



Mapping Teaching Authorship and Learning Practices in Higher Education Settings: First Step in Creating a Knowledge Base Through Sharing

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Abstract. Learning Design (LD) is a research field developed to help teachers to create pedagogically effective learning interventions using digital technologies. LD as a research area is based on three core concepts: guidance, representation, and sharing. This study focuses on the sharing perspective and aims to add to the current knowledge on teaching authorship and learning practices in higher education settings. The present study is based on a qualitative-quantitative and exploratory approach aiming to identify the authorship profile of undergraduate teachers in a university in south Brazil, as a survey to verify the viability of creating a knowledge base to foster innovative practices development. Data were collected using an online questionnaire answered by 243 teachers (46.7% of the total). The answers were analyzed on two major categories: authorship profile and pedagogical practice representation. The evaluation of the authorship profile revealed two characteristics: (a) teachers produce their own teaching resources and (b) teachers are open to a process of sharing educational resources. In the pedagogical practice representation category, we identify the majority of the teachers did not describe the sequence, resources and tools of the proposed activities in a clear way. Therefore, we highlight the importance of defining a framework for documentation of learning practices that will allow sharing of pedagogical know-how among educators. In conclusion, the present scenario is impeditive for the adoption and adaptation of learning practices. A series of interventions must be formulated to foster authorship of innovative educational resources as well as standardization of pedagogical practices documentation.

Keywords: Learning design · Authorship · Pedagogical practices

1 Introduction

Studies in the Learning Design area aim to foster the use of digital technologies in teaching and learning processes. The core concepts of Learning Design are: (a) guidance (ways for helping teachers to learn new methods and technologies); (b) representation

(tools and models for representing practices); (c) sharing (a way of enhancing the use of digital technologies in education) [1].

This study focuses on the sharing perspective and aims to add to the current knowledge on teaching authorship and learning practices in higher education settings [1–10].

In our understanding, the teaching community can collaborate, inside a learning design perspective [10], sharing their teaching products, including resources such as presentations, videos, and others, and also pedagogical practices.

One way of spreading the design workload is to use Open Educational Resources (OER) repositories such as Merlot, in North America, or Portal do Professor, in Brazil [4]. Nonetheless, they are still underused by the majority of teachers. According to Laurillard [10] educators still don't have a strong culture of remix, that is, building on the work of others while designing their own teaching.

Laurillard [10] proposes that teachers, as learning design scientists, should be able to build on the work of others, which means, find the design of others, adopt and adapt them for their context. Furthermore, they should be able to represent their pedagogical practices in a formal way which can be understood by others. Laurillard [10] emphasizes that this has to be done collaboratively in order to improve teaching practices through building a knowledge base for the academic teaching community.

This study is part of an ongoing project called Rethinking: educational resources for the teaching-learning process (in Portuguese, *Repensar: recursos educacionais para o processo ensino-aprendizagem*). It aims to map the pedagogical practices developed at Feevale University¹ and also identify the authorship profile of its teachers, in order to verify the possibilities of creating a knowledge base which can improve innovative practices in higher education. In our understanding, the comprehension of teachers' authorship profile and the identification of their pedagogical practices could guide us in the development of a model to foster authorship and collaborative practices in the classroom.

What is, though, their authorship behavior? Do they share the learning contents they produce? What methodologies and learning practices have they been developing in their classrooms? Can they describe their pedagogical practices in a way that another instructor can replicate or be inspired by?

In order to answer these questions, it is important to take back what is presented as the background when it comes to the authorship category. It is necessary to understand how the construction of teaching professionalism is given so that we can infer what facilitates or hinders sharing and authorship. In such case, could we talk about co-authorship (collaboration in authorship)?

Studies on teacher education have undergone numerous changes of focus since the 1960s. If in that decade the emphasis was on the teaching process and on the products derived from it, in the following decade the political role of teachers was the great discussion. The 80s were marked by the refined analysis of academic formation as reference for the professional practice, which was ruled by the technical rationality. In the following decades, the valorization of the knowledge and experiences of teachers

¹ <http://www.feevale.br/>.

leverages another type of thinking which gives protagonism and authorship to the teacher in the construction of his career, with a focus on understanding how it is constructed.

