
CREATIVE METHODOLOGIES: DESIGNING A FRAMEWORK FOR TEACHER REFLECTION AND AUTHORSHIP

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Abstract

This research has as its main objective to create, test and improve methodologies and artefacts that help teachers to reflect to transform their practices, making them more creative. Actions are expected that go beyond envisioned planning, but that the teacher is able to concretize, evaluate and continuously improve his/her pedagogical actions. This paper describes the creation of a framework that aims to promote reflection on creative methodologies by teachers, helping them to make explicit the creative movements they already make highlighting their authorial moments, their limits, challenges and difficulties, as well as getting to know new creative possibilities.

The data used for the initial construction of this framework was collected in two online courses on Design of Pedagogical Strategies, in which the participating teachers had to describe their teaching practices. From the qualitative analysis of this data, we mapped the challenges and strains in the construction of pedagogical strategies, as well as the fashions and trends that appeared in the discourses. An analysis of formative needs was made and a categorization was created based on a theoretical reflection and critical analysis of the trends presented in the teachers' data, emphasizing the importance of teachers' authorial and creative stances in their methodological construction. In this article, we will describe the mapped data, the categorization and the theoretical foundations that supported the construction of this framework. We will also describe the categories and the first validation phase already carried out as well as the next steps for a large-scale application.

Introduction

This project is part of a post-doctoral research that addresses the contribution of Design methodologies for teacher education. The main aim of this research is to create, test and improve methodologies and artefacts that help teachers to design and transform their practices beyond a merely envisioned planning, but rather to deliver meaningful and transformative pedagogical actions. The artefacts created may facilitate diagnosis or

contextual mapping, trigger reflection or support the recording, visualization and construction of processes and projects. They can also be experimental interfaces such as games and simulations, or mapping tools that help to build and evaluate pedagogical paths and trajectories.

Considering the complexity of the teacher training context, we cannot consider isolated resources, but rather devices that are the conjunction of actions involving human and non-human actors and the reverberations of these actions. If we intend to have a more authorial, emancipatory and creative action, it is necessary to build devices and rebuild them in an open and collective way that contemplates multiplicities. (Santos, 2014)

The purpose of our research project is to develop devices and artefacts that support the teacher's authorship, considering the complexity and potential of the Design, in order to promote a teachers' training not only in its instrumental aspects, but also in the creation of devices and formative ambiances.

Thus, we must overcome a logic of didactic planning that is limited to the actions to choose, to order, to adapt, and propose new perspectives in which the teacher has greater strategic authorship and is a designer of new possibilities of settings and formative paths. It is to go beyond prescription, normative or valorisation of instrumental logic, to assume an attitude in constant movement, plural, open, unfinished, dialogical (Ribeiro, 2019).

But what is it to be creative? What are creative methodologies?

They are movements in which the teacher has authorship of pedagogical strategies in a conscious way. It is not a simple instrumental process, but rather the creation of possibilities for conversations, dialogues, collective and collaborative authorship between all the educational actors.

The creative process is not spontaneous and can, and should, be supported by structures and models, and also by processes of thought recording and explicitation, as long as these are not just bureaucratic, mechanical and unconscious.

On creative learning, Resnick (2018) describes its dimensions as in four "Ps":

- Project: ideation, construction of models and value solutions.
- Peers: sharing ideas, principles and productions.
- Passion: new discoveries and interests in content, materials and methodologies.
- Play: learning through play, experimenting, testing, making mistakes, experimenting.

The four "P"s have been refined and deepened in the creative learning network and in this movement the importance of personal purpose and more social and collective dimensions

have emerged with an emphasis on listening methodologies and constructions that consider the socio-cultural context. Passion, learning by playing and experimentation have been offered not only linked to concrete materials and places, but also to the work with the imaginary and the virtual. Creativity is always in the openness, movement and dialogue. It is not a complete and ready-to-use structure, but something that allows a constant networking construction.

Considering the premise of learning, how can we develop an artefact that helps teachers to reflect on their practices on the basis of these dimensions and enhance their authorship and their participation in networked constructions? How can a framework help in this matter?

