that practice is what makes him/her an education professional; (Martínez et al., 2017). However, Tardif (2014) states that "teachers are not valued in relation to the knowledge they have and share" (p. 26). The above idea allows to visualize the teacher as the subject responsible for understanding and interpreting all the elements related to the classroom dynamics, in order to promote learning in students (Noguera et al., in Salazar, 2001).

The teaching process is not limited to the process of transmitting some knowledge, its action addresses situations related to the cognitive, affective, volitional and behavioral processes of the students; hence, it is necessary to recognize that the activity is physically and emotionally worn down; this reality is reflected in the contribution of El Sahili (2011), where the author states that its complexity is related to the weight of the commitments acquired from its work to those of a social type within it. In addition, Shulman (2005) believes that the objectives and subjects addressed in each grade, the environ-

ment where the class is developed, as well as the characteristics of the students who are part of each classroom are required to be considered.

Regardless of the history or training of teachers, their practices present a diversity of nuances that reflect the skills and knowledge required to meet the needs of social and educational changes in each school. The working conditions of each teacher characterize their work; however, they represent a great challenge since each group has its own personality, a level of education, a sociocultural context, etc.; characteristics that the teacher must interpret and understand to share the knowledge and design the spaces and conditions necessary for the students. However, from the vision of Herrán and González (in Rivera & Hernández, 2017), "teachers teach more for what they are than for what they know" (p. 99).

In order to conclude, the result of this research provides theoretical elements that allow to have an approach of the teaching practice, allowing teachers to recognize the meanings provided to the teaching process, in order to reconstruct the notions and actions of their work, thus obeying the new reality. It is suggested for future lines of research to address a comparative analysis of the perceptions and meanings offered by teachers at different educational levels.

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Methods of internal organizational communication in public schools, Chile

Medios de comunicación organizacional interna en colegios públicos, Chile

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Received: 2019-10-04 / **Revised:** 2020-04-30 / **Accepted:** 2020-06-08 / **Published:** 2020-07-01

Abstract

The current civilization is promoting important innovations within the management of public schools, where communications it constitutes a strategic occupation. This article's objective to describe the methods of internal organizational communication used mutually by the team of managers and teachers, and their influence on the strengthening of the cultural link and on the management of the municipalized educational organization of the districts of La Cisterna and Pudahuel in Santiago, Chile. A mixed exploratory and descriptive approach was used, was applied to a sample of 22 municipal educational institutions: For the quantitative phase, a survey was designed and applied to 246 people, while in the qualitative phase, in-depth interviews were held with two school directors. The results indicate that the most common forms of communication used by the participants are meetings (91.0%) and circulars (89.0%). In addition, (89.0%) declare the presence of organizational values participated by the management teams and teachers. It can be concluded as a trend the use of existing communication means in the school, that is, personal, written, audiovisual, telecommunication and computer interrelation destined to transmit information according to the purposes to be achieved when sending it; and, the inclination to participate in a lexicon, organizational values and convictions. These results are expected to generate knowledge that will enable a description of the communication practices within educational organizations and expand the culture body of evidence on this topic.

Keywords: Education, educational management, formal education, educational organization, organizational communication, teaching centers.

Resumen

La civilización actual está fomentando innovaciones importantes en la gestión de los colegios públicos, donde la comunicación constituye una ocupación estratégica. El artículo tiene por objetivo describir los medios de comunicación organizacional interna utilizados mutuamente por el equipo de directivos y profesores, y su influencia en el robustecimiento del enlace cultural y en la gestión de la organización educativa municipalizada de los distritos de La Cisterna y Pudahuel, Santiago, Chile. Se utilizó una óptica mixta de naturaleza exploratoria y descriptiva, aplicada en una muestra de 22 instituciones educacionales municipalizadas: Para su fase cuantitativa se diseñó una encuesta que fue respondida por 246 personas; en su etapa cualitativa se utilizó una entrevista en profundidad aplicada a dos directores. Los resultados indican que los medios más utilizados por los participantes son las reuniones (91,0%) y las circulares (89,0%). Además, un (89,0%) declara la presencia de valores organizacionales participados por los equipos directivos y profesorado. Puede concluirse como tendencia el empleo de medios de comunicación existentes en el colegio, a saber; interrelación personal, escrito, audiovisual, telecomunicación e informática destinados a transmitir información según las finalidades a lograr al remitirla; y, la inclinación de participar un léxico, valores organizacionales y convicciones. Se espera que los resultados generen un conocimiento que posibilite caracterizar las prácticas comunicativas en las organizaciones educativas e incrementar el acervo cultural en la materia.

Descriptores: Educación, gestión educativa, educación formal, organización educativa, Comunicación organizacional, colegios.

1. Introduction and state-of-the-art

According to Martín (2000), the emergence of the communicative ecosystem based on the media and communication and information technologies is relevant, because it has motivated the educational field (Aguaded, 2010). In this sense, Arboleda-Naranjo (2017) identifies communication as the protagonist of the rapid changes that occur in organizations.

Faced with this reality, school organizations consider that communication plays a relevant role in providing a vital support to promote the achievement of the main functions of the organization (Villa et al., 2015), representing an influence on their culture (Palacios, 2015).

In Chile, improvement is promoted through innovation in both the organization and school management in the national education system because its regulatory and curriculum framework and due to the development of good practices in public schools, in order to ensure compliance with quality education, as well as consolidate public school education to overcome its complex situation (Ministerio de Educación de Chile, MINEDUC, 2015). This requires applying a management focused on the quality of educational institutions as stated by Farfán-Tigre et al. (2016), because this management makes a demand to meet its improvement. It is also necessary to manage internal organizational communication as a strategic function associated with the management of the institutional educational project in the educational community. According to Vizer (2018) the communication is explicitly or implicitly linked to the processes of understanding.

In this regard, it should be detailed that the Chilean school system is formed by the educational levels of kindergarten, elementary and high school, paid educational institutions, which are financed by parents or guardians; and free, which are state-subsidized. Public school education integrates public schools, distinguishing as assimilated to Municipalities for their administration and financed by the State. Municipalities

create autonomous corporations under public law, responsible for administering a commune to satisfy the needs of the community in the social, health and education areas.

This article explores and describes the internal organizational media used within the teams of directors and teachers, and their influence on the strengthening of the cultural link in the educational management of public school, assimilated to two districts of the capital: La Cisterna and Pudahuel, Santiago, Chile. The intention is that the results will generate knowledge that will make it possible to characterize communicative practices in educational organizations of this type and to increase the culture in this field.

1.1. Internal organizational communication: means

Internal organizational communication is seen as a substantial function of some activity (Cervera 2015) and it is required to administer and determine it accurately.

From this approach, the internal organizational communication is seen as a series of communication actions carried out by an organization, focused on the creation and conservation of appropriate relationships with and within its members, through the use of different communicative techniques that keep them documented, linked and motivated, simultaneously, contributing to the achievement of organizational purposes (Cuenca and Verazzi, 2018). Also, internal organizational communication makes it possible to deploy global information, aimed at internal audiences as well focused on expanding organizational culture (Castillo, 2009).

For Villafañe (2002) the internal media comprise various means and actions to motivate, unite the human resource and establish its acceptance of organizational goals. Similarly, Morató (2016) conceives the media as a support, a means of disseminating information and a codex.

This is complemented by what is pointed out by Kaplún (1998), who points out that the



use of certain media in the educational institution must occur by applying a critical and reflective approach, as a service and support to the pedagogical project. For example, in the school environment it is possible to identify traditional, one-way and scarce communication models with little predominance of interaction and participation, even if the internet and social networks available would favor and enhance them (Palomares-Ruiz, 2015).

In this regard, Enrique and Serrano (2015) state that communities and social networks are seen as virtual media. In this sense, Tuñez-López (2015) say that the Internet makes it possible to listen, dialogue and link directly with the public, and this presupposes a mutation of organizational culture and the way the communication processes are managed.

Therefore, Narváez-Montoya (2019) explain that the school media are linked to communicative procedures that make up the organization, considering it a public dimension of the school, focused on addressing the interrelationship phases and the role of the means available in the school.

In this regard, De Castro (2015) points to organizational media such as meetings, bulletin boards, mural newspaper, email and suggestion box, among others. However, Macia (2019) says that emails and digital platforms [...] constitute means, the use of which is under stretched.

Finally, according to Zapata (2016), the choice of internal organizational communication channels in the institution is considered according to their distinctive features and the purposes.

1.2. Educational organization: background for the management of cultural union

Batalloso (2017) says that in today's civilization, the organization and school management must undergo transformations in which the cultures of cooperation, participation and commitment are incentivized in the professional because a school [...] forms a community that

shares purposes, experiences and daily activities. Therefore, the role of internal organizational communication is fundamental in the development of school management focused on innovation and improvement. Indeed, Castiloveitia (2017) states that a suitable leader manages his/her communication.

For its part, the Government of Chile (2017) defines educational institutions in Law 21.040 as the essential unit of the system and composed of educational communities, which include teachers, managers, students, among others.

In this regard, the Ministry of Education MINEDUC (2005) defines school management in terms of expert and technological activity, focused on establishing qualities aimed at enabling agents to develop good practices for achieving institutional objectives. For its implementation, Massoni et al. (2018) indicate that it is necessary to develop the robustness of the communication processes as they make a contribution to the planning and conduction of the activities of an organization. Moreover, according to Lugo and Ithurburu (2019) new technologies are considered to generate a novel and essential organization of educational institutions.

However, since the deployment of school management, the component of culture is valued in the educational organization, because it corresponds to the sum of convictions, values and norms of behavior, participated and not transcribed, which are used by the members to govern their actions and, as a result, are expressed through them (Apollo et al., 2017).

According to the United Nations Educational, Scientific and Cultural Organization, UNESCO (2007) the appreciation of one's Own culture is a fundamental condition for the development of effective educational management. Specifically, the administration of the internal organizational communication practice makes it possible to create, develop and ensure the maintenance of culture in a social organization (Lacasa and Blay, 2004).

Finally, Pinto (2017) says that the communication structure and management in the



administration of a participatory culture constitutes a substantive component as a teleological device aimed at meeting the objectives, creating a footprint in the organizational entities.

2. Methodology

The research question raised in the study was: What are the communication means used within the management team and teachers in the internal communication in order to promote the strengthening of its cultural link in the educational management of public schools, belonging to the districts of La Cisterna and Pudahuel, Chile?

Thus, a mixed, non-experimental, systematic and empirical research was designed (Hernández et al., 2014), as well as exploratory, descriptive and primary, using the quantitative and qualitative approach.

This study included the combined use of the quantitative and qualitative approach, as indicated by Burke et al. (2007) who define it as an investigation in which a researcher mixes qualitative and quantitative research components, such as the use of qualitative and quantitative perspectives, data collection, analysis and inference to determine the purposes of breadth, depth, understanding and corroboration. In addition, it was considered appropriate to use the mixed method, given the complexity of the phenomenon under study. Finally, the possibility of achieving a broader and deeper knowledge of the investigated reality is valued, as stated by Walton et al. (2019), because they point out that the mixed method enables information on the phenomenon in a more holistic and nuanced study.

Both in the design, information collection and analysis and interpretation stage, quantitative and qualitative approaches, QUAN + QUAL, are considered to be of the same level of importance. Also, the design of the study envisages the application of both methods simultaneously and diligently, systematically and empirically.

The operationalization of the mixed method included the determination of the conceptual theoretical basis of internal organizational communication, school management and organization, along with the mixed approach. In addition, a broad and complex main research question was raised. In the collection of data, the administration of quantitative and qualitative instruments was carried out simultaneously in the samples. Also, the analytical study of the data was conducted synchronously through computer programs. Finally, a single report was prepared, in which the results obtained from the quantitative and qualitative analysis were complemented.

2.1. Quantitative phase

This phase considered a population of 23 public schools affiliated to the municipalities of Pudahuel and La Cisterna, located in the Metropolitan Area of the country, given the available access capacity. The final sample was determined by a probabilistic mechanism, with a finite and low population, which was administered a simple random procedure – selection with tombola – which resulted in a final selection of 22 institutions, out of which 15 corresponded to the Municipality of Pudahuel and 7 to the Municipality of La Cisterna. Table 1 describes and characterizes the public schools included in the research.



Table 1. Characterization of the population

Municipality	N° educative institutions	Educative level	N° directives	N° teachers	N° students
Pudahuel	16	Elementary, and/or Primary and/or Basic	45	376	9.170
La Cisterna	7	Elementary, and/or Primary and/or Basic	22	110	1.879
Final total	23	Elementary, and/or Primary and/or Basic	67	486	11.049

Source: Own elaboration

The following principles were taken into account for the definition of educational institutions that would make up the study population:

- Create public schools.
- Provide Basic and/or Primary and/or Elementary education.
- Be administered by the Director of Education of Pudahuel district or the Head of the Department of Education of La Cisterna district.
- Be located geographically in the rural or urban sector of La Cisterna and Pudahuel districts.
- Active in 2015.
- Access capacity to carry out the research.

For the information collection stage, a cross-cutting or unique survey was developed and used, which was applied to 40.0% of the directives of each public school and 40.0% of the teachers of each of the 22 schools. In addition, in order to complement the 40% criterion, it was considered necessary that, in the case of directives, that these were 2 out of 3 or 3 out of 4 per educational institutions, since in the selected educational organizations the number of managers ranges from 3 to 4 people; therefore, when applying this criterion, it was guaranteed compliance with the collection of necessary informa-

tion from the sample. The survey was prepared with a cluster of items, based on indicators by dimension and variables; the codification and wording of all the elements was also determined.

The instrument included demographic questions as well as the location of the person surveyed, such as the position held at the school, as well as the estimation and multiple choice consultations, which considered a proportion scale that contemplated response categories such as 1 (Totally disagree), 2 (Disagree), 3 (Neither agree nor disagree), 4 (Agree) and 5 (Totally Agree). The encoding of the data was carried out with the preparation of the items.

Similarly, the expert judges verified the validity and reliability of the instrument in terms of its content, and Cronbach's alpha was applied to determine the magnitude of internal coherence. In the meantime, the measuring instrument was applied once over a total of nine completed surveys, in order to calculate the coefficient, obtaining a result of 0.93 and validating it. In addition, examinations of questionnaire quality, completeness, validity of codes and consultations were used in the evaluation phase of the questionnaire to have an optimal instrument to compile the largest and best number of responses expected.

As for the variables, the questions were distributed as follows:



Table 2. Questions gathered according to their variables, dimensions and indicators

Variables	Dimensions	Indicators
Use of multiple internal media within management teams and teachers.	<ol style="list-style-type: none"> 1. Indication of communicative means. 2. Physical channels. 3. Personal support. 	<ol style="list-style-type: none"> 1. Use of the media according to type of language. 2. Use of communication channels in accordance with the purposes to be achieved. 3. Indication of internal communication channels: <ol style="list-style-type: none"> a. Newsletter b. Intranet. c. Meeting. d. Interview. e. Warning board. f. Quality circles. g. Annual Financial Report. h. Rules of Procedure. i. Visit to the school. j. Virtual environment. k. Press publishing. l. Suggestions box. m. Video Conference. n. Study team. o. Internal magazine. p. Others.
The use promotes the strengthening of the cultural link in the educational management of the educational institution.	<ol style="list-style-type: none"> 1. Daily interrelationship of the person. 2. Meaning of events. 	<ol style="list-style-type: none"> 1. Institution values. 2. Institution Regulations. 3. Convictions. 4. Ideas. 5. Lexicon.