According to Gimeno Sacristán [11], throughout his career, a teacher creates or appropriates different practical schemes, transforms them or combines them in a new way. In this approach, the professional practice of the teacher is considered as an intellectual and autonomous practice, not merely technical. It is a cooperative process of action and reflection, of inquiry and experimentation, in which the teacher learns to teach and teaches because he learns [12].

From the 1990s to 2000 it is possible to see the role of the teachers formation evolving to reach the consciousness of the educator as someone historically committed to the interests of the working class, valuing the micro-social aspect, with emphasis on the cultural constitution of the subject [13]. This thought defines that the professional learning and the acquisition of knowledge that guides the teaching practice are not restricted to specific moments of its formation, but it rather reveals itself as a dynamic and continuous process that includes the relations established with different subjects, contexts, experiences and relationships [14].

It is well known that the construction of professionalism requires a set of knowledges that distinguish the professions from the occupations. Tardif [15] argues along with authors like Bourdoncle [16] and Gauthier and Tardif [17] that the professionals need to support themselves in specialized and formalized knowledge acquired through a solid high-level training based on scientific disciplines considered “pure”. It is also a professional’s requirement to have the capacity to adapt and improvise in front of the new, which require a continuous feedback process, since they progressively evolve. As professional, teachers are submitted to the same process.

It is considered, therefore, that the teaching knowledge is temporal, composite, plural, heterogeneous, personalized and located. From this set of knowledges, it is important to highlight the one that directly influences the apparently installed difficulty in sharing collaborative practices between peers: personalized and localized knowledges. This relationship is what we can approach to the process of composition of an authorial teaching practice, since it disregards personal culture, relies on knowledge derived from formal learning, is based on experience.

We understand the curriculum as the activities and relationships that take place in the classroom and in the school space, in general, where not only the content but also the pedagogical relationships that are created in its development stand out [18]. This conception broadens the scope of the curriculum, bringing it closer to a critical vision that allows and accepts creative participation, flexibility, disruption of disciplinarity, dialogicity, knowledge arising from work and, fundamentally, warns that content does not come from neutral choices [19]. In this process, the curriculum becomes a field of struggles, where the diversity of interests disputes what, how and for what purpose we teach. And it is in this teciture of the different acts of a pedagogical process that the struggle for the duality of sharing/reservation the teacher is constantly submitted, and that says much of the postures and processes of learning in a academic career.

From this perspective, we understand that teachers’ understanding of the authorship profile can guide institutional actions and strategies in order to enable the recording and sharing of pedagogical practices in the context of the Feevale University [10].

This article is organized as follows: Sect. 2 presents a reflection on Learning Design and the matter of sharing; in Sect. 3 we present the course of the research, including the research methodology, results and discussion. Then we close with the final considerations, pointing out new research perspectives.

2 Designing for Learning

Learning Design (LD) is a research field which has developed as a means to help teachers in creating pedagogically effective learning interventions using digital technologies [1, 2].

LD has two different research pathways within the field of technology-enhanced learning: (a) a technical perspective, involving the development of computer systems for the delivery of learning resources and activities; (b) a pedagogical perspective, involving the need for finding effective ways for sharing good and innovative practices [3].

Teaching is often a very personal activity [10] and usually a learning design exist only in the head of the teacher who implemented it, especially in higher education [3]. In order to be shared with others this idea needs to be represented through a mediation artifact. There are different mediation artifacts that can be used for representing practices such as models, narratives, case studies among others [2, 4]. The use of a mediation artifact enables teachers to document and share teaching practices. This way, LD encompasses both the process of designing a learning experience as well as the product which is an artifact representing a learning practice [2].

Some authors suggest the use of the term designing for learning for representing the research area and the term learning design for the artifact which is the document produced as an output of the design process [1–3].

