THE CONTRIBUTION OF LEARNING SEQUENCES DESIGN FOR TEACHER PROFESSIONAL DEVELOPMENT IN HIGH SCHOOL VOCATIONAL EDUCATION

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Abstract

This article, generated from the thesis presented in the Master's Program in Education, Art and History of Culture at Mackenzie Presbyterian University (São Paulo – Brazil), refers to research intended, through the analysis of a teaching learning process related to performance in Technical High School, to verify the contribution of learning sequences design as a formative strategy to the professional development of teachers in this context. To support the analysis, we mainly adopted Carlos Marcelo Garcia's studies on teacher professional development and the formal and informal process of learning to teach. In his investigations, the author draws attention to the potential of learning sequences design as a strategy focused on the construction of pedagogical content knowledge and teachers' professional identity. We were also supported, among other authors, by Lee S. Shulman's work on the knowledge basis for teaching, as well as Donald A. Schön's studies on the reflective practice inherent in teaching. The research was conducted with a team of teachers from the São Miguel Paulista branch at Senac São Paulo, a professional education institution with a wide presence throughout Brazil. The team of educators was made up within the implementation framework of the IT Technical High School (EMED), a course characterized by its interdisciplinary curriculum. Through the analysis of statements collected from surveys and the examination of reports produced during these teachers' continuing education process, their various experiences of formal and informal learning at different moments of their training course were recognized, as well as their perceptions regarding the impact of those experiences on teaching learning and teaching practice itself. It is worth mentioning that the period analyzed begins in their first contact with the school (still as candidates in the selection process) and goes up to the conclusion of their first working year at the institution. In this context, and from the information and statements collected, the experiences characterized by the design of learning sequences were described and analyzed with regard to their incidence in their professional development, resulting in the recognition, based on the point of view of educators participating in the research, of the relevance of each activity performed, the main learning process generated, the main challenges and difficulties faced and the possibilities of process improvement.

Keywords: Teacher professional development, high school vocational education, formal and informal learning, learning sequences design.

1. The teaching learning path understood as a process of teacher professional development: knowledge inherent to teaching and ways to build it

In the scope of the research that originated this article, the teaching learning path followed by EMED teachers was understood as a process of teacher professional development – TPD (García, 1999, 2009; Marcelo, 2009; Vaillant & Marcelo, 2012), characterized as "an individual and collective process that must be actualized in the teacher's workplace: the school; and it contributes to the development of their professional skills, through experiences of a different nature, both formal and formal." (Marcelo,

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2009, p. 7). The adoption of this concept as a framework for the analysis reflects the need to highlight the teacher's conception as a teaching professional, as well as the understanding of teaching learning as a continuous and long-term process. In this context, when we seek to identify the characteristics of the teaching learning process led by EMED teachers involved in the research, the questions formulated by Marcelo (2009) about the contents of the TPD have gained relevance: "What is teacher professional development about? What are your stories and contents? [...] What knowledge is relevant to teaching and to the professional development of teachers? How is this knowledge acquired? (Marcelo, 2009, p. 17).

To answer these questions, Marcelo (2009) cites the studies by Cochran-Smith and Lytle (1999), related to the classification of the knowledge necessary for teaching considering its origin, its production process and the role played by teachers in this process. Thus, knowledge *for* practice is evident – being formal, it is useful to organize and plan the practice; knowledge *in* practice – implicit in practice, in the reflection on practice and in the inquiry and narrative of this practice; and knowledge *of* practice – associated with the idea of the teacher as a researcher (Cochran-Smith & Lytle, 1999, apud Marcelo, 2009, p. 17, 18). At the same time, Marcelo (2009) relies on the model proposed by Grossman (1990) and modified by Morine-Dershimer and Kent (2003) about knowledge of teachers, in which pedagogical knowledge of content is considered the main element (Morine-Dershimer & Kent, 2003, apud Marcelo, 2009, p. 18). Thus, from the answers constructed by Marcelo (2009) about the content of the TPD, and considering the teaching training actions carried out in the context of EMED, we adopted as epistemological bases for the research reported in this article the concepts related to the knowledge base for teaching (Shulman, 1986, 2005, 2014) and to the reflective practice inherent in teaching (Schön, 1983, 1992, 1997, 2000), explained in the thesis cited in the initial paragraph of this text.

Based on the studies of Shulman (1986), Carlos Marcelo García defines the pedagogical content knowledge as "the appropriate combination between the knowledge of the subject to teach and the didactic-pedagogical knowledge related to how to teach it" (García, 2009, p. 48). García also states that its construction is essential to the professional development of teachers and highlights the potential of learning sequences design as a strategy for the TPD through the construction of pedagogical content knowledge.

> On my part, I will focus on one of the aspects that I consider can provide to teachers in training an approximation to the professional identity that we want to build: the construction of pedagogical content knowledge through the design of learning sequences. (García, 2009, p. 48)

To characterize learning sequences design, García (2009) draws upon the definition of Koper & Olivier (2004).