Source: Own elaboration

After the application of the instrument to the selected sample of 22 public schools, 246 surveys were received: 45 of them from directives (representing 67.0% of the total of 67 members of the management teams, as outlined in Table 1); and 201 from teachers (i.e. 41.0% of the total of 486 members of the group in the same table). For its part, Table 3 describes the distribution of the informants by their position.

Finally, after having collected the data in the quantitative process, the final grouping was carried out, taking into account its correspondence regarding the objectives and hypotheses of the study, the subjects treated and the meth-

odological strategies applied. Similarly, the SPSS program (IBM Corp., 2011) was used to run the data analysis by determining a code book with its variables and the codes corresponding to the categories in the data matrix, after entering the data in it, the statistical examination was verified. For its part, the analysis looked at the degree of measurement of each variable and the descriptive statistics composed of frequency distribution and mode as a main measure of trend, its use allowed to verify trends and evaluate the data, from these tests the interpretation was carried out, and tables and graphs were used as well in the presentation of the data.



Table 3. Position at the institutional institution

Position	%
Social worker	0.4%
Psychologist	0.9%
Inspector	1.8%
Cohabitation commissioner	2.7%
Special teacher/Integration program	4.0%
Technical pedagogical unit	4.4 %
Pre-school teacher	6.2%
Directive	6.6%
Professor	73.0%
Total	100%

Source: Own elaboration

2.2. Qualitative phase

At this phase, it was contemplated the selection of a sample made up of two people: the manager of the Department of Education of La Cisterna and the manager of the Education Directorate of Pudahuel. Also, a non-probabilistic sample was considered, which Hernandez et al. (2006) referred to as cases of importance for the subject matter of the study, thus also politically relevant. The sample determination met the following criteria:

- Selection through the structure of Senior Public Management applied to public education managers (municipal).
- People who were in their working position in 2015.

For this case, the information collection technique identified by Sierra Bravo (1994) was used as the open interview in cross-cutting depth, applied in exploratory and descriptive class investigations and qualitative inquiries, since it makes

it possible to get information from the informant with a high degree of specificity. For this phase, a guideline of the interview was developed with the aim of delineating its scopes, in order to collect information on various aspects related to the internal communication channels of the directives and teachers in the educational reality. The interview guideline was composed of questions of opinion and knowledge (Hernández et al., 2010).

Subsequently, a number subjects were selected to be estimated in the consultations, and then the design of the format was addressed using the technical definitions. The questions contemplated by the instrument were:

- What are the channels of internal communication more used in the school by teachers and the directives? (knowledge question).
- How does the use of internal organizational communication media promote the cultural connection between the directives and teachers? (opinion question).



Finally, the qualitative internal validity of the instrument was discussed through the evaluation of specialists (Hernández et al., 2006), thus verifying its ability to communicate the language, ideologies and vision of the subjects interviewed; as well as its dependence. Therefore, the interview guideline was provided to five experts to examine the content of the questions and verify whether their design would enable the expected objective to be achieved, the result of which was positive.

After the data collection, the qualitative analysis was addressed to generate the results; the data was incorporated into the computational program, then a first exploratory approach to the data was made, in addition they were organized taking into account the job, assimilation to the school, variables and questions. The data was then examined in order to sort it together with conceptual significance, establishing consistency with respect to the phenomenon under study. The sense-meaning stage was verified using the approach of the researcher, who reviewed each

data, identifying similarities, differences, meanings, structures and trends. To do this, each open-ended interview—the one conducted in the district of La Cisterna, with code 1 and executed in the Pudahuel district, code 2—was transcribed.

The qualitative analysis was based on the cutting and sorting processing technique; it was also created on the basis of a purpose-based guide, which considered units of analysis on the answers obtained, as well as the variables, questions and sub-questions, aspects which were then sorted and presented in accordance with the topic of the results, using the previously assigned codes.

3. Results

With regard to the quantitative analysis, Table 4 describes the variable of the matrix, “Different internal means of communication are used by directives and teachers”, which corresponds to the information collected through the survey, in the quantitative phase.

Table 4. Variable: Different internal means of communication are used by the directives and teachers. Sections 1, 2 and 3 of the survey

Categories	Frequency (percentage)				
	1. Totally disagree	2. Disagree	3. Neither agree nor disagree	4. Agree	5. Totally agree
1. Use of existing means of communication at the school according to the nonverbal or verbal type of language used.	1.2%	1.6%	8.6%	48.2%	40.4%
2. Use communication channels such as personal, written, audiovisual, telecommunication and computer interrelationship with the intention of providing information according to the goals to be achieved when disseminating it.	2.0%	3.3%	11.5%	42.6%	40.6%
3. In the management of the school, you use personal channels to provide information and allow the access to the overall information of the organizational entity.	3.7%	10.3%	19.0%	40.5%	26.4%

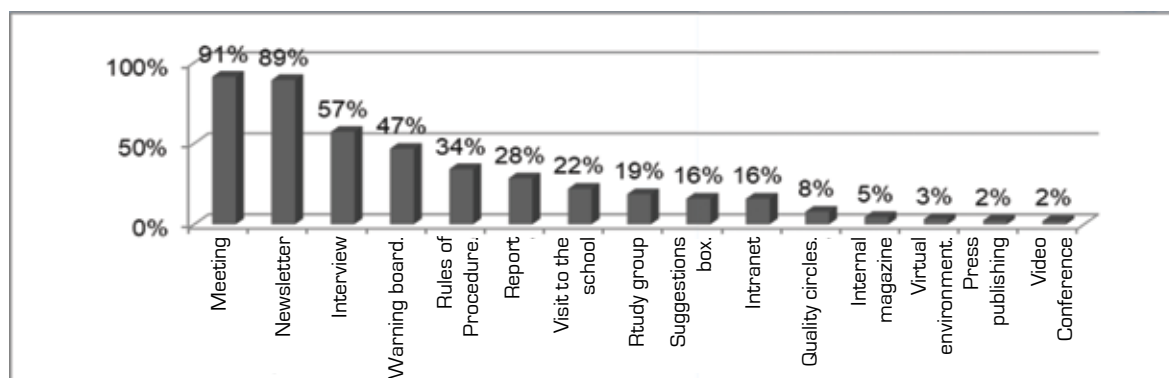
Source: Own elaboration



In addition, Figure 1 summarizes the most commonly used means of communication and devices of internal organizational communication

of the respondents in relation to sections 1 to 15, which corresponds to the information collected through the survey at the quantitative stage.

Figura 1. Indicate the means of communication and devices used in the internal organizational communication. Sections 1 to 15 of the survey



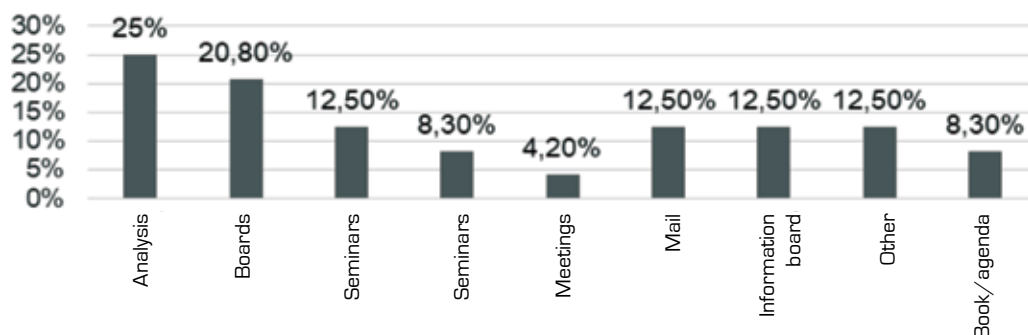
Source: Own elaboration

In addition, the informants, in the open interview done in the qualitative phase, pointed out as main means the email (used to disseminate memorandum and newsletters) and the internal communication booklet. Meetings where directives and professionals participate are common, usually once a month. At the commune level, the Municipal Education Directorate uses a website to identify and promote public schools, in addition to making visits to educational organizations during the course of the year. In addition, a

WhatsApp group was organized and began to be used among the directors of educational organizations in recent times to be communicated. This complements the reduced use of wall diaries.

Figure 2 describes the means of communication and devices used in the internal communication with their indicators and percentages for the Other section, which corresponds to information collected in the survey in the quantitative phase.

Figure 2. Mention the means of communication and devices used in the internal communication. Segment 16 Others, in the survey



Source: Own elaboration

Table 5 describes the matrix variable “It affects the strengthening of the cultural link in the school management “ corresponding to the information collected in the survey in the quantitative phase.

Table 5. Variable: It affects the strengthening of the cultural link in the school management. Sections 4 to 9 of the survey

Categories		Frequency (percentage)				
Questions		1. Totally disagree	2. Disagree	3. Neither agree nor disagree	4. Agree	5. Totally agree
4.	The communicative activities carried out by the teachers for the directives allow them to communicate.	1,2%	2,9%	11,1%	47,5%	37,3%
5.	You observe the presence of institution values in the directives and teachers.	1,6%	2,0%	7,3%	45,7%	43,3%
6.	In the personal interrelationship of directors and teachers, it is possible to distinguish the values of the institution.	1,6%	2,4%	11,8%	42,4%	41,6%
7.	The interpersonal relationship is regulated by applying the regulations of the educational organization.	2,4%	4,1%	12,7%	38,0%	42,9%
8.	In the actions aimed at inform the facts of the school, they use common ideas.	1,2%	2,9%	11,8%	45,7%	38,4%
9.	The interpretation of the school's facts incorporates the use of shared convictions.	1,2%	3,3%	19,0%	52,1%	24,4%

Source: Own elaboration

In addition, at the qualitative stage the respondents stated that the use of internal media favored the cultural union between managers and teachers, as a bond of dependency and membership of the organization was generated, through reporting an event or transmitting information.

In the same way, the working days carried out during the year to deal with technical issues, give information and address the cultural identity of the workers made it possible to establish an accompaniment, provide support and establish a closer partnership between the manager of the Directorate of Municipal Education along with the directives of public schools.

In addition, the interviewees noted the need to increase the use of internal organizational media in the educational institute, because it would allow a collaborative working culture with expression codes defined by the heads and teachers in the school. Likewise, the existence of a punitive culture by municipal educational institutions, ministerial bodies, the Superintendence of Education, the Quality of Education Agency and the Directorate of Municipal Education, motivated by its functions of supervision, control and interventions, was noted, reason for which greater and better internal communication mechanisms would be needed.



4. Discussion and conclusions

4.1. Discussion

There is a willingness on the part of directives and teachers, to have a communication system that contemplates a variety of internal organizational media and use them to transmit and share information. This is related to what Castillo (2009) said when stating that internal communication makes it possible to deploy general information.

The implementation of a communication strategy by the managers aimed at teachers is observed to promote the motivation, union and transmission of information through the use of means such as meetings, newsletters, interviews, email and memorandum, among others. Cuenca and Verazzi (2018), indicate that internal communication comprises a series of communicative actions carried out by an organization, focused on the creation and conservation of appropriate interactions with and within its members, through the use of communicative techniques to be informed, united and motivated, thus contributing to the fulfillment of organizational objectives.

However, in relation to Figure 2, despite the importance of developing the improvement of educational quality, participants only stated to make pedagogical reflections (25.0%) and councils (20.8%), which could refer to a collective work of teachers and managers, focused on administrative issues, rather than the technical-pedagogical management.

These figures in the internal communication system and strategy are reducing in terms of the use of meetings (with 91.0%); newsletters (with 89.0%); and interviews (with 57.0%); situation that concerns a management style and leadership in the school management that leads to the strengthening of their school culture, based on actions, values, ideas, among others, shared by managers and teachers. In this sense,

Apollo et al. (2017) say that culture encompasses the sum of convictions, values and behavior that the members of an organization use to govern their actions and are manifested through them.

The development of the culture management in the daily life functioning is a condition that strengthens the communicative relationships established by managers and teachers, because it helps to install shared institutional values, motivation and community cohesion, thus promoting the fulfilment of academic and administrative intentions in the educational institution, which is consistent with what MINEDUC (2005) raised, when saying that the school management is aimed at creating conditions that favor such processes.

On the other hand, the experience of organizational values is institutionalized in the educational practice from the interpersonal relationship between managers and teachers and, therefore, the interaction is carried out jointly and simultaneously with the communicative activity, using the instances and means available in the organization. Therefore, according to Massoni et al. (2018) it is required to strengthen communication processes to contribute to the planning and deployment of the actions of an organizational entity.

The perspective of management includes the practice of critical teaching reflection where media, ideas, principles and concepts are shared to establish consensual perspectives around the conditions of the educational organization, thus becoming a key factor in the development and strengthening of the knowledge and experience of the culture. In this sense, the administration of internal organizational communication makes it possible to create, develop and ensure the maintenance of the culture in a social organization (Lacasa and Blay, 2004).



4.2. Conclusions

The research identified a willingness among the directives and teachers who participated in the study on the use of existing media and communication devices in their institution, such as interpersonal relations, letters, audiovisual, telecommunications and computer, used to disseminate information in accordance with communication purposes, as well as the use of personal means to access the school's global information, since this makes it possible for them to get to know each other, to join and to motivate themselves in the working and relational dimension. In this regard, the study revealed that directives and teachers use mostly meetings (91.0%) and newsletters (89.0%) as means of information, focusing their communication strategy on these elements, showing the need to expand the variety of internal organizational media and fulfill their use to adequately address the challenges and requirements of updating the ways to manage the educational organization.

In addition, a penchant is recognized in the cultural bond of the participating agents, because activities are distinguished in the directors and teachers that involve a common lexicon, certain organizational values, some convictions and ideas that enable them to signify organizational events. Also, internal organizational means of communication encourage some creation, as well as the preservation of affiliation and contingency links to the institution as a cultural identity. Currently, the public school is required to incorporate in the classroom these new cultural features, a role that is the responsibility of directives and teachers, as a foundation to update the ways of managing both spaces, having to use internal organizational communication for their concreteness.

The results of this study are important to consider the current Chilean scenario, where the requirement to enhance the improvement in the educational management of public schools is seen in order to develop quality education. This requires strengthening a collaborative cul-

ture through the research of communicative innovations aimed at diversifying organizational media, planning communication strategies and examining communication processes to benefit the dissemination of information, interest and commitment with the help of teachers and directors in order to move towards strengthening the educational quality of public schools. Finally, the lines of research of organizational communication, culture and communication and marketing are suggested.

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A study about graduates in a postgraduate programme in education

Estudio de egresados en un programa de posgrado en educación

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Received: 2019-10-24 / **Revised:** 2019-12-17 / **Accepted:** 2020-05-11 / **Published:** 2020-07-01

Abstract

At the present time, when many changes take part in different aspects of our lives and access to information and knowledge is at the palm of our hands, there is also a greater demand worldwide on the educational institutions to modify their education programs according to the specific social, economic, political and cultural needs. For the purpose of continuing to investigate the studies about graduates, we present the results of a research carried out during a postgraduate programme in a public institution in the Mexican state of Coahuila. The research was conducted with the involvement of the graduates belonging to twelve different generations. This is a qualitative research due to the descriptive information that it presents about the meaning and sense of the programme. Through a formulary of the Likert type with 20 items, the profile of graduation and the curricular axes are described among other aspects of the curriculum development. Some of the results show that there were more women participating and that the perception of the graduates indicates the programme is accepted in 90% of the cases, which represents an opportunity for job promotions and being able to continue their academic education. Furthermore, areas of opportunity were identified together with areas in the curriculum that need improvement in order to continue looking for all those strategies that will allow a high standard and equity formation.