Rollings and Morris (2004) describe the importance of producing frameworks as instruments of procedural change. Similarly, Salen and Zimmerman (2006) underline the importance of tools that help both the conceptual explicitness and the support of practical and concrete procedures, and frameworks are very useful to visualize either theoretical models or description of practices and procedures.

We understand that a framework is more than a set of standards or a model to be followed. It is a support or reference guide to support the explicitness of the intentionality elements of pedagogical planning, of the contextual elements, or of other pedagogical elements such as resources and activities to be developed.

The dimensions of the framework presented in this article are intended to provide a foundation for the construction of didactic actions, but also to encourage reflection. Much more than a model to be followed, a framework is a support structure in which important elements and paths are highlighted for the authorship, adaptation and contextualization not only of resources and activities, but of the practices as a personal transformation.

This framework aims to promote reflection on creative methodologies by teachers, helping to make explicit the movements they already make, to value practices unique to contexts and life trajectories, helping to build moments of authorship and autonomy, identifying and overcoming limits, and taking the risk of exploring new possibilities and taking emancipatory stances.

This framework was built from critical analysis of teachers' speeches about their practice, in a qualitative research that made explicit evidence in the contradictions that emerge from these speeches and inferences about their formative needs. From that, it was proposed a framework that explicit support paths both to the practice and to the reflection about more creative methodologies.

Research Methodology

Since the research is propositional, that is, it is expected to create solutions in the form of educational artefacts that transform practices, we chose the Design Science Research (DSR) approach, which considers the construction of devices as a possibility of research intervention (Dresch, 2015). In this case, the framework has this proposal to support research-training as a propositional action to transform practices.

The first stages of research involving DSR are complex mappings of a reality or context, in our case, it was an exercise of making explicit the controversies about pedagogical practices, from an invitation to describe and share practices made in a course on Design of Pedagogical Strategies; for this, we used the Cartography of Controversy as the principle of this analysis.

The Cartography of Controversy is presented by Venturini (2010) as a set of techniques to map tensions in complex situations in which the network of relationships is materialized in a discourse or in an interaction, for example in the recordings of an online course, in a social network, etc.

Venturini (2010) highlights that the research methodology of the cartography of controversies is very suitable for situations in which the community experience or discursive actions.

For this initial cartography that was the basis for the construction of the Framework, we used data from pedagogical practice obtained in two moments: a university extension course and a teacher training course, both offered online by a professor at the Federal University of São Paulo.

Results and framework construction

The first extension course on Design of Pedagogical Strategies took place in 2018, in the online modality, with a workload of 40 hours and offered to 200 teachers from the general public. We had 79 teachers who responded to all the activities and authorized the use of the data. In this course, we had the mapping of the controversies between planning and design; part of this mapping is described in the Master's dissertation (Ribeiro, 2019). The inputs came from detailed reflection questionnaires on pedagogical planning, resources used, proposed activities, and strategy construction.

Teachers were also invited to share their practices in discussion forums.

The other teacher training course, took place in 2020 with 200 university teachers within the public university training program, of whom 130 responded to all activities and authorized the use of data. In this course a commented visual planning was analysed, in

which the participant presented his proposal of didactic action using a visual presentation methodology with icons and colours representing theories and educational elements, and commented on the methodologies and strategies chosen.

In the data from the first course, we mapped the controversies by considering two main data: the reflection questionnaires on their didactic planning and the discussion forum in which they explained, in detail, their practices and commented on those of their colleagues.

On the one hand, in the questionnaires there were multiple choice and open questions, but they were more targeted. Alternatively, in the forums, answers were expected to be more contextualized, as the aim was to describe the challenges of the practical actions and solutions found.

For the analysis of the results, especially the open questions and the answers given in the forum, software capable of analysing long texts (semantic analysis – fromtext – www.fromtext.net) was used, revealing terms of interest throughout a paragraph and the words in its periphery, detecting the relationships between them. This tool was fundamental to highlight the resources, the activity and the actions of the teachers, making explicit their relations within the context itself.