LD as a research area is based on three core concepts: guidance, representation, and sharing [1]. Guidance encompasses many ways that educators can be assisted to think about their teaching and learning decision-making such as promoting workshops and study groups about digital tools, innovative methodologies, analysis of learning designs available online in different repositories and the possibilities of reuse.

These materials, among others. Representation encompasses the use of mediation artifacts for representing learning practices. In this case, the essence of a learning activity is abstracted into a mediation artifact [2]. There are different mediation artifacts that can be used for representing learning practices such as models, narratives or case studies, vocabularies, diagrammatic or iconic presentations [2]. Different mediation artifacts represent different aspects of learning activities. Although there isn't a general consistent notation system for learning design, there are many studies focusing on it [3–10]. Sharing is another central element in the LD. The reason for representing learning activities is to propagate these ideas among educators to foster innovative teaching and learning practices. Thus, representation is central for the purpose of sharing and reuse designs.

Learning design as an artifact represents an individual example of a sequence of teaching and learning activities. The implementation of a learning design with a particular group of students is called a running learning design or a running sequence [3]. The key elements of a learning design are [7–9]: learning tasks, learning resources, and

learning support. The tasks comprise the activities proposed. The learning resources encompass the content and the information needed for the development of a learning task (e.g. papers, documents, books, web links). These resources could be produced especially for a course, and also open educational resources, available online in repositories. Lastly, the learning support comprises assistances, scaffolds, structures, and encouragements. The support is necessary to guide the student and to provide feedback. From this perspective, a learning design, as an artifact, describes the student learner experience.

The authoring of a learning design is different from the task of monitoring the student's progress throughout a running learning design [10]. Laurillard [10] highlight two situations: (a) an educator can evaluate a learning design authored by another educator; (b) an educator can analyze data from a running version of a learning design produced by another educator (or across multiple running versions of the same learning design).

Dalziel [20] emphasize the importance of sharing pedagogical know-how among educators. According to him [20], if we can represent great teaching practices in the form of runnable learning designs and make these documents shareable through a collective effort, we can have a teaching knowledge base to enhance learning experiences.

3 The Research Path

The present work aimed to answer the following questions, having Feevale University undergraduate teachers as research target: What is their authorship behavior? Do they share the learning contents they produce? What methodologies and learning practices have they been developing in their classrooms? Can they describe their pedagogical practices in a way another instructor can replicate or be inspired by?

To address the questions above, a qualitative-quantitative and exploratory approach was used. Data were collected using an online questionnaire answered by 243 teachers (46.7% of the total undergraduate teachers at Feevale University). The answers were analyzed on two major categories: (a) authorship profile; (b) pedagogical practice representation.

The first category comprised the identification of the educational resources produced by the teachers for their classes and those of third party origin. The respondent had to state the relevance each resource (Table 1) has in their practice, first when made by themselves and second when gathered from third party source. The answers were given in a 0 to 4 scale, 0 corresponding to DO NOT USE THE CURRENT RESOURCE and 4 to OF MAJOR IMPORTANCE. Using a 1 to 5 scale, teacher should also state if the majority of the learning resources they use were 1 - FROM THIRD PARTY SOURCE or 5 - AUTHORIAL SOURCE. Finally, we also investigated their willingness to share the learning resources they produced and their knowledge of authorship attribution. Willingness to share was measured through a simple choice question were the answers were WOULD SHARE WITH ANYONE; WOULD SHARE WITH COLLEAGUES; WOULD NOT SHARE. Knowledge of means of authorship attribution was measured

Table 1. Educational resources presented to the respondents

Presentation	Audio	Blog	Picture	Games
Paper/Text	Site	Software/APP	Video	Other

through self-declaration in a simple answer question were the possible answers were HAVE NO KNOWLEDGE ABOUT; KNOWS IN DETAILS; GOOD; AVERAGE; BAD.