Keywords: Curriculum research, higher education, curriculum, postgraduate, follow-up of graduates, curriculum evaluation.

Resumen

En la coyuntura actual, donde se presentan múltiples transformaciones en distintos ámbitos y existe una mayor facilidad de acceso a la información y al conocimiento, se exige a nivel internacional que las instituciones educativas modifiquen los programas de formación conforme a las necesidades sociales, económicas, políticas y culturales. Con el propósito de continuar explorando el estudio de egresados, se presentan los resultados de una investigación realizada en un programa de posgrado en una institución pública en el estado de Coahuila, México. El estudio se realizó con la participación de los egresados de doce generaciones. Es un estudio cualitativo, ya que se obtuvo información de tipo descriptivo sobre el sentido y el significado del programa mediante un formulario tipo Likert integrado por 20 ítems, en los que se describe lo propuesto en el perfil de egreso y las líneas curriculares, entre otros aspectos del desarrollo curricular. Algunos de los resultados muestran la participación mayoritaria del sexo femenino y la percepción de los egresados indica que el programa es aceptado por un 90%, habilitándolos para obtener ascensos en su trayectoria laboral y continuar con su itinerario académico. Así mismo, se identificaron áreas de oportunidad y áreas para continuar reforzando el desarrollo del currículo, con la intención de continuar en la búsqueda por encontrar estrategias de mejora que permitan ofrecer una formación de calidad con equidad.

Descriptores: Investigación del currículo, enseñanza superior, plan de estudios, posgrado, seguimiento de egresados, evaluación del currículo.

1. Introduction and state-of-the-art

Nowadays, multiple transformations occur in different areas and the ease of access to information and knowledge derived from the use of computer require that educational institutions modify the academic programs according to social, economic, political and cultural needs. This is one of the premises that guided the study of graduates of the Master's Program in the Education Field in Curriculum Development, in a public institution in Mexico, through the visions and conceptions of a significant sample of participants.

The study was carried out taking into account the polysemic characteristic and the functions attributed to the curriculum (Gimeno & Pérez, 1993); some related to social needs at the various stages of schooling, becoming a bridge between the training offered by educational institutions and the work (Navarro, 1998; Zhou, 2016; Gómez et al., 2017; Sánchez, 2017; García et al., 2017). Others mention the set of formative and non-formative experiences that affect social agents (Jackson, 1992; Vega, 2018); with the quality of the programs and curriculum innovation (Acosta et al., 2004; Ruay et al., 2016), cultural content (Gentili et al. 1997), the professionalism of professors (Stenhouse, 1987; Brubacher et al., 2005), among others.

The curriculum, as a field of research, allows to analyze and contrast the different visions that social agents have about the educational reality, as well as the work that is given to institutions in the present, the value assigned in the past and imagine a possible future that proposes to learn during schooling. In this sense, for some authors (Gimeno, 2010), it is possible to consider it as an instituted and instituting instrument that aims to regulate the practices of the multiple agents involved in its realization: professors, managers, students, designers of educational materials, etc. The curriculum, in a broad sense, not just limited to curricula and programs, is a text that has the intention

of adapting to contexts, to make the proposed learnings for social actors more efficient, more rational and respond to the needs expressed in social demands.

In this dimension, graduate studies are one of the edges of the curriculum that has become a field of research in the evaluation of programs (Martín et al., 1997; Tom, 2014; Zhou, 2016; Pérez, 2017; García et al., 2017), which has evolved from the initial aim of corroborating the achievement of the objectives to the processes, results and decisions of those responsible.

Graduate studies (GS) or also referred to as graduate follow-up studies (GFS) according to Garcia et al. (2017), in addition to providing information to educational institutions so that they can make decisions on the training processes to articulate them and adapt them to certain political, economic and cultural needs at a specific historical time, can also be an input so that future applicants can make decisions about the demand for the career they have selected, the job location at a specific historical time, market expectations, etc. Hence, the need to continue exploring the educational and informative possibilities of the GS, which start from the assumption that the relevance in the training processes offered by the institutions tend to occur in the professional practice of their graduates, in their employment mobility and in their professional performance (Rubalcaba, 2009).

In Mexico, graduate studies originated in the 1970s in various higher education institutions for two purposes: to obtain information about the job insertion of the graduate and to know the point of view of the training received. The institution that initiated this type of research was Universidad Autónoma Metropolitana in 1979. Subsequently, Universidad Autónoma de Nuevo León in 1981, the National College of Technical Professional Education in 1982, Universidad Iberoamericana in 1993, among others (Fuentes et al., 2012). The political lines of action of the United Nations of Education, Scientific and Cultural Organization at the World Conference



on Higher Education for the 21st Century (UNESCO, 1998) suggests that higher education institutions (HEI) evaluate their programs with a vision of internal and external continuous improvement, with the aim of being relevant and consistent. In this way, they bridge the gaps between what they do and what society expects.

In our country, along with the lines of action suggested by UNESCO, graduate studies in the 1990s tend to generalize in HEI, using the proposal of the National Association of Universities and Higher Education Institutions in 1998 with the basic scheme for the study of graduates. In recent history, it has been a requirement for the Inter-Agency Committees for the Evaluation of Higher Education, when they seek to be accredited against national and international bodies (Acosta et al., 2004; Aguayo et al., 2015).

2. Purposes and contextualization

The intention to guide graduate studies is to continue to explore the training and informational functions so that institutions have information that allows them to make decisions about the programs offered in the context of the information and knowledge society, in an increasingly interdependent world. With regard to future applicants, it is a question of knowing, from the very view of the graduates, the experiences of training, the skills created in training, the acceptance, permanence, work mobility, relevance and topicality of the programs.

In order to continue exploring the training and informative functions of graduate studies, the results of the research conducted in the Master's Program in the Field Education Curriculum Development (MECDC) of Universidad Pedagógica Nacional in Torreón, Coahuila, Mexico are presented. The study was carried out with the participation of graduates of twelve generations during the period 1999 to 2017. There were four professors responsible for the program who were full-time (40 hours) professors, all with doctoral studies, three with a degree and one in the course of obtaining the degree.

According to the Mexican Council of Graduate Studies A.C. (2015, pp. 56-57), MECDC is in the area of knowledge of Humanities and Behavioral Sciences. It is one of the priority areas in Mexico as it has 2,354 programs, representing 24.3% of a total of 9,684 programs. Because of the specifications of the field in the National System of Units of the Pedagogical University, it is only offered in three of the 70 locations, 208 campuses and three Decentralized Pedagogical Universities (UPN, 2019). However, neither the purposes nor the curriculum are the same. In two it is composed of twelve subjects, divided into three lines (educational, curriculum and methodological) and four semesters (Anzures et al., 2018).

With more than two decades of being active, the program did not have any information to assess whether the graduation profile responded to the social needs, if it was relevant and congruent and if curriculum contents and training lines were updated, in addition to knowing the working positions of the graduates. This is relevant in the graduate self-assessment process that the university initiated in 2018 with the intention of identifying strengths, weaknesses and areas of opportunity to offer quality and equity training.

Because of the latter, the following objectives were raised:

General objective: To obtain information from MECDC graduates related to the training received in the Courses and Seminars in the various areas and curricular lines, as well as the achievement of the graduation profile, labor and academic mobility.

Specific objectives: Document the opinion of graduates related to the fulfilment of the graduation profile, the vocational training received in the courses and seminars in the various areas and curricular lines; to assess the professional development of graduates in terms of labor mobility and academic trajectory.

Research Questions: What is the point of view of graduates on achieving the program's graduation profile, the training received in the lines and areas of the curriculum? Did the



Program enable graduates to gain better jobs and improve their professional performance? Did the program allow graduates to continue their academic career and professional development?

The target population consisted of 12 generations with 286 graduates, of which 104 are men (36.3%) and 182 are women (63.6%).

3. Methodology and description of the program

According to Tejedor (cited by Lukas & Santiago 2009), the monitoring of graduates can be placed as a program evaluation and as a research strategy, because it allows to obtain information on the development of educational processes, whose guidelines can redirect the design of the training proposals. To document the views of graduates regarding the program, a Likert (1) form was designed with fifteen statements describing what was proposed in the graduation profile, curriculum lines, and purposes of courses and seminars. Graduates were asked to place their response on each of the fifteen claims on a scale of one to five, where one was the lowest value and five was the highest. In addition, two items of dichotomous response in which they chose between a yes or a no; multiple choice; another open response and finally, a field for the current position to be scored.

The criteria that guided the content of the fifteen closed questions were prescriptive, as the content corresponds to the graduation profile, training lines, course purposes and seminars; and in order to have a general image, an open response (Lukas & Santiago, 2009).

The form was submitted from August 2018 to April 2019 to the 286 graduates, of whom 69 responded, corresponding to 24% of the total. The submission was done using *Google Drive* through the e-mail addresses that graduates register when they enroll in the program. Those who did not provide this information were located by telephone or consulted, in the case of teachers working in the state of Coahuila,

by using the database of the Transparent School of the Ministry of Education of Coahuila.

The study is qualitative, as information was obtained on the meaning of the program (Taylor & Bogdan, 1998; Rodríguez, 1996). The data analysis was carried out during May 2019. Multiple choice, dichotomous and multiple-response answers were analyzed using descriptive statistics; open response according to content patterns to identify recurring categories (Coffey & Atkinson, 2003) and the working positions of graduates using descriptive statistics.

The program aims to train specialists in the field of curriculum development by creating skills and competences aimed at improving the understanding and problem-solving of the National Educational System (Vanegas et al., 1995). It is studied in four semesters with a formal schooling modality.

In the curriculum proposal of the program, multiple formulations are conceptualized as the expression that connotes the way in which society has faced transformation processes and how from the institutionalization of education, multiple formulations historically materialize conceptions, goals, values, ideals, aspirations and interests that guide the activities of educational spaces, as well as strategies by which they are expected to be realized. At the same time, it involves the practices that make it possible. In the income profile it indicates as a requirement that interested parties have obtained the bachelor's degree in Education or related careers, in addition to serving as teachers.

The program aims to: "The training of education professionals capable of developing intervention projects in the curriculum based on research practices" (Vanegas et al., 1995). It is composed by three axes: the first based on general formation that includes the subjects of Interaction Theories, Curriculum Theory and Research Seminar I. The second based on training in the field and consists of two lines: 1) The courses of Mexican Educational System, Teacher Training and Institutional Development Projects. 2) The courses



of Curriculum Design and Evaluation, Classroom Intervention I and Classroom Intervention II. The curriculum is complemented by the third methodological axis that includes Research Seminars I, II, III and at the end the thesis project to obtain the degree of Master in Education. Parallel to seminars and courses, students are supported by a tutor who accompanies them in the development of the research project and in the problems presented to them during the schooling process (Vanegas et al., 1995, p. 15).

The graduation profile is expressed as the ability of the graduate student to solve specific problems, use the knowledge, habits and skills created in the training process:

Professors able to identify needs and problems that limit their daily action.

Professors capable of systematizing and theorizing educational practice.

Professors capable of defining actions in the areas that can be transformed.

Professors able to propose alternatives that define their pedagogical intervention and contribute to

increase the quality of educational services offered in the region.

Professors able to develop projects based on research practices as a resource for reading and analyzing reality (Vanegas et al., 1995, p. 25)

higher than the figures published by the Mexican Council of Postgraduate Studies (2014, p. 97) in the master's degrees, with 53.1%. The trend is similar nationally according to the data seen on the page of the General Directorate of Planning, Programming and Educational Statistics of the Secretariat of Public Education for nine school cycles (2009-2010 to 2017-2018) in the master's degrees, with an average of 37 058 men students and 39 588.5 women. Female participation data are evidence of the principle of equity in graduates in Mexico's higher education institutions.

Of the 286 students who entered the program, 158 graduated (55.2%) and 64 (40.5%) were licensed. The data are contrastable with what the Mexican Council for Graduate Studies (2015, p. 98) reports at the national level for the 2012-2013 school year: "the master programs report the lowest end efficiencies, which range from 33.8% for the last generation to 40.3% for the third to the last stage". That is, the end period efficiency of 55.2% exceeds the national average of that school year. Regarding the graduate programs offered by the Autonomous University of Mexico, Martínez et al. (2015) state that:

The challenges presented in the training of highly trained personnel entail problems inherent in the curricula, academic structures and human factors that are incidentals and that limit graduate programs from achieving 100% of effectiveness and efficiency. (p.19)

4. Analysis and results

Out of the 286 registered in the twelve generations, 104 (36.3%) are men and 182 (63.6%) are women. This shows the interest of women towards their academic improvement with 63.6%, less than that reported by the Rectory of the National Pedagogical University (69.96%), but

Hence, the difficulties that arise in the development of the curriculum in graduate programs are multiple.

Below are the answers to the statements derived from the axes, subjects and graduation profile that affect the curriculum development of the MECDC:

I axis of general formation. Subjects: Curriculum Theory, Interaction Theories. Degree profile 1, 2 and 3

1. Build the theoretical and methodological knowledge in the field of curriculum and put them into practice in my professional activity.

1 (0)	2 (1, 1.4%)	3 (3, 4.3%)	4 (18, 26.0%)	5 (47, 68%)
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11. Build solid knowledge to understand and master the content from the educational area where I work

1 (1, 1.4%)	2 (0)	3 (2, 2.8%)	4 (14, 20.2%)	5 (52, 75.3%)
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14. I can identify the elements that make up a curriculum proposal, projects and educational plans and assess their consistency and relevance (e.g. the 2017 Education Model Key Learning proposal).

1 (1, 1.4) Totally agree 9%	2 (2, 2.8%) Totally agree 1.4%	3 (4, 5.7%) Partly disagree 4.2%	4 (15, 21.7%) Agree 22.6%	5 (47, 68.1%) Totally agree 70.4%
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With the above data 93% agree that the proposal is fulfilled in the graduation profile 1,2 and 3, as well as the subjects that make up the general training axis. However, 4.2% partially agree and 2.3% disagree.

Axis II Training in the field (1st. Line: Mexican Education System, Teacher Training, Institutional Development Projects. 2nd. Line: Curriculum Design and Evaluation, Classroom Intervention I and II

2. Analyze educational problems with a comprehensive idea in order to create objects of study in the field of research.

1 (1, 1.4%)	2 (00)	3 (6 8.6%)	4 (11, 15.0%)	5 (51, 73.9)
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3. Design intervention proposals to address educational problems at the school, local and national levels.

1 (1, 1.4%)	2 (3, 4.3%)	3 (5, 7.2%)	4 (27, 39.1%)	5 (33, 47.8%)
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5. Analyze educational policies and their implications for the educational development.

1 (0)	2 (1, 1.4%)	3 (4, 5.7%)	4 (14, 20.2%)	5 (50, 72.4%)
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6. Develop the capacity to analyze at the micro and macro social level the Mexican Education System in the development of the curriculum.

1 (1, 1.4%)	2 (0)	3 (3, 5.8%)	4 (26, 44.0%)	5 (56.5%)
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7. Identify various teacher training models for use them in understanding the work of teachers and my Own work.

1 (1, 1.4%)	2 (0)	3 (1, 1.4%)	4 (23, 33.3%)	5 (44, 63.7%)
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8. Have conceptual and technical references for the design, development and evaluation of Institutional Development Projects.

1 (1, 1.4,%)	2 (1, 1.4%)	3 (5, 7.2%)	4 (25, 36.2%)	5 (37, 53.6%)
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9. Participate in interdisciplinary groups, communities and networks, collegiate bodies and educational, management or other educational research bodies.