In this analysis we highlight the following mapped controversies and formative needs:

Table 1: Controversies and formative needs

Dimensions of Practice	Controversies	Identified Formative Needs
Planning References	Participants said they use official references in planning, but described the use of informal references from blogs and social networks without any critical qualification. Participants said they are inspired by references and produce their own materials, but in the description of practices there is neither a detailed description of the processes of curation, remixing, nor of the processes of creation.	Explain the planning processes. Identify the relevance of both normative and everyday sources and the cultural contexts in which didactic actions are carried out. Exercise the processes of curating, remixing and authoring resources.
Planning of Collective actions	The participants highlight the importance of collective planning and interdisciplinary actions, but describe isolated and poorly planned actions in the short, medium and long term.	Experimentation with interdisciplinary, collective and collaborative projects.

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Objectives and Competences	The participants recognize the importance of describing objectives and competences, but do not present the complexity of describing the acts of doing beyond technical and instrumental skills or specific examples only focused on conceptual content.	Knowing how to describe competences, going beyond specific objectives and procedures, but establishing complex connections with concrete reality and its transformation.
Educational Projects	Most teachers state the importance of working through projects, but highlight difficulties in working in this manner, as well as not having a clear idea of the more investigative methodologies and processes.	To know and experiment with project-based learning strategies or other investigative experiences and practices.
Resources and educational activities	Most of the resources and activities described are content resources to be consumed, few are presented in an open form or with a view of remixing and adaptation. Most activities are reactive such as questions and answers.	Teachers need to know other possibilities of activities that have a proposal for a more authorial action on the part of the student. They should be invited to create and be supported in the monitoring and evaluation of these activities.
About strategies or new methodologies design	Teachers declare to know some trends, such as active methodologies or flipped classroom, but they do not make explicit a personal construction of the practice in which they include these elements.	To reflect on how they construct their practice and how to go beyond prescription, towards something authorial in which the teacher constructs the acts of curriculum together with the student and with references from the educational context itself.

In the second course, the textual discourse of the group of teachers was not assessed. The visual representation of practice was analysed, which presented as icons: the most common types of resources, activities and strategies, teaching models, and what they present as a need to transform their practice.

Almost all the plans were lessons, with 87% predominance of expository-demonstrative lessons. There are some report production activities, some discussion activities and case studies, but these are at moments after the expository lecture. What was interesting in this data is that making their own visual construction helped the participant to reflect on their practice, as the colours highlighted the pedagogical approach and it became evident to the subjects themselves that there is an expository focus and a need to transform their practices.

Another point of analysis of the teachers' discourses was what they considered as trends for the transformation of their practices.

From the first group of teachers, the term with the highest occurrence was “Active Methodologies”, which appeared in 67% of the teachers’ discourses. This term was associated with the following elements: “active student”, PBL, projects, gamification.

The phrases were generic, stating the importance of the student being at the centre of the process, but without explaining how. We verified only 5 occurrences (2.4%) of practices described in detail in the methodological process.

The second term with the highest occurrence was “flipped classroom”, which appeared in the text of 45% of the respondents. In this case, they highlight the issue of time, the moments of demonstration/exhibition versus moments of exercise, the duality between theory and practice also appears, and in some cases, the difference between synchronous and asynchronous. In this case, the focus was on the class structure and its temporal models.

Other relevant occurrences were: gamification, STEAM, culture maker, hackthon.

In the second group of teachers, the same terms also appeared in the comments as formative needs or methodologies that they want to learn, but had no practice concretized in visual planning.

I present a table with the analysis of the educational trends cited, their description adapted from Bacich and Moran (2018), how these trends can be translated into practical actions and the controversies:

Table 2: Trends, design, practice and controversies

Trends	Pedagogical Design	Proposals and practical possibilities	Controversies encountered
Active Methodology	Active methodologies are all actions in which the student is the centre of the process.	Pedagogical strategies in which students are more active and are invited to solve problems or develop projects and processes. There are various levels of complexity and autonomy of student action from solving proposed problems,	The proposal is to have a rich set of strategies that promote student empowerment, but often a mix of approaches emerges that end up being reduced to prescriptive actions and do not value the student’s process and their multiple ways of learning. Another challenge highlighted is the difficulty in acknowledging the need to hold the student accountable for his or her learning.