The second category comprised the analysis of an open-ended question where the respondent should describe a pedagogical practice he considered relevant, identifying the methodology and educational resources used. The analysis of the open-ended question was performed by four independent investigators and the mean result was computed as well as the standard deviation of the mean. First, the answers were analyzed based on two characteristics:

- (a) possibility of adoption/replication (Based on the provided description, can we reuse this practice in another context?);
- (b) possibility of adaptation/remix (Based on the provided description, can we remix and reuse this practice in another context?).

The answers considered sufficient to allow adoption were further analyzed for the description of educational resources used and statement of authorship.

3.1 Results

We evaluate authorship profile through a quantitative approach. When asked about the importance of authorial resources in their practice, in a scale from 0 to 4, we found Presentations (3.18) to be the most important authorial resource. In order of importance, presentations were followed by Paper/Text (2.63), Picture (2.56), Video (1.93), Site (1.58), Software/APP (1.35), Audio (1.27), Games (0.81), Other (0.72) and Blog (0.46). Results are summarized in Fig. 1.

For third-party resources, the respondents declared Paper/Text (2.84) as the most important, closely followed by Pictures (2.5), Video (2.49) and Site (2.11). Software/APP (1.64), Presentation (1.35), Audio (1.22), Games (0.72), Blog (0.6) and Other (0.28) followed. Third party results are shown in Fig. 2 and a comparison between authorial and third-party resources importance is presented at Fig. 3. In a scale of 1 to 5, 1 as mainly third-party resources and 5 mainly authorial resources, our teachers declared, in average, their used resources to be more authorial than third party (mean score 3.86 of 5).

As for the willingness to share we also took a quantitative approach. From the 243 respondents, 63 (26%) would share with anyone, 164 (64%) would share with colleagues at the University and 16 (7%) would not share. Data is graphically presented in Fig. 4.

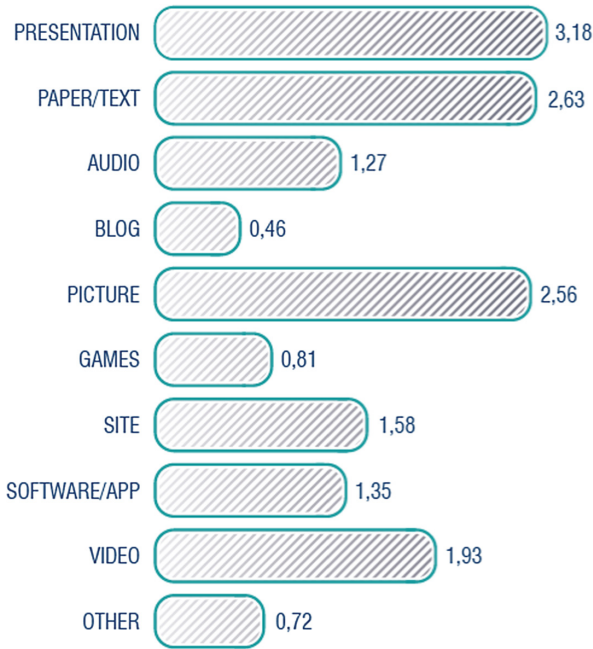


Fig. 1. Importance of each resources when produced by the teacher (Source: created by authors) 0 = DO NOT USE THE CURRENT RESOURCE; 4 = OF MAJOR IMPORTANCE. The number represents the mean score from the 243 respondents.

When evaluating authorship attribution knowledge from 243 participants 111 (46%) declared to have no knowledge about, 61 (25%) declared their knowledge as insufficient (BAD), 39 (16%) as average, 27 (11%) as good and 5 (2%) declared to know it in details. Data is graphically presented in Fig. 5.

We evaluate **pedagogical practice representation** through an open-ended question where the respondents should describe a pedagogical practice they considered relevant, identifying the methodology and educational resources used. The question was analyzed by four independent investigators. From 243 answers we found only 27.5 ± 14.6 (mean \pm standard deviation) present enough information to allow replication/adoption, corresponding to only 10.5% of the answers. When looking for practices that inspire remix/adaption we found 35 ± 10.5 answers (mean \pm standard deviation), corresponding to 14.4% of the total. Data is summarized in Fig. 6.