1 (3, 4.3%)	2 (1, 1.4%)	3 (11, 15.5%)	4 (25, 36.2%)	5 (29, 42.0%)
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10. Perform my work as an education professional.

1 (0)	2 (1, 1.4%)	3 (3, 4.3%)	4 (9, 13.2%)	5 (56, 81.1%)
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12. Build competencies to design, develop or evaluate classroom intervention projects.

1 (1, 1.4%)	2 (2, 2.8%)	3 (4, 5.7%)	4 (20, 28.9%)	5 (42, 60.8%)
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15. To know the educational legislation to understand the management and social participation in my school and in the National Education System.

1 (0)	2 (2, 2.8%)	3 (9, 13.0%)	4 (18, 26.0%)	5 (50, 57.9%)
Totally disagree 1.27%	Disagree 1.27%	Partially agree 7.4%	Agree 29.2%	Totally agree 60.9%

With the stated data, it can be said that 2.5% disagree, 7.4% partially agree and 90.1% agree that the subjects of axis II and the purposes of the graduation Profile 1,2,3,4 and 5 are fulfilled.

Axis III Methodological, Seminars I, II, III and Thesis of training in the Field of the Degree Profile 1, 3, 4 and 5

4. To know paradigms, conceptual foundations and methodological tools of educational research.

1 (0)	2 (1, 1.4%)	3 (4, 5.7%)	4 (14, 20.2%)	5 (50, 72.4%)
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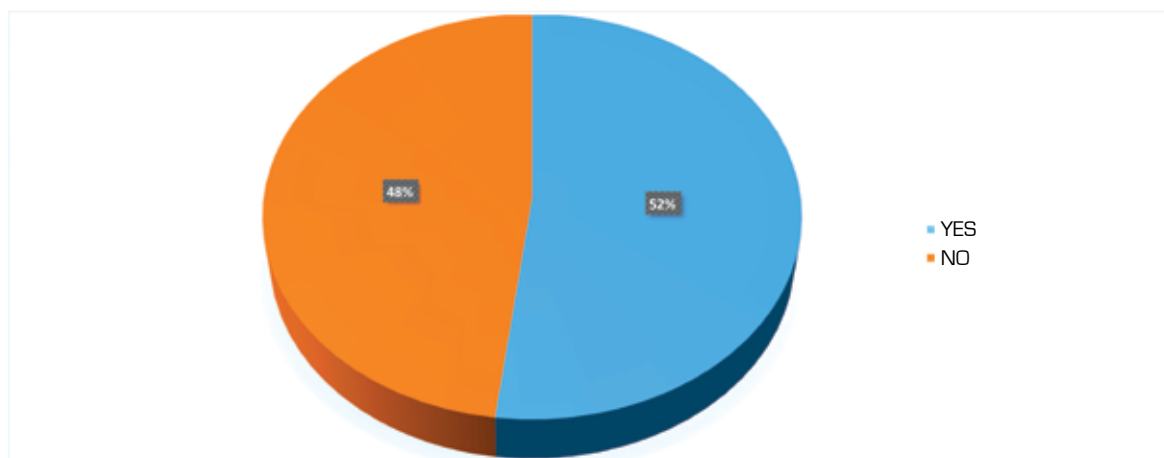
13. Design educational research projects, develop them, present results and prepare the report for their publication.

1 (2, 2.8%)	2 (0)	3 (7, 10.1%)	4 (25, 36.2%)	5 (35, 50.7%)
Totally disagree 1.4%	Disagree 7%	Partially agree 7.9%	Agree 28.2%	Totally agree 61.5%

With the data stated it can be said that 2.1% disagree, 7.9% partially agree and 89.7% say that the curricular purposes 1,3,4 and 5 are fulfilled, as well as the contents of the methodological axis.



Figure 1. 16. Promotion in the employment category of graduate students

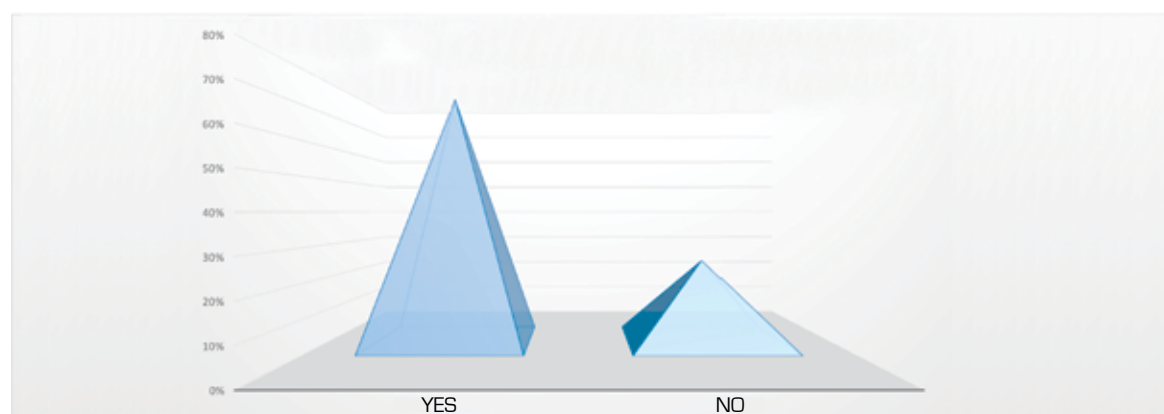


Source: Own elaboration

The figure illustrates that the program has allowed graduate students to move up in the career of graduate students by 52%. Therefore, it is possible to infer that the MECDEC is a vehicle for mobility in the teaching career in the programs promoted by the Ministry of Education, such as the magisterial career and

the Teaching Professional Service Act in the Program of Promotion for Incentives in Basic Education (Official Journal of the Federation, DOF: 2015/06/17) and, in Higher Education in the recruitment or promotion in management positions, as illustrated in Figure 2 on the employment location.

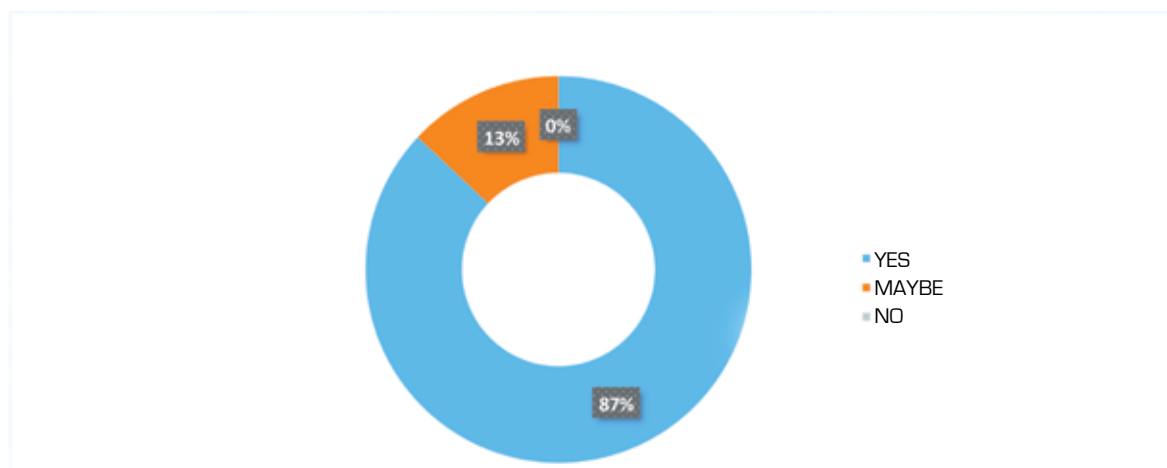
Figure 2. 17. The Program empowers graduates to continue studying



The figure illustrates how 75.2% of participants have continued their academic career by continuing with other studies, while 24.8% have not.



Figure 3. 18. Graduate students would recommend the program



87% of participants would recommend the MECDC Program, while 13% may do it and none of the participants would not recommend it. Thus, the responses allow to infer about the acceptance degree of the program in 100% of graduates, which suggests that they will probably make a positive dissemination for other teachers to study the master.

19. Comments or suggestions to improve the Program

The content of the sixty-two responses from the participants' visions were classified into two categories and six subcategories. The category called "areas of opportunity" allows to focus those elements on the development of the curriculum (qualification, administrative, curriculum and performance of teachers) that require attention for the MECDEC program to respond to the needs and expectations of graduates and future applicants. The category entitled "areas to continue strengthening" are those elements of the curriculum (curriculum and teacher performance) that need to be preserved for the program to adapt to the context in which it is developed. The intention to identify the two areas is to close the gaps between the weaknesses and strengths of the program.

Opportunity areas (22, 36.6%)

- a) **Degree:** Extend the time for obtaining the degree (3); propose alternatives for the degree (5); the degree process is confusing and complicated; take one more semester for the degree; have a follow-up to the thesis seminar; have a follow-up to the degree; do not continue the qualification process because of personal problems; greater attention to the degree process; try to get more people to have the degree; qualification process too rigid and speed up the delivery of the certificates.
- b) **Administrative:** Modify schedules; it is recommended that the mentoring be only on weekends.
- c) **Curriculum:** expand research approaches by incorporating quantitative research.
- d) **Professors:** Change the attitude of professors; awareness-raising in the degree process and in the continuous advice to students.

Areas to continue to strengthen (40, 65%)

- a) **Curriculum:** Excellent program; better choice; congratulations, promotion of lib-



erating education and appropriate schedules; excellent program (3); good training project (3); interesting and useful experience; recommended for teachers; maintain the high level of excellence; it allows an impact on education policies at the macro and micro level; open your PhD; build competences to design, develop or evaluate classroom intervention projects; recommended to study it; I recommend it because I think it is the best option; qualitative project; understand the reality of contextualizing school interventions; the field of curriculum development allows the analysis; criticism and protests of school intervention projects; inform the project on social media; updated content; support for vocational training; allowed promotion; allows access to different levels of education; content and skills are excellent;

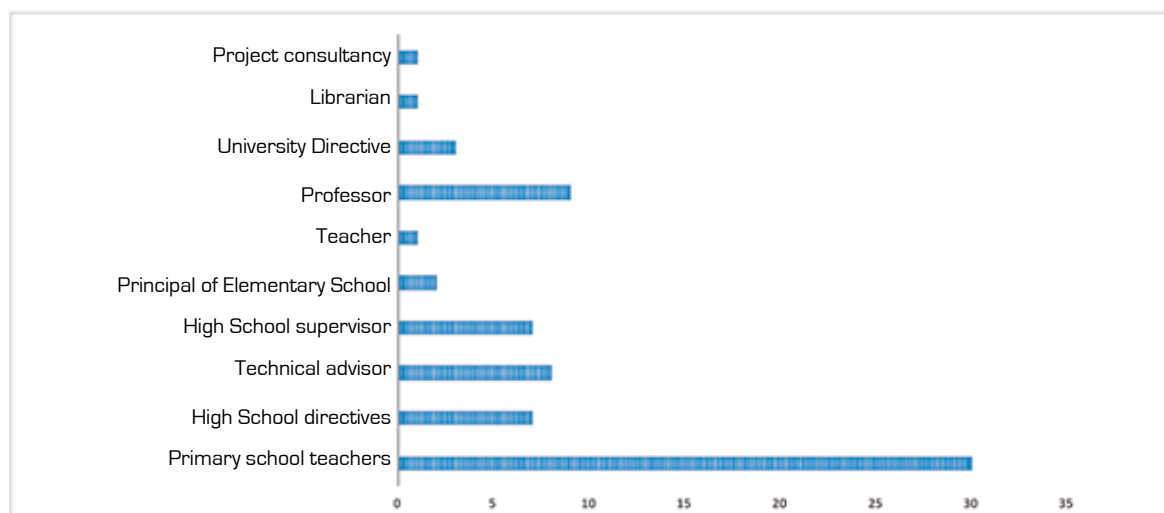
updated content; improve area of dissemination and extension; participate in educational research conferences (2).

- b) **Professors:** Excellent teacher preparation; continue with qualified personnel; build community of graduates and teachers to conduct educational research; professors with PhD and experience in the field of education; support to participate in conferences and forums; continue with the same professors who teach the classes; excellent staff (2); Do not change the way you work; efficient advice.

20. Current position

The sixty-nine participants are located at different educational levels as teachers of primary school or as managers, higher education professors or managers, librarian and project consultant.

Figure 4. Job location of Program graduates



Source: Own elaboration

The job location of the sixty-nine graduates is in primary school in different positions that hierarchically go from the teacher to the head of the area 54 (78.2%). One in middle

school (1.4%) and 12 in higher education as a professor or manager (17.3%) and 2 with other jobs as a librarian and project consultant (2.8%).



5. Discussion and conclusions

The study or follow-up of graduates is one of the edges of the curriculum that has international impact in the quest to find strategies for improvement. Some studies call it evaluation of programs such as that carried out by Martín et al. (1997), in the curriculum evaluation of the Magisterium of 1992, at Universidad Complutense de Madrid. The study was conducted in seven specialties in which the perspective of students taking the last year was documented. In the evaluation, they used a questionnaire focused on the level of the specialty, the formative capacity of the content blocks, the theory-practice relationship and the way in which the curriculum was consistent with the guidelines on the profile of the graduate. The evaluation-research proposed lines for the restructuring of the curriculum.

In the case of the global perception, it indicates that the program is accepted by 90% of those who answered the questionnaire; in addition to the areas to continue to strengthen it is perceived as: "Excellent program; better choice; congratulations, promotion of liberating education and appropriate schedules; excellent program (3); good training project (3)". However, in the area of opportunity, as far as qualification is concerned, participants emphasize how problematic it is to hold and suggest alternatives for the degree (5), extend the time for the degree (2), an issue that only the Academic Council and the Rector of the National Pedagogical University are allowed to perform. Like the recent amendment to the General Regulations on Postgraduate Studies, which points as an alternative to the thesis that the student publish an article in a national endorsed and indexed journal or a book chapter in a well-known publishing house (UPN, 2018, p. 12).

The suggestions made by graduate students may be considering the offers disseminated on the network, in which for some postgraduate degrees it is not necessary to present the thesis to obtain the degree. This is an interesting line of

research, since according to Martínez et al. (2015, pp. 153-155), master's studies are the ones with the highest demand in Mexico by wide range of private HEI with 4118 programs; in contrast to the public ones of 1740.

Moreover, in the Republic of China, in the province of Shandong, Zhou (2016) conducted a study similar to the one exposed, to learn about the curriculum satisfaction of university graduate students in three specialties through a Likert-type questionnaire, divided into five dimensions: curriculum implementation, resources, curriculum objectives, curriculum evaluation, curriculum system and content. The questionnaire was applied to 2795 graduate students, three years after their graduation, finding that the level of satisfaction was not high, especially for the curriculum and content, so the author proposed to modify it.

In this case, the idea is not to modify the curriculum, but rather to support the areas identified to strengthen the program, because the contents are updated every time a new generation enters. However, it is considered that it is important to deepen, through focus groups and in-depth interviews, to clarify the views of participants in areas that require attention, since one of the limitations of the study is the type of form and the electronic medium, since we agree with Díaz de Rada (2012) on the disadvantage of the possible misunderstanding of the questions when using such resources.

In the Latin American context, the research carried out by Núñez and González (2019), in the design of the standard graduation profile for the doctorates in education in Chile, took into account the expectations of the students who studied the program to contrast them with the documents proposed in the European economic area derived from the Bologna agreements and the current regulations in that country. The aim is to propose the skills that graduates must obtain at the end of the postgraduate course.