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Flipped Classroom	Proposes to reverse the traditional logic of explanation in class and practice/exercise at home.	It proposes that the presentation of concepts can be recorded and that the student watches, and that the didactic moment with the presence of the teacher and the class should be more practical and with follow-up.	It values the practical and the interaction moment, but still maintains the separation between theory and practice and considers the hierarchy: presentation of concepts and application. There is also a cling to the "lecture" model.
Culture Maker /Hackthon /Steam	These three methodologies have a common proposal to practice first, valuing the idea of doing to learn and proposing that learning can be enhanced by recording and improving processes. It proposes a culture of sharing and open logic.	The focus of maker culture is on doing/making for learning. It brings the principles of digital making to learning, in which the "maker" must build solutions and prototypes. Hackthons are events of creation and project methodologies. STEM or STEAM emphasizes the interaction between science and art.	In the teachers' discourse the need for the student to do appears, but there is no deep description of the forms of registration, modelling and reflection. The main challenge of these approaches is to value the moments of reflection and theorization of the doing, which are sometimes neglected and not mapped, even when they are shared.
Gamification	Language of (physical) games and (digital) games applied in pedagogical strategy.	The language of games has many narrative and immersive elements that promote student action and can contribute both to motivation and engagement, and to more complex learning practices and problem-solving projection.	Gamification can be very deep and creative when it proposes complex and exploratory actions, but the forms of gamification cited by teachers still have a more behavioural and reactive logic, in which the student is only invited to react and not to build, to propose or to imagine.

Based on the mapped controversies and formative needs and considering the principles of creative learning, we designed the first prototype of the framework with the following concerns:

- To help to know the authorial movements and to make explicit the action of each actor.
- To know the diversities and complexities of the student's performance/creation and their strategic role in these authorial processes.
- Know the importance and possibilities of the collective and social dimension, both as a cultural context and in working with diversity, inclusion and social transformation.

- Support the construction of physical, digital or symbolic spaces and scenarios as spaces for experimentation, performance and experiences.

Based on these concerns we designed tracks with practical possibilities and reflective questioning. The tracks are not unique pathways that must be followed linearly, but are complex examples, of possible dimensions that can be adapted and deepened as the design of the devices and environments is concretized by the teachers.

The proposed tracks and their creative learning focuses were:

- Investigative – Projects;
- Immersive and playful – Learning through play;
- Practical and experimental – Learning through play as free experimentation;
- Collaborative and social intervention – Learning in pairs;
- Analytical and argumentative – Learning in pairs, with passion and project;
- Dramatic and expressive – Learning with passion.

The complete framework can be accessed here:

<https://gamificacaocriativa.com/frameworks/>

Evaluation and next steps

The framework was initially created as a prototype in a google form and validated by ten higher education teachers who intend to work with creative methodologies.

These teachers were asked to evaluate whether they agreed with the movements presented in each track and asked for suggestions of other dimensions they felt were missing. All the teachers surveyed recognized the potential for reflection of the artefact, but pointed out that, to support the process of authorship, it would be necessary to present more examples of projects, scenarios and devices contemplating the dimensions proposed in the framework, so that teachers could be inspired and take their first steps.

The next prototype will be built with visual spaces with examples of projects with the dimensions described.

It is understood that teacher training is not a simple process, much less instrumental, nor are there artefacts that, by themselves, solve such complex problems, but it is possible to support the reflection and action so that teachers have references in the tracks they decide to build.

The new version of the framework, expanded with the requested examples and with new visual representations, will be mass-tested in at least two courses for teacher training in Brazil and Portugal by the end of 2021.

In these courses, the framework will be evaluated as production support, so we will have as evidence the projects built by teachers using the framework as support.

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