The answers considered sufficient to allow adoption were further analyzed for the description of the educational resources involved and statement of instructors' authorship. We found $72.1\% \pm 9.6$ (mean \pm standard deviation) of the included answers to describe the educational resources involved. When looking for statement of authorship by the instructor only $20.2\% \pm 14$ (mean \pm standard deviation) of the included answers were considered to have it. The data is summarized in Fig. 7.

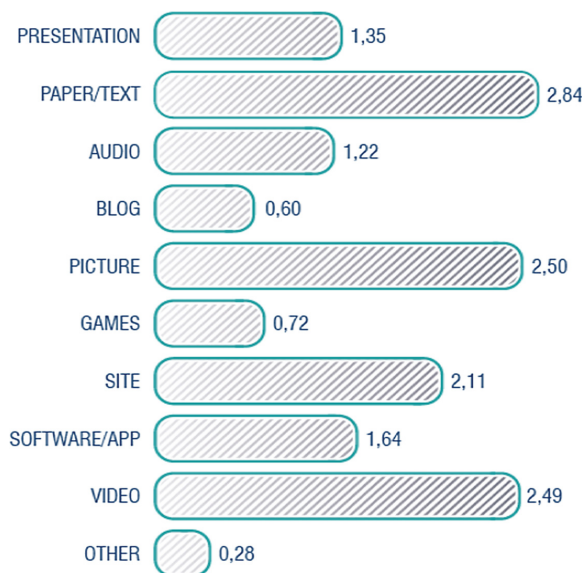


Fig. 2. Importance of each of the bellow resources when produced by others. (Source: created by authors) 0 = DO NOT USE THE CURRENT RESOURCE; 4 = OF MAJOR IMPORTANCE. The number represents the mean score from the 243 respondents.

3.2 Discussion

The results pointed out important issues. In the authorship profile category, presentations, such as PowerPoint slides, are the most important educational resource produced by teachers, followed by papers/text and images. On the other hand, papers/texts created by others are the most important educational resource used by them in their classes, followed by images and videos. According to the data, we verified that resources produced by teachers for their own use are more relevant to them than those produced by others.

PowerPoint slides usually are developed based on the author's comprehension of a text or subject. Besides, some of them are constructed with many images and examples. These features make slides a difficult resource for reusing. Thus, this meets the studies of Tardif [15], Bourdoncle [16], and Gauthier and Tardif [17], which indicate that teaching knowledge is personalized and located, and therefore, reveals a limitation in the collaborative exchanges between teachers.

Gimeno-Sacristán [11] states that the teaching authorship is always under construction throughout the teaching career and during this process the teacher creates based on the knowledge of others. In this case, teaching authorship can be understood as a collaborative construction as well.

When the teachers were asked about their interest in sharing their educational resources, 93% answered affirmatively (sharing with somebody: 26%; sharing only with colleagues: 67%). Furthermore, sharing rules and authorship attribution, like creative commons licenses, are still vaguely known (only 2% claimed to already