In this case, we start from the analysis of the graduation profile, the lines, courses and



seminars to design the Likert scale and document the point of view of the graduates, because it is considered that these define the institutional commitments, demands and needs of the socio-historical context as components that affect the curricular development. The graduation profile expresses the past that sought to guide the curriculum development, the present in the expectations of graduate students and the possible future if the modifications are made to offer quality, relevant and fair training.

Notes

- (1) The first version of the form participated Dr. José Luis Anzures García, Dr. José Juan Rodríguez Lozoya and Prof. J. Leonardo Hernández. However, the modification of the form with the incorporation of the dichotomous, multiple-choice, open-response and employment location questions, as well as the conduction of the MECDC Graduate Study Project, the analysis and systematization of the data, are under my responsibility.

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Validity and reliability in student learning evaluation throughout active methodologies

Validez y confiabilidad en la evaluación del aprendizaje mediante las metodologías activas

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Received: 2020-02-01 / Revised: 2020-06-01 / Accepted: 2020-06-09 / Published: 2020-07-01

Abstract

The demands on university education call for changes on teaching strategies and in the evaluation of student learning. Active methodologies are part of these strategies, which facilitate the development of student learning or competences, through situations or problems close to the real world and to a professional career. These require to rethink, plan and guide teaching as student-centered, as well as to use techniques and techniques for collecting valid and reliable information that leads to an appropriate and a fair evaluation of student learning. However, the evidence of validity and reliability of the interpretations of the scores or information collected with these tools has not had enough attention, according to the literature reviewed. The purpose of this paper is to discuss the validity of the interpretation and reliability of the scores or the information collected through classroom assessment tools in universities. Accordingly, to some publications, a set of recommendations is provided with sources of evidence that underpin validity and reliability. At a minimum, it is suggested taking into account evidence related to content validity and to internal consistency of the scores or the information collected, when making judgments and decisions that affect the students. It is concluded that greater prudence is needed in the interpretations and inferences of learning, if there is insufficient validity evidence.

Keywords: Active methodologies, student evaluation, validity, reliability, student learning, evaluation techniques.

Resumen

Las exigencias en la educación universitaria demandan cambios en las estrategias de enseñanza y en las técnicas y los instrumentos que contribuyen a evaluar el aprendizaje estudiantil. Las metodologías activas, como parte de estas estrategias, facilitan el desarrollo de determinados aprendizajes o competencias, mediante situaciones o problemas vinculados con el mundo laboral y social. Esto requiere replantear, planificar y orientar la enseñanza centrada en el estudiantado y utilizar técnicas e instrumentos para recoger información que conduzcan a emitir juicios apropiados, ciertos y justos de los aprendizajes. Sin embargo, no se ha prestado mucha atención a la validez y la confiabilidad de las interpretaciones de las puntuaciones o la información recopilada con estos instrumentos para el uso propuesto, según se desprende de las publicaciones revisadas. El propósito de este trabajo es aportar a la discusión acerca de la validez y confiabilidad de las puntuaciones o la información recopilada con los instrumentos aplicados en las aulas universitarias. Se consultaron varias publicaciones especializadas y se presentan algunas recomendaciones acerca de las fuentes de evidencia para sustentar la validez y la confiabilidad. Como mínimo, se sugiere la evidencia relacionada con el contenido y la consistencia de las puntuaciones o la información, al emitir juicios y tomar decisiones que afectan al estudiantado. Se concluye que se necesita mayor prudencia en las interpretaciones e inferencias de los aprendizajes, si no existe suficiente evidencia de la validez.

Descriptores: Metodologías activas, evaluación de estudiantes, validez, confiabilidad, evaluación del aprendizaje, técnicas de evaluación.

1. Introduction

Over the past three decades, the demands of the public, the governments and agencies of Higher Education require the student to have varied and complex learning for the performance at work and throughout life (Erwin, 1991; Huba & Freed, 2000; Krzykowski & Kinser, 2014; McClarty & Gaertner, 2015; Pozo & Pérez-Echeverría, 2009; UNESCO, 1998). These expectations involve certain changes in teaching strategies, techniques and instruments that collect information to evaluate the student learning. It involves conceiving learning differently to address the characteristics, processes and styles of learning and provide instructional activities, where students construct knowledge and skills based on the previous knowledge, as well as opportunities to become actively involved, demonstrating what they have learned and evaluating performance (Brookhart, 2004; Erwin, 1991; Hortigüela-Alcalá et al., 2015; Huba & Freed, 2000; López-Pastor & Sicilia-Camacho, 2016). With this perspective, the emphasis is on how to learn or develop mental structures and processes of thinking and acting in order to develop and achieve the expected learning, which are many and integrated into the cognitive, affective, psychomotor and social dimensions of academic and personal development of the student in different educational contexts. Commonly, these learning objectives are set out as teaching targets (Stiggins, 2017, p.11); learning outcomes, “learning goals”, (Huba & Freed, 2000, p. 94, p. 9, respectively) and competences (Baartman et al., 2006; De la Orden, 2011; Epstein, 2007; Fernández March, 2006; García-Merino et al., 2016; Goñi Zabala, 2005; Olmos-Miguelañez & Rodríguez-Conde, 2010; Pozo & Pérez-Echeverría, 2009; Voorhees, 2001).

Active or authentic methodologies, such as teaching strategies, act as a vehicle to facilitate

development and achievement through situations or problems similar to those faced in professional fields and society. The application of these methodologies requires rethinking, planning and guiding teaching in different ways, aligning techniques and tools for evaluation and considering the student as the focus of the process. A technique to evaluate refers to the set of procedures or actions planned to collect information about learning, while an instrument or tool is the specific object or medium to apply it.

The information collected covers scores, selections, annotations, comments or other ways that require responses or observations. Medina-Díaz and Verdejo-Carrión (2019) classify them into four groups with the associated instruments: (a) tests (e.g., objective and subjective evidence); (b) observation (e.g., checklists, category scales and headings); (c) personal communication (e.g., interview, notebook) and (d) performance tasks (e.g., project, portfolio). Angelo and Cross (1993), Barkley and Major (2016), Suskie (2009) and Weimer (2013) present multiple examples of these assessment techniques for the university context. Professors are expected to know and use those that harmonize with the learning objectives, the teaching strategies employed and the student characteristics, in order to select appropriate information (Banta et al., 1996; Black & William, 1998a, 1998b; Bennett, 2011; Davies & Taras, 2018; López-Pastor & Sicilia-Camacho, 2016; Newble & Cannon, 1991; Olmos-Miguelañez & Rodríguez-Conde, 2010; Rawlusk, 2018; Webber, 2012). It should be clarified that a technique and an instrument is not exclusive to a type of evaluation (e.g., diagnostic, formative or summative), but rather it is the professor who determines the purpose and use of the scores or the results. This is, precisely, the validity of the interpretations of the scores or information for the designated use, with the expectation that will substantially improve the quality of the academic experience and learning or competences of the university student. Table 1 presents three examples of active methodologies



and possible information collection techniques and instruments for evaluating student learning (Medina-Díaz & Verdejo-Carrión, 2019).

Table 1. Examples of active methodologies, techniques and instruments to collect information

Active methodologies	Definition	Techniques (and instruments)
Project	A set of activities carried out by the student, individually or in groups, for a long time, for the purpose of dealing with a problem and producing an object, prototype, oral or written report.	Systematic Observation (Checklist) Personal communication Learning log) Performance Task (Rubric)
Problem solution	The process by which the student performs a series of actions and makes decisions integrating knowledge, skills and attitudes to respond to or solve a problem or a real situation and for which there is no single solution.	Personal communication (Reflection and self-assessment forms) Performance task (Rubric)
Cooperative learning	Small group of students in which everyone interacts and participates to help each other understand an issue, perform a task or achieve a common goal.	Systematic observation (Rating scale) Personal communication (Learning log, self-assessment and co-assessment forms)

Student evaluation involves making an informed judgment, based on appropriate and relevant information about various learnings developed and achieved. Therefore, one of its great challenges is to collect and combine information, both quantitative and qualitative, obtained with multiple instruments and at different times. However, under the informality and how quickly classroom assessment often occurs, the validity of interpretations of the scores or information collected, as well as reliability, is not considered. Perhaps for this reason, there is a gap on the research and publications focused on Higher Education Assessment techniques (Angelo & Cross, 1993; Barkey & Major, 2016; Huba & Freed, 2000; Suskie, 2009; Wolf et al., 2012), as well as research on university faculty evaluation practices in several countries (Alquraan, 2012; Andreu-Andrés & Labrador-Piquer, 2011; Bearman et al., 2017; Brown & Atkins, 1988; Erwin, 1991; Gilles, Detroz & Blais, 2010; Goubeaud, 2010; Goubeaud & Yan, 2004; Hernández, 2012; Hortigüela Alcalá et al.,

2017; Pereira & Flores, 2016; Yükseliş & Gündüz, 2017). It is also possible that, for the sake of trust and academic freedom, validity and reliability are assumed when professors develop or use one or more instruments to apply them to the student, without having sufficient evidence to support them and caring about certain technical elements (Esteve Zarazaga, 2007; Gil Flores, 2005; Jacobs & Chase, 1992; O'Hagan, 2014; Poskanzer, 2002). The evaluation of learning integrated with active methodologies in teaching invites to consider the quality of the instruments applied at the university level, especially the validity and reliability of the scores or the information collected. The main purpose of this work is to contribute to the discussion of these two aspects.

2. Methodology

To this end, several publications that promote or discuss the validity and reliability of interpretations of information collected with the tools used to evaluate learning were reviewed



(American Educational Research Association et al., 2018; Brookhart, 2003, 2007; Cizek, 2009, 2015; Joint Committee on Standards for Educational Evaluation, 2018; Moss, 2003). The Standards for Educational and Psychological Testing, published by the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (2018) point to the requirements that instruments developed and administered for a large scale or commercial profit must support the validity of interpretation of scores for the proposed uses. They present a framework of reference or guidance to ensure that relevant issues are addressed in the construction of educational and psychological tools and provide a basis for reviewing and criticizing them (American Educational Research Association et al., 2018, p.1). The Joint Committee on Standards for Educational Evaluation (2015), is in charge of this topic “Q4 Reliability and Validity”: “Classroom assessment practices should provide consistent, dependable and appropriate information that supports interpretations and decisions about each student’s knowledge and skills” (Location 643).

From our perspective, the same statistical breadth and rigor is not projected to occur as in the validation procedures used in standardized utilization tests and other instruments applied in educational and psychological practice and research. However, those used in universities should generate appropriate quantitative and qualitative information about the student learning according to the purpose, content, teaching strategies and size of student groups, as well as inferences and actions derived. One of these inferences could be that the student has achieved problem-solving competency, applying descriptive statistics. Moss (2003) argues that the notion of validity should be reconceptualized for classroom practice, and she advocates interpretive approaches (e.g., based on sociocultural theory and hermeneutics) to handle the information that is collected continuously. Brookhart (2003)

proposes the development of a classroom-based measurement theory (“classroometric”, p.8). Faced with these approaches, the concepts of validity and reliability are highlighted as well as the sources of evidence needed. In addition, several recommendations are done on the relevant evidence for interpreting scores and other information collected with the instruments.

3. Validity and reliability

3.1. Validity

Validity is defined to the “degree to which evidence and theory support interpretations of test scores for the proposed uses of tests” (American Educational Research Association et al., 2018, p.11). In other words, it implies a judgment about the interpretation of scores or information obtained with an instrument, in the light of evidence from these sources of evidence are based on content, response, processes, internal structure, relation with other variables and consequences (American Educational Research Association et al., 2018). This vision is based on a unifying concept of validity, noting that the integrated evidence from these sources contributes to the validity related to the construct, so that it theoretically and empirically supports that the instrument measures or represents it appropriately and leads to appropriate inferences and actions (Messick, 1989). An instrument used in university classrooms requires relevant evidence to support the interpretations and uses of the scores or information obtained. Table 2 summarizes some of the procedures linked to the five sources of evidence, according to Cizek (2009), Medina- Díaz and Verdejo-Carrión (2019), McMillan (2008) and Nitko and Brookhart (2011).



Table 2. Recommendations on the validity and reliability of the interpretation of scores or information collected with an instrument

Source	Recommendation
Validity related with the content	<ul style="list-style-type: none"> • Prepare instrument specifications with the content topics. • Provide a sufficient number of items or tasks associated with the content. • Create the instrument, following the recommendations of recognized reference sources in the field of learning assessment. • Review the comprehension of the instrument items or tasks, as well as the instructions. • Ensure that the vocabulary, grammatical structure, language and format of items or tasks are suitable for the student. • Determine the alignment between items or tasks in the instrument with the learning and content.
Validity related to the answer process	<ul style="list-style-type: none"> • Check the match between the answers offered to items or tasks and learnings (e.g., cognitive strategies or processes). • Identify cognitive processes, skills or strategies needed to answer items or tasks. • Interview a group of students, immediately after answered the instrument, to know the strategies or processes used to respond. • Provide time to respond to or apply cognitive processes or complex skills. • Ask the student to explain the work done or to show the steps or procedures for reaching an answer.
Validity related to the internal structure	<ul style="list-style-type: none"> • Analyze the consistency of responses to items or tasks of an instrument associated with the same learning target or content. • Check the match between the scores, and the performance previously qualified with an instrument.
Validity related to other variables	<ul style="list-style-type: none"> • Compare the results of an instrument, before and after the discussion of a topic or teaching-learning process. • Contrast the performance in different instruments that represent the same and different learning. • Identify the characteristics, experiences and educational needs of the student who responds or with whom the instrument is used.
Consequences	<ul style="list-style-type: none"> • Identify the effects or impact of the use of the instrument and the information obtained. • Review the interpretations and decisions made about learning and instruction, according to the information collected. • Associate the interpretation of the instrument information with the corresponding decisions. • Request the student reactions or comments about instruments and scores.
Reliability	
Consistency in the answers or execution	<ul style="list-style-type: none"> • Have enough information about the learning developed and achieved through various instruments. • Have a key or guide to review answers to items or the performance tasks. • Establish and report the criteria and indicators that will be used to observe or score performance on tasks. • Provide examples of expected responses and works at different levels of performance. • Review or score all student group answers to one question, before moving on to another. • Provide two or more occasions to answer questions or tasks, related to expected learning and compare the performance. • Use two or more people (professor and student) to observe the performance, compare scores, and calculate the percentage of agreement. • Describe procedures for correcting scoring responses or performance.



The evidence based of content-related validity starts with the identification of the purpose and learning targets intended to be represented in an instrument. The instrument's construction requires delimiting the learning, content topics, quantity and type of items as part of the specifications that serve as the basis. For example, when it comes to an objective test, a table of specifications relates the learning targets or content topics with the items (Medina-Díaz & Verdejo-Carrión, 2019). In this and other instruments designed such as performance tests, a concordance is expected between items or tasks, objectives, teaching strategies and the emphasis and time spent on content discussion (i.e., instructional validity). The items or tasks are created from the specifications, taking into account the expected learning, the time required to answer, the students' needs and the university context. To develop essay or discussion-like questions which are very often used in this context, the organization and relationship between topics is also considered in the ideal answer (Brown, 2010; Medina-Díaz & Verdejo-Carrión, 2019).