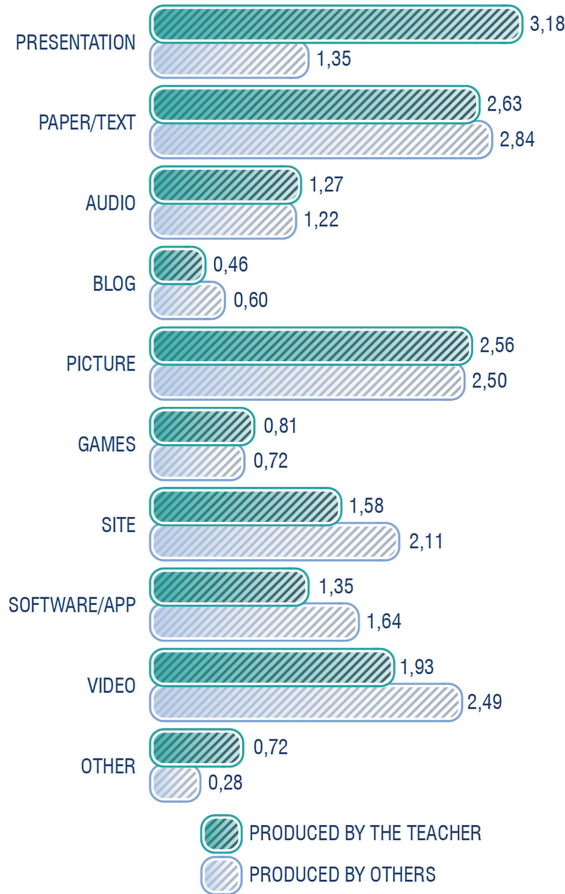


Fig. 3. Comparison between Authorial vs Third Party resources importance in each category (Source: created by authors) 0 = DO NOT USE THE CURRENT RESOURCE; 4 = OF MAJOR IMPORTANCE. The number represents the mean score from the 243 respondents.

know). Based on these data we can infer the faculty has openness to a process of sharing educational resources, but they prefer to do it with their university partners. We suggest as one of the possible explanation for the unwillingness to share with an open audience the low knowledge about authorship attribution (creative commons).

The evaluation of the authorship profile revealed two characteristics of Feevale faculty: (a) teachers produce their own teaching resources; (b) teachers are open to a process of sharing educational resources. The authorship profile is represented in Fig. 8.

In the **pedagogical practice representation** category, we identify that 66% of the teachers did not described the sequence, resources and tools of the proposed activities. From the 108 valid answers, only 27 presented sufficient data to allow reproducibility and 35 inspired remix. Furthermore, most of the answers did not state the instructors' authorship.

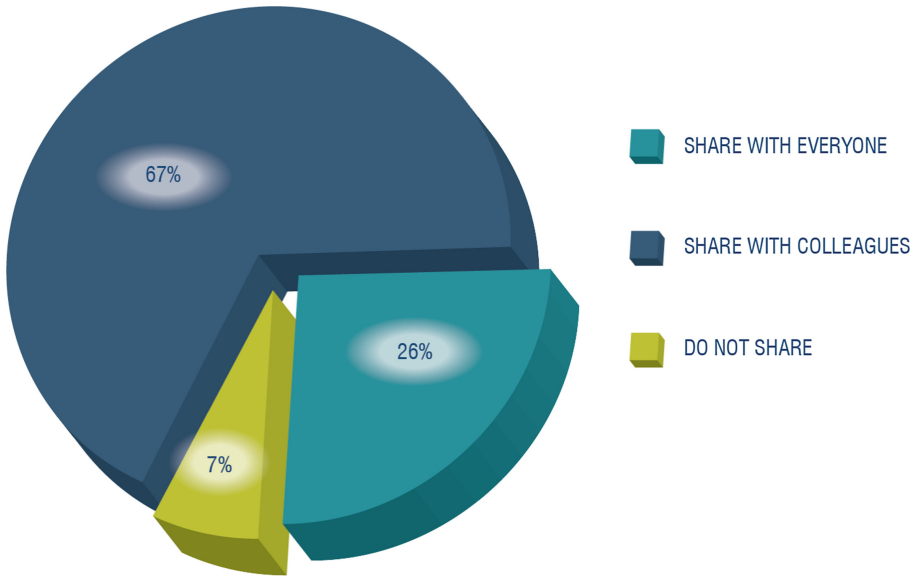


Fig. 4. Willingness to share authorial resources (Source: created by authors)