The items or tasks, along with the instructions, are the main pieces of an instrument. Therefore, their selection and development requires time. Nitko and Brookhart (2011), Haladyna (1997), Mateo and Martínez (2008); Medina-Díaz and Verdejo-Carrión (2019) present different recommendations for creating them. The most general are: (a) clarity in vocabulary used, (b) simplicity in grammatical structure and (c) avoidance of including two ideas, as well as sexist, offensive or discriminatory language. In addition, the correct or expected answers to the items or tasks are written. A crucial issue is to ensure that items or tasks require showing cognitive learning, at least understanding and applying concepts, actions, and procedures. This assumes that professors have used teaching strategies that fostered their development in class.

Also, content organization, edition and physical display are taken into account on the construction of an instrument. This is reflected

in the appearance and organization, as well as the absence of spelling errors in the items and instructions. This applies to both a printed and electronic instrument. These actions contribute to the evidence related to the content of the instrument, which is more important in the evaluation of student learning.

It should be remembered that the review of the representativeness and relevance of the items or tasks of a test or other standardized instrument depend on the judgment of people who know or are familiar with the content, and student group of interest (American Educational Research Association et al., 2018). In university classrooms, this work is done only by the professor, who decides about the learning to be represented, the content and the items or tasks of the instrument. In addition, it is possible to under- or over- represent some objective or topic of the course. To minimize this, a colleague could help review the agreement or match of the instrument with the specifications and the ambiguity in the questions, before applying in it.

Evidence based on response processes concerns the fit between instrument items or tasks and the cognitive, affective, and psychomotor learning or skills required to answer or complete them. To gather evidence about different cognitive processes or thinking skills, it is necessary to at least identify how items or tasks model them and get relevant information. For example, a performance task in Mathematics expects that the student uses a general or heuristic strategy (e.g., make a diagram or drawing) to answer it. The professor may interview several students and ask them to explain their reasoning to verify whether they responded by applying this strategy to the task or solution to the problem. The professor can also observe the performance of a group of students carrying out a task to verify the procedure employed.

The evidence based on the internal structure involves the cohesion of the items or tasks of the instrument in representing what is proposed (e.g., learning or content topics), and the con-



sistency in the responses. Nitko and Brookhart (2011) suggest paying attention to patterns of response to items or tasks, as well to the concordance with those managed instruments. On tests, it is advisable to analyze and compare the answers to various questions or tasks of the same content in order to determine the consistency of the results (McMillan, 2008). The evidence of the relationship with other variables is related to the association between the responses to the items and the instrument scores with external variables (called criteria). This evidence is relevant when scores on an instrument serve as an indicator of performance in other variables (e.g., academic average, scores on a logical reasoning test). This could be used in the evaluation of learning, first by identifying the characteristics, experiences and diversity of educational needs of the student who responds or with whom the instrument is used, and then, in seeking similarities and differences in the execution of the instrument (McMillan, 2008). Observations on the student's answers and works could also be compared before and at the end of the discussion. The differences suggest possible changes in learning. It would also be useful to verify the performance on several tasks aimed at demonstrating similar or associated learning.

The evidence related to the consequences considers the possible effect or impact of the instrument and the use of the information collected. It requires documenting how scores were interpreted (e.g., normative- or criterion-referenced), what they were used for and what the consequences were (e.g., increasing motivation or time to study, reducing the number of failures). For example, the impact on the student learning of a performance task aimed at conducting research or practical work in a community could be investigated (Ricoy & Fernández-Rodríguez, 2013). An interview with the student or a written reflection would serve as evidence. McMillan (1997) and Taylor and Nolen (2005) emphasize the consequences for teachers and students; particularly on the effect of feedback, techniques and

the instruments administered in the motivation and study habits.

Bonnen (2013), Gipps (1994), Medina Gual (2013), McMillan (1997) and Muñoz and Fonseca-Pedrero (2008) also include a number of proposals to demonstrate the validity of interpretations of the information collected, as well as the reliability. Suskie (2006, p. 37) presents four characteristics of useful instruments (that they produce accurate information; have a clear purpose; engage teachers and students; focus on clear and important learning goals). Medina Gual (2013) proposes a scheme with curricular, interpretative and instrumental evidence and their respective strategies. Gibbs (1994, p. 174) presents six quality criteria of an instrument: (a) curricular fidelity, (b) comparability, (c) dependence, (d) public reliability, (e) description of the context and (f) equity. The equity of fair treatment of students is crucial by proving various opportunities and whatever is necessary to achieve the expected learning. For its part, McMillan (1997, p.49) raises the following: (a) clear and appropriate learning objectives, (b) appropriate assessment methods, (c) validity, (d) reliability, (e) justice, (f) positive consequences, and (g) practicality and efficiency. These latter criteria include several aspects that must be taken into account by professors, such as the time and resources to prepare the instruments, apply it and score the performance of the student, as well as the complexity to interpret the results. For example, creating an objective test takes a long time, but it takes a short time to answer and correct it. A performance task takes more time to create, answer and score its responses. For this reason, it is recommended that some items or tasks be reviewed and reused from time to time if its possible.

3.2. Reliability

Reliability refers to the consistency of scores or information obtained with an instrument applied in different times or moments. It is related to the precision of scores or other information



from a group of students with the least possible errors. The errors could be linked to changes in the conditions of administration of the instrument, the subjectivity in the correction or qualification of the scorers, ambiguity in the items, as well as the lack of motivation and the doubt of the student.

The number of items, tasks, and replications when instruments are used is a reliability-related factor. Typically, increasing the number of items in an objective test increases the reliability coefficient. There are three main types of reliability coefficients obtained through statistical procedures: (a) stability (or test-retest), which refers to the consistency of scores over time or at different moments; (b) equivalence, which concerns whether two or more parallel forms of an instrument produce scores or similar results; and (c) internal consistency, which focuses on the cohesion of responses to items on an instrument, which attempts to measure or represent the same objective or content. Theoretically, if an instrument produces reliable scores, these should be similar for the group of students who answer it on two or more times. The correlation between the scores is the stability coefficient.

In most classrooms it is impossible to perform double administration, so reliability based on internal consistency, which requires only one, is used. An objective test has a key for correcting the responses to the items, so the subjectivity in the correction is not a limitation. The professor who applies it to large groups of students and has appropriate computer software to analyze the responses to the items and calculate a coefficient of reliability (usually internal consistency), if the scores are compared with a norm group (norm-referenced interpretation). Also, the standard measurement error can be estimated if desired. This indicates the accuracy in the individual scores of the instrument and it depends on the magnitude of the reliability coefficient and the variability of the scores; i.e., at a higher reliability the lower the measurement error. Often, these statistics are not usually calculated on tests applied in

university courses or departments. However, taking them into consideration for reviewing technical quality requires this effort, especially when a test is known as “reliable”.

With regard to the performance tasks (e.g., project, portfolio) essentials in the active methodologies, the subjectivity in the scoring is reduced but not extinguished, with the use of a rubric, checklist or rating scale containing the appropriate criteria and indicators (Medina-Díaz & Verdejo-Carrión, 2019; Reddy & Andrade, 2010; Selke, 2013; Van der Schaaf, Baartman & Prins, 2012). In addition, the student must know these in advance or can participate in their elaboration. If possible, it is advisable to provide examples of expected responses, actions or jobs at the different performance levels included in the rubrics. In the absence of these, procedures for correcting or scoring responses are described. If open answer or essay questions are included, then the answers of the entire group of students to one question are scored before reviewing the answers from another. This not only helps maintain consistency in grade, but provide feedback to the student when discussing answers to questions.

In this way, reliability is manifested by consistency in assigning scores with a rubric to score each student's performance in the performance task. This involves two procedures for finding consistency: intra and inter-judge. The intra-judge consistency depends on how the professor applies an instrument (e.g., a rubric), in a stable way to rate the answers or the student's work. For this, the professor can re-evaluate a sample of previously reviewed topics and find the match in the scores, as well as identify the differences (Cizek, 2009). The inter-judge agreement requires two or more people to review and rate execution. This is unusual in classrooms unless there is the collaboration of another professor or student, thus, this is a good opportunity to encourage the participation of the student as observers, or judges as a co-assessment. The professor and one or more students, independently, rate the performance of a student by using the



same instrument. The scores are then compared and an agreement percentage or other statistic is calculated (Stemler, 2004). Disagreements in scores that suggest little or no reliability in scores may be caused by applying the instrument differently or by possible bias in the qualifying person (e.g., lenience or severity). This is another moment to involve the student in the dialogue and experience of qualifying and evaluating, as well as to understand the nature of the process and the common and different performance scores. In addition, professors also benefit from confirming the correct scores obtained.

Moreover, Brookhart (2003) and Smith (2003) define reliability as a sufficiency or abundance of information. Brookhart (2003, p.11) refers to the stability of information to detect the difference between expected and the current state of the student performance or the amount of information. Smith (2003, p.31) refers to obtaining sufficient information, having a complete view of the student, and leading to a good decision. It is also necessary to consider whether the student had several opportunities (items or tasks) and moments to show his/her learning and what he/she is able to do. This allows to observe the variation and consistency in the performance, and thus to formulate better interpretations of the learning achieved. A professor could use this information and a complementary information (e.g., interview) to derive inferences about the learning achieved by the student. It also helps reduce the anxiety or fear it could cause if there is only one time or instrument to demonstrate what has been learned. As can be seen, in these cases no reliability coefficient is calculated. Reliability depends on the use of various techniques that yield consistent information from expected learning. It should be emphasized that having reliable scores or information is not enough to support validity.

Finally, the convenience of using various tools to collect information allows to overcome the limitations each has and try to represent the complexity and multiple learning dimensions.

The combination of quantitative and qualitative information accumulated throughout the teaching-learning process offers a more comprehensive and accurate look at the student's learning and thus allows to make decisions and formulate appropriate and fair judgments. Central tendency and variability statistics are useful for describing the performance of a group if considering scores of a test or rubric applied to a task. These are also shared with the student. Where there is qualitative information (e.g., essay, reflection) or graphic (e.g. comic book, infogram), certain criteria are considered (e.g., vocabulary, argumentation, use of examples and symbols) to describe the performance or development of each student. Analysis strategies can be used to identify common or divergent elements or patterns in written or graphical parts. Information collected with various instruments is combined and compared ("triangulate data") to identify topics or patterns which converge on decisions and judgments about the student's learning and the instructional process: What learning did they obtain? What difficulties do they present? What is inferred about learning? How will the results be used? What changes are needed in teaching strategies?

4. Discussion and conclusions

Student evaluation is a systematic process of making a judgment based on the information gathered about the learning developed and achieved, throughout the teaching-learning process. The trust placed in the information collected depends on the quality of the instruments that professors create, manage and use. The validity lies in the appropriate and credibleness of the interpretations of the scores or the information collected by an instrument about a student's learning. The evidence gathered through the different sources strengthens the certainty of interpretations and inferences, both of the learning process and of the performance of the student. In addition, it drives the decision-making in the teaching-learning process (e.g., expand



discussion of a topic, offer practical experience, use an active method in teaching or recommend tutoring) and the judgments issued (e.g., “Mary has achieved the competences in Math”). These decisions and judgments also deserve pondering.

As observed, validity and reliability have not had enough attention in the discussion of information-gathering techniques and instruments applied by professors to evaluate student learning. Possibly, they are on a “list of endangered species” as Popham stated (2005, p.71). We hope that this paper will contribute to the reflection and action to preserve them. We suggest more caution in the interpretations of the information acquired with the instruments that are developed and used along with active teaching methodologies if there is no evidence of the validity that supports them. Finally, we recommend that evidence related to the content and consistency of scores or information obtained be taken into account when making judgments and decisions that affect students. However, we recognize the challenge and effort of this proposal in the face of the reality of teaching job and the respect for academic freedom of professors in the different universities. Dealing with the possible fragility of interpretations and decisions derived from the information obtained or accumulated about student learning, more evidence is necessary to support them.

There is no doubt that it is not enough for professors to create and manage better instruments if they do not use the information appropriately, consistently and fairly in the evaluation of student learning. As Palomba and Banta (1999) and Banta and Pike (2012) indicate, the results need to be used to close the assessment cycle (plan-collect information-interpreting it-using the results). Also, information concerning cognitive learnings is not sufficient if affective, psychomotor, social and other that are relevant in the different university disciplines (e.g., safety in the management of materials or substances, autonomy and teamwork) are not taken into consideration. In addition, the evaluation of

learning, in an ethical and constructive way, points to the right of the student to be notified about and participate in the process of applying the criteria, techniques and instruments; as well as the interpretation of the information collected, both to improve learning and teaching. It should be remembered that interpretations, inferences and decisions made have consequences (some more serious than others), for the students and the society. Finally, the expectation of improving learning does not depend exclusively on the evaluation, but also in the changes in the vision of learning, teaching strategies, curriculum of disciplines, professional development and leadership of the faculty and the collaboration of the administration of universities to support, integrate and evaluate them.

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Publication guidelines

(Normas Editoriales)



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Publication Guidelines of «Alteridad»

<http://alteridad.ups.edu.ec/>
p-ISSN:1390-325X / e-ISSN:1390-86

1. General information

«Alteridad» is a bilingual scientific publication of the Salesian Polytechnic University of Ecuador (UPS), published since January 2006 uninterruptedly, on a semi-annual basis (January-July).

It is an arbitrated scientific journal, which uses the peer-review system under the double-blind review, in accordance with the publication standards of the American Psychological Association (APA). The compliance with this system ensures authors an objective, impartial and transparent review process, making it easier for authors to be included in reference international databases, repositories and indexes.

«Alteridad» is indexed in the Web of Science's Emerging Sources Citation Index (ESCI), at the Scientific Electronic Library Online (SciELO), in the REDALYC Scientific Information System, in the directory and selective catalog of the Regional Online Information System for Scientific Journals of Latin America, the Caribbean, Spain and Portugal (Latindex), in the Directory of Open Access Journals (DOAJ), in the European Reference Index for the Humanities and Social Sciences (ERIHPLUS), in the Ibero-American Network of Innovation and Scientific Knowledge (REDIB), on the Dialnet Portal; it is evaluated in the Information Matrix for Journal Analysis (MIAR), the Integrated Classification of Scientific Journals (CIRC), and the Qualis review system for CAPES journals. In addition, it is in repositories, libraries and specialized catalogs around the world.

The journal is published in two versions: electronic (e-ISSN: 1390-8642) and printed (ISSN: 1390-325X) in Spanish and English; each manuscript is identified with a Digital Object Identifier System (DOI). All articles published in «Alteridad» have the Creative Commons Attribution-Non-Commercial-Share Equal license (RoMEO blue journal).

2. Scope and policies

2.1. Topics

«Alteridad» is a journal specialized in Education and its transdisciplinary lines such as Didactics, Public Policies, School Management, Edu-communication, ICT, Social Pedagogy, among others; and all those disciplines related to the main topic.

2.2. Sections

The journal has a semi-annual periodicity (20 articles per year), published in January and July and has two sections of five articles each by number; the first referring to a **Monographic** topic



prepared in advance and with thematic topic and the second, a section of **Miscellaneous**, composed of varied contributions within the theme of the publication.

2.3. Contributions

All manuscripts must be original, and must not have been published in any other journal or must not be in the arbitration or publication process in another journal. Empirical research results are published in Spanish, Portuguese or English, and studies and state-of-the-art are also admissible:

- **Researches:** 5000 to 6500 text words, including title, abstracts, descriptors, tables and references. Particular assessment will be made of research results, methodological rigor, the relevance of the subject, the quality of scientific discussion, the variety, timeliness and richness of bibliographic references (preferably publications indexed in JCR and Scopus). At least 35 references are expected.
- **Literature studies and reviews:** 6000 to 7000 text words, including tables and references. The debate generated, the relevance of the subject, the originality, current and selective contributions and references of around 70 works (preferably from publications indexed in JCR and Scopus) will be particularly valued.

3. Editorial process

3.1. Submission of manuscripts

Manuscripts must be submitted only and exclusively through the Open Journal System (OJS), in which all authors must register in advance, although only one will be responsible for the correspondence. No author may submit or review two manuscripts simultaneously, estimating a time of four consecutive numbers (2 years). An article may have a maximum of 3 authors, although if justified depending on the size of the study, there may be up to 5.

«Alteridad» informs the reception of the manuscript submitted by the authors; the information related to the acceptance or rejection of the manuscript is sent by email and the platform; and in the case of acceptance, the author is also informed of the editing process.

In the website of the journal, in the Guidelines section, are presented the Guidelines for the Authors, the format of the structure of the articles, the cover page and cover letter, the pre-submission list, the evaluation forms by the external reviewers and a guide for the submission of the article through OJS. Before the submission, it is strongly recommended that the manuscript be checked with the Pre-Check Protocol. Two documents should be sent simultaneously:

- a) Cover page and cover letter (use the official model), on which will appear
 - Cover page (Title, Abstract and key words provided in the Manuscript).
 - Full name of each of the authors, organized in priority order; followed by the professional category, institution, email of each author and ORCID number. It is mandatory to indicate if the authors have a PhD academic degree (include Dr. before the name).



- A **Cover letter** will also be included indicating that the manuscript is an original contribution, has not been sent or evaluated in another journal, with the signature of the authors, and acceptance (if applicable) of formal changes to the manuscript compliant with the rules and partial transfer of rights to the publisher.

b) Fully anonymized **manuscript**, in accordance with the rules referred to in section 4.

3.2. Revision process

Upon having received the document and in a maximum period of 30 days, the correspondence author shall receive a notification, indicating whether the manuscript is estimated or dismissed for the arbitration process by the scientific reviewers. In the case that the article has formal problems, or does not address the educational subject, or has a high similarity percentage to another document(s), the editorial board shall dismiss the work without the option to return it. Conversely, if it has superficial problems, it will be returned to the author for the corrections before starting the evaluation process. The submission date of the article will be considered based on the final submission when the article is presented with the corrections.

The articles will be scientifically evaluated by an average of three experts of the topic. Reports will indicate the following recommendations: Accept the Submission, Publishable with Modifications, Sent the manuscript back for its Review, Not Publishable. The acceptance or rejection of the manuscript for its publication will be decided from the analysis of external reports. In the case of dissenting results, it shall be forwarded to a new opinion, which shall be final. The protocol used by reviewers is public (researches; studies and state-of-the-art).

In general, once the external scientific reviews are taken into view, the criteria justifying the decision on the acceptance/rejection of the manuscript by the Editorial board are:

- Current and novelty.
- Relevance and significance: Advancement of scientific knowledge.
- Originality.
- Reliability and scientific validity: Proven methodological quality.
- Organization (logical coherence and formal presentation).
- External support and public/private funding.
- Co-authoring and internationalization degree of the proposal and the team.
- Presentation: Good writing.

The timeline for the scientific evaluation of manuscripts, after the previous estimation procedures by the Editorial Board is a maximum of 100 days. In relation to the manuscripts sent for Calls for papers, their scientific review dates begin once the call finishes. Manuscripts that are positively evaluated and require modifications must be sent with the changes, within the next 15 days.

3.3. Editing and publishing of the manuscript

The edition and layout processes of the accepted articles is performed by the Technical Board of the journal in coordination with the Abya-Yala Editorial. «Alteridad» reserves the right to make



style corrections and editorial changes if necessary to improve the manuscript. A proof of printing in PDF format will be sent to the authors for the correction of typography and spelling in a maximum of three days.

Abya-Yala Editorial will carry out, free of charge for the authors, the professional translation of the final version of the manuscript into the English language (or Spanish, according to the original version), which will guarantee the consultation and international dissemination of the manuscript. The articles will be published on the journal's platform in a timely manner. All articles, in their two language versions (Spanish and English), are published in PDF, HTML, EPUB and XML-Jats format.

3.4. Promotion and dissemination of the published article

The authors are committed to give maximum diffusion to their article published in «Alteridad». In this sense, they are encouraged to promote their published article on academic networks (Academia.edu, ResearchGate, Mendeley, Kudos), social (Twitter, Facebook, LinkedIn, also publishing the DOI), institutional repositories, web or blog staff, among others. Authors are also encouraged to share the published article through email lists, research groups and personal contacts.

«Alteridad» has a Metric Measurement System (PlumX) that allows verifying the compliance with this commitment. For the submission of future articles by authors of «Alteridad», the impact of previous works will be taken into account.

4. Structure of the manuscripts

The manuscripts shall be submitted in typeface Arial 10, simple spacing, fully justified and without tabs or white space between paragraphs. Only large blocks (title, authors, abstracts, key words, credits, and captions) will be separated with white space. The page must be 2 centimeters in all its margins. Manuscripts must be submitted in Microsoft Word document (.doc or .docx), requiring the file to be anonymized in File Properties to avoid the information related to the identification of the author/s.

4.1. Cover page

Title (Spanish and English): Concise but informative, in Spanish on the first line and in English in the second, consisting of as many significant terms as possible. The title is not only the responsibility of the authors, and changes can be proposed by the Editorial Board. A maximum of 80 characters with space are accepted.

Abstract (Spanish and English): It must be presented in a concise way and in this order: Justification, objectives, methodology used (approach and scope), more relevant results, discussion and main conclusions. It must be written impersonally "The present work analyzes...". In the case of the Abstract, the use of automatic translators will not be accepted because of their poor quality. It will be between 220/230 words.

Key words (Spanish and English): 6 keywords must be presented for each language version directly related to the topic of the manuscript. The use of the keywords presented in UNESCO's Thesaurus will be positively valued (<http://bit.ly/2kIgn8I>) or the controlled vocabulary of IRESIE (<http://bit.ly/2mzg4m8>).



4.2. IMRDC Structure

For those works involving empirical research, the manuscripts will strictly respect the IMRDC structure, with the headings of Economic Supports and Notes being optional. The works involving Literature Studies and Revisions may be more flexible under their headings, especially in Methodology, Results and Discussion. In all types of works, bibliographic references are mandatory.

1. **Introduction and state of the play:** It should include the theoretical foundations and purpose of the study, using bibliographic citations, as well as the review of the most significant literature of the topic at the national and international level. The use of high-impact references (JCR and Scopus) will be positively valued.
2. **Methodology:** It must be written in a way that the reader can easily understand the development of the research. It should contain the explanation on the approach (quantitative, qualitative or mixed) and the scope (exploratory, descriptive, correlational or explanatory). When appropriate, it shall describe the sample and the sampling form, as well as it must refer to the type of statistical analysis applied. If it is an original methodology, it is necessary to set out the reasons that have led to its use and describe the possible limitations.
3. **Results:** Efforts will be made to highlight the most relevant results and observations of the investigation, describing, without making judgments, the material and methods used for the analysis. The results will be presented in figures or/and tables according to the journal's standards (See section 4.4). They will appear in a logical sequence in the text, tables or figures, avoiding data redundancy.
4. **Discussion and conclusions:** Discussion and conclusions: It will summarize the most important findings, relating the observations with interesting studies, pointing to contributions and limitations, without resulting in data already commented in other sections. In addition, the discussion and conclusions section should include deductions and lines for future research.

4.3. Economic support and notes

Economic support (optional): Council Science Editors recommends that authors specify the source of funding for the research. Works on the endorsement of competitive national and international projects will be considered a priority. In any case, for the scientific assessment of the manuscript, it must be anonymized with XXXX only for its initial evaluation, in order not to identify authors and research teams, which must be set out in the Presentation Letter and subsequently in the final manuscript.

Notes (optional) will go, only if necessary, at the end of the article (before references). They should be used to clarify terms or make marginal annotations. Note numbers are placed in superscript, both in the text and in the final note. Notes collecting simple bibliographic citations (without comments) are not allowed, as these should be in the references. If it contains a cite, the reference must also be found in the Bibliography section.

4.4. Bibliography

Bibliographical citations should be reviewed in the form of references to the text. Bibliography that is not cited should not be included in the text. Its number must be sufficient and necessary to contextualize the theoretical framework, methodology used and research results in an international research space: Minimum 35 for empirical research manuscripts, and around 70 for literature studies and reviews.



They will be presented alphabetically by the author's first last name (adding the second one only in case the first one is very commonly used, and joined with a hyphen). The quote should be extracted from the original documents, preferably journals and to a lesser extent books. Given the significance of citation indices and impact factor calculations, the use of references from indexed publications in JCR and/or Scopus and the correct citation following APA 6 norms is valued (<http://bit.ly/2meVQcs>).

It is mandatory that quotes with DOI (Digital Object Identifier System) be reflected in the References (can be obtained on <https://search.crossref.org/>). All journals and books without DOI must contain a link (in its online version, if applicable, and in a shorten version using Bity: <https://bitly.com/>), and the websites must include the consultation date using the format provided.

Journal articles must be presented in English, with the exception of those in Spanish and English, in which case they will be presented in both languages using square brackets.

Norms for the references

a) Periodic publications

- **Journal article (one author):** Ochoa, A. (2019). The type of participation promoted in schools is a constraint factor for inclusive education. [El tipo de participación que promueve la escuela, una limitante para la inclusión]. *Alteridad*, 14(2), 184-194. <https://doi.org/10.17163/alt.v14n2.2019.03>
- **Manuscript from a journal (until twenty authors):** Guarderas, P., Larrea, M., Cuvi, J., Vega, C., Reyes, C., Bichara, T., Ramírez, G., Paula, Ch., Pesantez, L., Íñiguez, A., Ullauri, K., Aguirre, A., Almeida, M., & Arteaga, E. (2018). Sexual harassment in Ecuadorian universities: Content validation for instrument development. [Acoso sexual en las universidades ecuatorianas: Validez de contenido de un instrumento de medición]. *Alteridad*, 13(2), 214-226. <https://doi.org/10.17163/alt.v13n2.2018.05>
- **Manuscript from a journal (without DOI):** López, L., & Ramírez-García, A. (2014). Medidas disciplinarias en los centros educativos: ¿Suficientes contra el acoso escolar? *Perfiles Educativos*, 36(145), 32-50. <https://bit.ly/37Xd5mw>.

b) Books and chapters of books

- **Complete books:** Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). *El peso de la deuda externa ecuatoriana*. Abya-Yala.
- **Chapter of books:** Padilla-Verdugo, J. (2014). La Historia de la Educación desde los enfoques del conocimiento. In E. Loyola (Ed.), *Ciencia, Tecnología y Sociedad (CTS). Miradas desde la Educación Superior en Ecuador* (pp. 107-128). Abya-Yala. <https://bit.ly/3etRnZH>

c) Electronic means

- Aunión, J. (2011, marzo 12). La pérdida de autoridad es un problema de toda la sociedad, no es específico del aula. *t*. <https://bit.ly/2NlM9Dp>



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The headings of the article shall be numbered in Arabic. These will be without full case of capital letters, no underscores, no bold ones. The numbering must be at most three levels: 1. / 1.1. / 1.1.1. A carriage return will be established at the end of each numbered heading.

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6. Ethical responsibilities

Each author shall submit a responsible statement of authorship and originality, as well as their ethical responsibilities.

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«Alteridad» se encuentra indexada en el *Emerging Sources Citation Index* (ESCI) de *Web of Science*, en la *Scientific Electronic Library Online* (SciELO), en el Sistema de Información Científica REDALYC, en el directorio y catálogo selectivo del Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal (Latindex), en el *Directory of Open Access Journals* (DOAJ), en el *European Reference Index for the Humanities and Social Sciences* (ERIHPLUS), en la Red Iberoamericana de Innovación y Conocimiento Científico (REDIB), en el Portal Dialnet; está evaluada en la Matriz de Información para el Análisis de Revistas (MIAR), en la Clasificación Integrada de Revistas Científicas (CIRC), y en el sistema Qualis de revisión de revistas de CAPES. Además, se encuentra en repositorios, bibliotecas y catálogos especializados de todo el mundo.

La revista se edita en doble versión: electrónica (e-ISSN: 1390-8642) e impresa (ISSN: 1390-325X) en español e inglés; siendo identificado cada trabajo con un *Digital Object Identifier System* (DOI). Todos los artículos publicados en «Alteridad» tienen licencia Creative Commons Reconocimiento-No-Comercial-Compartir igual (RoMEO blue journal).

2. Alcance y política

2.1. Temática

«Alteridad» es una revista especializada en Educación y sus líneas transdisciplinarias como Didáctica, Políticas Públicas, Gerencia de Centros Escolares, Educomunicación, TIC, Pedagogía Social, entre otras; y todas aquellas disciplinas conexas interdisciplinariamente con la línea temática central.

2.2. Secciones

La revista tiene periodicidad semestral (20 artículos por año), publicada en los meses de enero y julio y cuenta por número con dos secciones de cinco artículos cada una, la primera referida a un tema **Monográfico** preparado con antelación y con editores temáticos y la segunda, una sección de **Misceláneas**, compuesta por aportaciones variadas dentro de la temática de la publicación.

2.3. Aportaciones

Todos los trabajos deben ser originales, no haber sido publicados en ningún medio ni estar en proceso de arbitraje o publicación. Se editan preferentemente resultados de investigación empírica, redactados en español, portugués o inglés, siendo también admisibles estudios y selectas revisiones de la literatura (*state-of-the-art*):

- **Investigaciones:** 5000 a 6500 palabras de texto, incluyendo título, resúmenes, descriptores, tablas y referencias. Se valorarán especialmente los resultados de la investigación, el rigor metodológico, la relevancia de la temática, la calidad de la discusión científica, la variedad, actualidad y riqueza de las referencias bibliográficas (preferiblemente de publicaciones indexadas en JCR y Scopus). Se esperan mínimo 35 referencias.
- **Estudios y revisiones de la literatura:** 6000 a 7000 palabras de texto, incluidas tablas y referencias. Se valorará especialmente el debate generado, la relevancia de la temática, la originalidad de las aportaciones y referencias justificadas, actuales y selectivas de alrededor de 70 obras (preferiblemente de publicaciones indexadas en JCR y Scopus).

3. Proceso editorial

3.1. Envío de manuscritos

Los manuscritos deben ser enviados única y exclusivamente a través del *Open Journal System* (OJS), en el cual todos los autores deben darse de alta previamente, si bien uno solo de ellos será el responsable de correspondencia. Ningún autor podrá enviar o tener en revisión dos manuscritos de forma simultánea, estimándose una carencia de cuatro números consecutivos (2 años). Un artículo podrá tener como máximo 3 autores, aunque si se justifica en función del tamaño del estudio, podrán ser hasta 5.

«Alteridad» acusa recepción de los trabajos enviados por los autores, informa por email y la plataforma del proceso de aceptación o rechazo; y en el caso de aceptación, del proceso de edición.