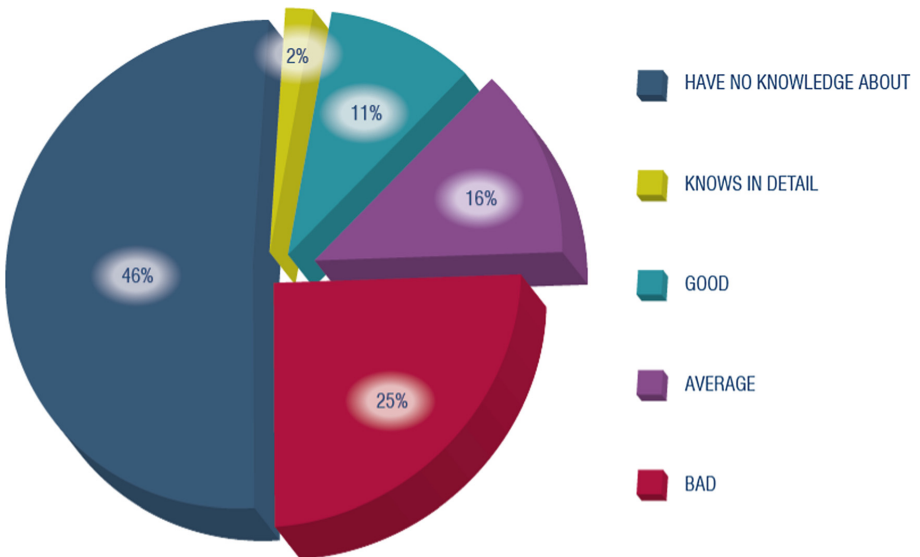


Fig. 5. Knowledge about authorship attribution (Source: created by authors)

Regarding the learning design components (tasks, resources, and support) [7–9], data revealed the teachers emphasized the description of the learning task. The indication of resources was present only in 72,12% (Fig. 7) of the answers which presented sufficient data to allow reproducibility (Fig. 6). Therefore, we highlight the importance

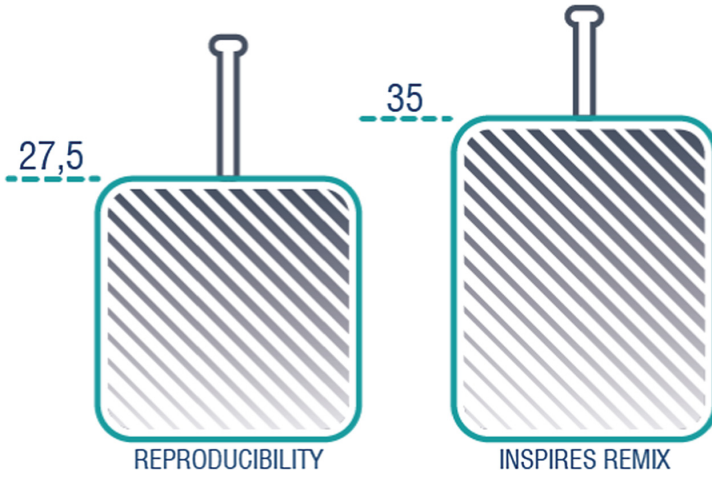


Fig. 6. Practices sufficiently described to allow adoption or remix (Source: created by authors)

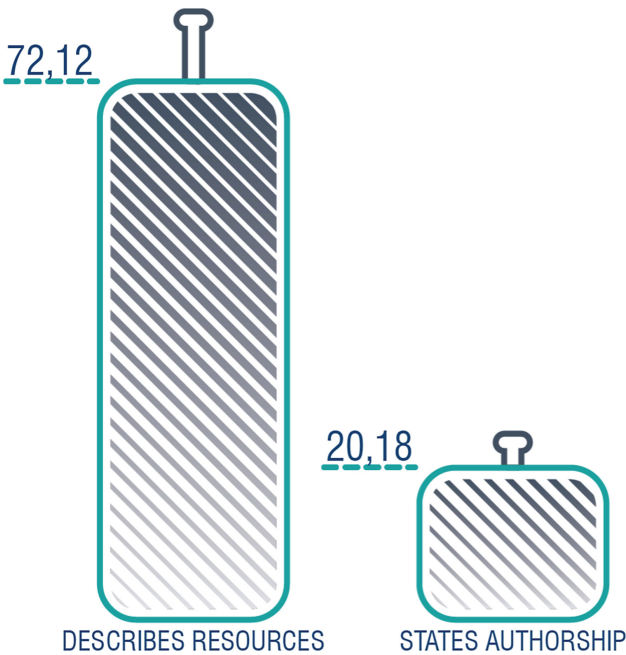


Fig. 7. Percentage of answers considered sufficiently described to allow adoption that included the description of the educational resources used and a those that included a statement of authorship by the instructor (Source: created by authors)