En el Portal oficial de la revista, en la sección Normativas, están las Normas para Autores, el formato de estructura de los artículos, la Portada y Carta de presentación, el chequeo previo al envío, los formularios de evaluación por parte de los revisores externos y una guía para el envío del artículo a través de OJS. Antes de su envío se recomienda encarecidamente que se compruebe el manuscrito con el Protocolo de chequeo previo. Deben remitirse simultáneamente dos documentos:

a. Portada y Carta de presentación (usar el modelo oficial), en la que aparecerán:

- **Portada** (Título, Resumen y Descriptores previstos en el Manuscrito).
- **Nombre y apellidos completos** de cada uno de los autores, organizados por orden de prelación; seguido por la categoría profesional, centro de trabajo, correo electrónico de cada autor y número de ORCID. Es obligatorio indicar si se posee el grado académico de doctor (incluir Dr./Dra. antes del nombre).
- Se incluirá además una **declaración** (Cover letter) de que el manuscrito se trata de una aportación original, no enviada ni en proceso de evaluación en otra revista, confirmación de las autorías firmantes, aceptación (si procede) de cambios formales en el manuscrito conforme a las normas y cesión parcial de derechos a la editorial.

b. Manuscrito totalmente anonimizado, conforme a las normas referidas en el epígrafe 4.

3.2. Proceso de revisión

En un plazo máximo de 30 días, a partir de la recepción del documento, el autor de correspondencia recibirá una notificación, indicando preliminarmente si se estima o desestima para el arbitraje por los revisores científicos. En el caso de que el artículo presente deficiencias formales, no trate el tema educativo, o tenga un elevado porcentaje de similitud con otro(s) documento(s), el Consejo editorial desestimaré el trabajo sin opción de vuelta. Por el contrario, si presenta carencias superficiales de forma, se devolverá al autor para su corrección antes de comenzar del proceso de evaluación. La fecha de recepción del artículo no computará hasta la recepción correcta del mismo.

Los artículos serán evaluados científicamente por una media de tres expertos en el tema. Los informes indicarán las siguientes recomendaciones: Aceptar el envío, Publicable con modificaciones, Reenviar para revisión, No publicable. A partir del análisis de los informes externos, se decidirá la aceptación o rechazo de los artículos para su publicación. En el caso de resultados discrepantes se



remitirá a un nuevo dictamen, el cual será definitivo. El protocolo utilizado por los revisores es público (Investigaciones; Estudios y revisiones de la literatura).

En general, una vez vistas las revisiones científicas externas, los criterios que justifican la decisión sobre la aceptación/rechazo de los trabajos por parte del Consejo Editor son los siguientes:

- Actualidad y novedad.
- Relevancia y significación: Avance del conocimiento científico.
- Originalidad.
- Fiabilidad y validez científica: Calidad metodológica contrastada.
- Organización (coherencia lógica y presentación formal).
- Apoyos externos y financiación pública/privada.
- Coautorías y grado de internacionalización de la propuesta y del equipo.
- Presentación: Buena redacción.

El plazo de evaluación científica de manuscritos, superados los trámites previos de estimación por el Consejo Editor, es de 100 días como máximo; los remitidos para *Calls for papers*, sus fechas de revisión científica se inician al cierre de los mismos. Los trabajos que sean evaluados positivamente y requieran modificaciones, deberán ser reenviados con los cambios, dentro de los siguientes 15 días.

3.3. Edición y publicación del manuscrito

El proceso de corrección de estilo y maquetación de los artículos aceptados es realizado por el Consejo Técnico de la Revista en coordinación con la Editorial Abya-Yala. «Alteridad» se reserva el derecho de hacer corrección de estilo y cambios editoriales que considere necesarios para mejorar el trabajo. A los autores de artículos se enviará una prueba de imprenta en formato PDF para su corrección únicamente de tipografía y ortografía en un máximo de tres días.

La Editorial Abya-Yala realizará, gratuitamente para los autores, la traducción profesional de la versión final del manuscrito al idioma inglés (o español, según la versión original), lo que garantizará su consulta y difusión internacional. Los artículos serán publicados en la plataforma de la revista en tiempo y forma. Todos los artículos, en sus dos versiones idiomáticas (español e inglés), son publicados en formato PDF, HTML, EPUB y XML-Jats.

3.4. Promoción y difusión del artículo publicado

Los autores se comprometen a darle la máxima difusión a su artículo publicado en «Alteridad». En este sentido, se les exhorta a compartir y archivar su artículo publicado en las redes académicas (Academia.edu, ResearchGate, Mendeley, Kudos), sociales (Twitter, Facebook, LinkedIn, publicando en estos también el DOI), repositorios institucionales, web o blog personal, entre otras. Asimismo, se anima a los autores a compartir el artículo publicado a través de listas de correo electrónico, grupos de investigación y contactos personales.

«Alteridad» cuenta con sistemas de medición de métricas alternativas (PlumX) que permiten verificar el cumplimiento de este compromiso. Para la postulación de futuros artículos de autores de «Alteridad», se tendrá presente el impacto de los trabajos anteriores.



4. Estructura de los manuscritos

Los trabajos se presentarán en tipo de letra Arial 10, interlineado simple, justificado completo y sin tabuladores ni espacios en blanco entre párrafos. Solo se separarán con un espacio en blanco los grandes bloques (título, autores, resúmenes, descriptores, créditos y epígrafes). La página debe tener 2 centímetros en todos sus márgenes. Los trabajos deben presentarse en documento de Microsoft Word (.doc o .docx), siendo necesario que el archivo esté anonimizado en Propiedades de Archivo, de forma que no aparezca la identificación de autor/es.

4.1. Portada

Título (español) / Title (inglés): Conciso pero informativo, en castellano en primera línea y en inglés en segunda, conformado por el mayor número de términos significativos posibles. El título no solo es responsabilidad de los autores, pudiéndose proponer cambios por parte del Consejo Editorial. Se aceptan como máximo 80 caracteres con espacio.

Resumen (español) / Abstract (inglés): Se describirán de forma concisa y en este orden: Justificación del tema, objetivos, metodología empleada (enfoque y alcance), resultados más relevantes, discusión y principales conclusiones. Ha de estar escrito de manera impersonal “El presente trabajo analiza...”. En el caso del *Abstract* no se admitirá el empleo de traductores automáticos por su pésima calidad. Tendrá como extensión entre 220/230 palabras.

Descriptores (español) / Keywords (inglés): Se deben exponer 6 descriptores por cada versión idiomática relacionados directamente con el tema del trabajo. Será valorado positivamente el uso de las palabras claves expuestas en el Thesaurus de la UNESCO (<http://bit.ly/2kIgn8I>) o del Vocabulario controlado del IRESIE (<http://bit.ly/2mgg4m8>).

4.2. Estructura IMRDC

Para aquellos trabajos que se traten de Investigaciones de carácter empírico, los manuscritos respetarán rigurosamente la estructura IMRDC, siendo opcionales los epígrafes de Apoyos y Notas. Los trabajos que se traten de Estudios y revisiones de la literatura podrán ser más flexibles en sus epígrafes, especialmente en Metodología, Resultados y Discusión. En todas las tipologías de trabajos son obligatorias las Referencias bibliográficas.

1. **Introducción y estado de la cuestión:** Debe incluir los fundamentos teóricos y el propósito del estudio, utilizando citas bibliográficas, así como la revisión de la literatura más significativa del tema a nivel nacional e internacional. Se valorará positivamente el uso de referencias de alto impacto (JCR y Scopus).
2. **Metodología:** Debe ser redactado de forma que el lector pueda comprender con facilidad el desarrollo de la investigación. Deberá contener la explicación sobre el enfoque (cuantitativo, cualitativo o mixto) y el alcance (exploratorio, descriptivo, correlacional o explicativo). En su caso, describirá la muestra y la forma de muestreo, así como se hará referencia al tipo de análisis estadístico aplicado. Si se trata de una metodología original, es necesario exponer las razones que han conducido a su empleo y describir sus posibles limitaciones.
3. **Resultados:** Se procurará resaltar los resultados y las observaciones más relevantes de la investigación, describiéndose, sin hacer juicios de valor, el material y métodos empleados para el análisis. Los resultados se expondrán en figuras o/y tablas según las normas de la revista (Ver



epígrafe 4.4). Aparecerán en una secuencia lógica en el texto, las tablas o figuras imprescindibles, evitando la redundancia de datos.

4. **Discusión y conclusiones:** Resumirá los hallazgos más importantes, relacionando las propias observaciones con estudios de interés, señalando aportaciones y limitaciones, sin redundar datos ya comentados en otros apartados. Asimismo, el apartado de discusión y conclusiones debe incluir las deducciones y líneas para futuras investigaciones.

4.3. Apoyos y Notas

Apoyos (opcionales): El *Council Science Editors* recomienda a los autor/es especificar la fuente de financiación de la investigación. Se considerarán prioritarios los trabajos con aval de proyectos competitivos nacionales e internacionales. En todo caso, para la valoración científica del manuscrito, este debe ir anonimizado con XXXX solo para su evaluación inicial, a fin de no identificar autores y equipos de investigación, que deben ser explicitados en la Carta de Presentación y posteriormente en el manuscrito final.

Las notas (opcionales) irán, solo en caso necesario, al final del artículo (antes de las referencias). Deben ser utilizadas para aclarar términos o hacer anotaciones marginales. Los números de notas se colocan en superíndice, tanto en el texto como en la nota final. No se permiten notas que recojan citas bibliográficas simples (sin comentarios), pues éstas deben ir en las referencias. En caso de contener alguna cita, su referencia deberá encontrarse también en la sección de Referencias bibliográficas.

4.4. Referencias bibliográficas

Las citas bibliográficas deben reseñarse en forma de referencias al texto. No debe incluirse bibliografía no citada en el texto. Su número ha de ser suficiente y necesario para contextualizar el marco teórico, la metodología usada y los resultados de investigación en un espacio de investigación internacional: Mínimo 35 para los manuscritos de investigaciones de carácter empírico, y alrededor de 70 para los estudios y revisiones de literatura.

Se presentarán alfabéticamente por el apellido primero del autor (agregando el segundo solo en caso de que el primero sea de uso muy común, y unido con guion). Las citas deberán extraerse de los documentos originales preferentemente revistas y en menor medida libros. Dada la trascendencia para los índices de citas y los cálculos de los factores de impacto, se valorarán positivamente el uso de referencias provenientes de publicaciones indexadas en JCR y/o Scopus y la correcta citación conforme a la Norma APA 6 (<http://bit.ly/2meVQcs>).

Es prescriptivo que todas las citas que cuenten con DOI (Digital Object Identifier System) estén reflejadas en las Referencias (pueden obtenerse en <https://search.crossref.org/>). Todas las revistas y libros que no tengan DOI deben aparecer con su link (en su versión on-line, en caso de que la tengan, acortada, mediante Bitly: <https://bitly.com/>), y de los sitios web además la fecha de consulta en el formato indicado.

Los artículos de revistas deben ser expuestos en idioma inglés, a excepción de aquellos que se encuentren en español e inglés, caso en el que se expondrá en ambos idiomas utilizando corchetes.



Normas para las referencias

a) Publicaciones periódicas

- **Artículo de revista (un autor):** Ochoa, A. (2019). The type of participation promoted in schools is a constraint factor for inclusive education. [El tipo de participación que promueve la escuela, una limitante para la inclusión]. *Alteridad*, 14(2), 184-194. <https://doi.org/10.17163/alt.v14n2.2019.03>
- **Artículo de revista (hasta veinte autores):** Guarderas, P., Larrea, M., Cuví, J., Vega, C., Reyes, C., Bichara, T., Ramírez, G., Paula, Ch., Pesantez, L., Íñiguez, A., Ullauri, K., Aguirre, A., Almeida, M., & Arteaga, E. (2018). Sexual harassment in Ecuadorian universities: Content validation for instrument development. [Acoso sexual en las universidades ecuatorianas: Validez de contenido de un instrumento de medición]. *Alteridad*, 13(2), 214-226. <https://doi.org/10.17163/alt.v13n2.2018.05>
- **Artículo de revista (sin DOI):** López, L., & Ramírez-García, A. (2014). Medidas disciplinarias en los centros educativos: ¿Suficientes contra el acoso escolar? *Perfiles Educativos*, 36(145), 32-50. <https://bit.ly/37Xd5mw>

b) Libros y capítulos de libro

- **Libros completos:** Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). *El peso de la deuda externa ecuatoriana*. Abya-Yala.
- **Capítulos de libro:** Padilla-Verdugo, J. (2014). La Historia de la Educación desde los enfoques del conocimiento. In E. Loyola (Ed.), *Ciencia, Tecnología y Sociedad (CTS). Miradas desde la Educación Superior en Ecuador* (pp. 107-128). Abya-Yala. <https://bit.ly/3etRnZH>

c) Medios electrónicos

- Aunión, J. (2011, marzo 12). La pérdida de autoridad es un problema de toda la sociedad, no es específico del aula. *El País*. <https://bit.ly/2NIM9Dp>

Normas para epígrafes, tablas y figuras

Los epígrafes del cuerpo del artículo se numerarán en arábigo. Irán sin caja completa de mayúsculas, ni subrayados, ni negritas. La numeración ha de ser como máximo de tres niveles: 1. / 1.1. / 1.1.1. Al final de cada epígrafe numerado se establecerá un retorno de carro.

Las tablas y figuras deben presentarse incorporadas en el texto en Microsoft Word® ubicadas en el sitio en el que los autores consideren que deben estar. Se emplearán únicamente cuando sean necesarias e idóneas, debiendo limitarse su uso por cuestiones de espacios (máximo 6 entre tablas y figuras). Ambas deben ser enumeradas en arábigo y tituladas con la descripción de su contenido. Si la fuente de la tabla o figura no fuera de elaboración propia, los autores deberán incorporar al pie de la tabla o la figura la fuente de la que se extrae [por ejemplo, Source: Romero-Rodríguez (2016, p. 32)].

Las tablas deben estar elaboradas en el propio documento de Microsoft Word®, por lo que no se aceptarán tablas cortadas y pegadas de otros documentos que no puedan ser editados en el proceso de diagramación. Las figuras, además de ser incorporadas en el documento de Microsoft Word®,



deberán ser enviadas como material complementario al momento del envío en el OJS de «Alteridad», debiendo tener una calidad superior a 600 dpi, en archivos de tipo TIFF, JPEG o PNG.

5. Tasas y APC

«Alteridad» es una revista *Open Access*, incluida en el *Directory of Open Access Journals* (DOAJ) que oferta toda su producción de forma íntegra online en abierto para toda la comunidad científica. Asimismo, no establece ninguna tasa económica durante todo el proceso editorial para la publicación de los artículos, incluyendo la revisión científica, la maquetación y la traducción de los mismos. No existe ningún *publication fee*, ni *Article Processing Charge* (APC) vinculados con esta publicación, ni para autores ni para lectores. Asimismo, la revista tiene licencia *Creative-Commons* Reconocimiento-No-Comercial-Compartir igual (RoMEO blue journal), lo que permite libre acceso, descarga y archivo de los artículos publicados. Todos los gastos, insumos y financiamiento de «Alteridad» provienen de los aportes realizados por la Universidad Politécnica Salesiana.

6. Responsabilidades éticas

Cada autor/es presentará una declaración responsable de autoría y originalidad, así como sus responsabilidades éticas contraídas.

- **Originalidad:** Los trabajos deben ser originales y no deben estar siendo evaluados simultáneamente en otra publicación, siendo responsabilidad de los autores el cumplimiento de esta norma. Las opiniones expresadas en los artículos publicados son responsabilidad del autor/es. «Alteridad», como socio internacional de CrossRef®, emplea la herramienta antiplagio CrossCheck® y iThenticate® para garantizar la originalidad de los manuscritos.
- **Autoría:** En la lista de autores firmantes deben figurar únicamente aquellas personas que han contribuido intelectualmente al desarrollo del trabajo. Haber colaborado en la recolección de datos no es, por sí mismo, criterio suficiente de autoría. «Alteridad» declina cualquier responsabilidad sobre posibles conflictos derivados de la autoría de los trabajos que se publiquen.
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