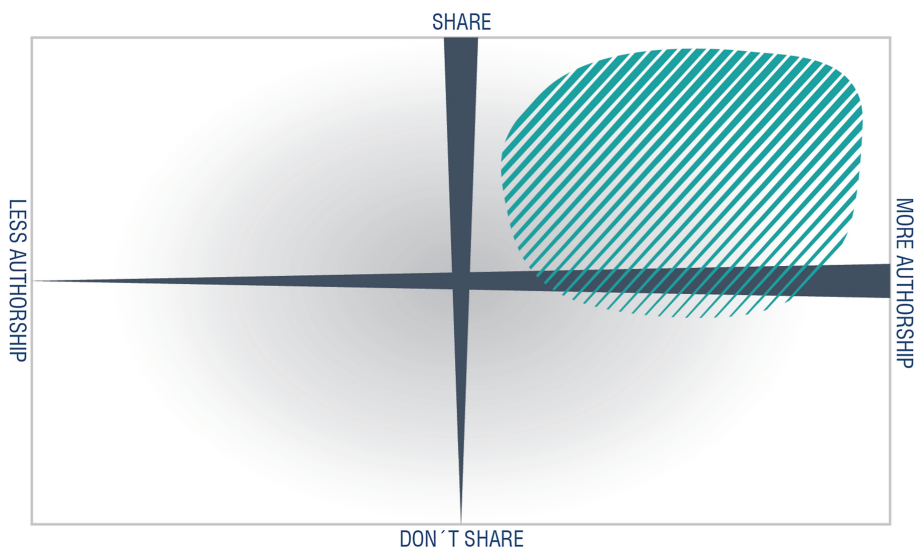


Fig. 8. Authorship profile (Source: created by authors)

of defining a framework for documentation of learning practices that will allow sharing of pedagogical know-how among educators [20].

4 Conclusion

This study is part of an ongoing project which aims to map teaching authorship and learning practices in higher education settings with the purpose of creating a knowledge base through sharing. The first stage in this research was to understand the authorship profile of the teachers (What is their authorship behavior? Do they share the learning contents they produce?) and identify the methodology and educational resources used in learning practices based on an open and personal description (What methodologies and learning practices have they been developing in their classrooms? Can they describe their pedagogical practices in a way another instructor can replicate or be inspired by?)

The data collected through an online questionnaire revealed:

- (a) the teachers use resources produces from third part but mainly they use their own resources;
- (b) Power Point slides are the most important educational resource produced by teachers for their classes;
- (c) the teachers indicated they are willing to share the resources they produce especially with their university colleagues;

- (d) the teachers have low knowledge about authorship attribution (e.g. creative commons);
- (e) the importance of using a common mediation artifact for the documentation of a learning practice [5–9].

Taking all in to account, we understand the present scenario at our university to be impeditive for the adoption and adaptation [10] of learning practices. Although our teachers are open to share, at least with their colleagues, they are not able to do so in a organized and sufficient way. Second, the type of educational resources currently developed has very low reusability, since it is highly personal.

Therefore, a series of interventions must be devised to foster authorship of innovative educational resources with high adaption/adoption potential. In parallel standardization of pedagogical practices documentation must be developed as well as formative courses on rules for sharing and authorship attribution.

Through this perspective, the study reveals new research possibilities in Learning Design area, including the definition of a mediation artifacts for representing practices; the identification and analysis of the resources produced by teachers to verify possibilities of reuse; the identification (or development) of an online platform for sharing learning practices and resources as well.

Thus, in our understanding, with adequate guidance, our teaching community can collaborate sharing their know-how inside a learning design perspective [10], expanding and improving the teaching-learning experience.

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