> A learning design is defined as an application of a pedagogical model to achieve a concrete learning goal, for a particular group of students and for a specific context or a particular domain of knowledge. The learning design specifies teaching-learning processes. More specifically, it specifies the conditions under which teachers and students should carry out the activities that allow students to achieve the desired learning objectives. (Koper & Olivier, 2004, p. 98, apud García, 2009, p. 49)

García (2009) also emphasizes the importance that the design of learning sequences, as a strategy focused on TPD, <u>include</u> not only teaching practices, but mainly activities performed by students in the learning dimension.

> In our research group, we are working on the identification and description of learning sequences by teachers, which can illustrate students' learning processes and that can be applied to different teaching content. What do we ask the teachers? Through an interview, we ask them to describe a complete sequence (which can cover a theme, module, or complete course) emphasizing that they need to describe not only what they do, but especially what learning tasks students should perform. These learning tasks are varied: individual, group, assimilation, communication, application, production, etc. And the learning tasks are associated with the support that students and teachers receive for their development, as well as the resources employed. (García, 2009, p. 50, 51)

It is from this perspective that, in the research reported here, we analyze the intentional use of learning sequences design, as a formative strategy, in the TPD process linked to EMED.

2. Teacher professional development in EMED and learning sequences design as a formative strategy: the research and its results´

In the TPD process in question, the design of learning sequences was used as a formative strategy in four moments:

- The hiring process of the teachers participating in the research, still as applicants, between September and December 2018, in which educators had to design learning sequences in three different stages (written exam, group dynamics and test class).
- The teacher training course held in January 2019 (before the start of EMED classes) by educators hired as mentioned in the previous topic, which included the design of learning sequences by the participating teachers.
- The weekly EMED teacher planning meetings, held from January 2019 onwards, in which the teachers of each area of knowledge designed learning sequences.
- The process of preparing the Offer´s Orientation Plan (PO) for the first year of EMED (Senac, 2020), carried out during 2019. The PO is a guiding document that includes suggestions for teaching practice (including learning sequences) based on experiences obtained by the teachers themselves in the course in question.

Six teachers of the Technical High School of Information Technology (EMED) of Senac São Paulo participated in the research. All of them entered the school at the same time, in the phase of implementation of the course at the São Miguel Paulista branch and participated together in the four moments mentioned above. It is a team composed of educators who were between 25 and 35 years of age when they joined the EMED, and had been teaching for ten years at most. All of them had, at the time of their hiring, an academic background in the area of knowledge in which they work at EMED (graduation with their degree), in most cases complemented with *lato* or *stricto sensu* postgraduate courses. The data we will present below reflect the perceptions of these teachers about the four moments in which the learning sequences design was used as a teacher professional development strategy in EMED. The teachers' perceptions were obtained through a questionnaire conducted between December 2020 and January 2021, which asked about the following aspects related to each of the four moments mentioned above: a) relevance of the activities carried out, in terms of teacher professional development (high, medium, low or zero); b) reasons that originated this perception about the relevance of the activities performed, focusing on the main learning generated; c) difficulties and/or problems faced in carrying out the activities; d) suggestions for improvement of the activities in question (Zatti, 2021, p. 87 - 103).

The first feedback from educators is about the relevance perceived by them, in terms of contribution to TPD, in the learning sequences design in general, considering the four moments analyzed. In this sense, 71% of the answers to the questionnaire showed that these activities were considered of high relevance, while 21% of the returns judged the relevance of the same activities as medium, and 8% as low. When looking precisely at each of the four contexts in which the design of learning sequences occurred, we found that the perception of relevance varied within a level of positive evaluation: the educational training prior to the beginning of classes and weekly planning meetings were considered the most important moments: in both cases, the relevance was high for five of the six teachers consulted (83.3% of the total) and medium for one educator (16.7%). The process of preparing the PO, in turn, was considered of high relevance by four teachers (66.7% of respondents), of medium relevance by a teacher (16.7%) and of low relevance also by one educator (16.7%). Finally, the hiring process had high relevance for three study participants (50%), medium relevance for two teachers (33.3%) and low for one educator (16.7%).

Regarding the learning generated (criterion indicated in the questionnaire to assess the relevance of learning sequences design), the most recurrently cited gain was the understanding of the proposal of the course and the school (curriculum, pedagogical proposal, teaching methodology, available tools and resources), an aspect highlighted by four of the six teachers (66.7% of the total). Moreover, three teachers (50% of the respondents) pointed out the construction of a collective and interdisciplinary view as a positive result, while two educators (33.3% of the total) said that the design of learning sequences provided the construction of educational planning practices based on continuous evaluation of teaching-learning processes and constant replanning.

About the main difficulties mentioned in relation to the four moments analyzed in the questionnaire, the first factor pointed out was the short time given by the school (especially in weekly planning meetings) for the design of learning sequences based on the collective view – by area of knowledge and counting on the participation of all teachers in the area, which was mentioned by six teachers (100% of the total). Another factor highlighted were the difficulties faced by educators, still as applicants, during the hiring process (estrangement with the proposal, insecurity, nervousness, lack of

clarity about expected performance, competitiveness). This situation reported by five of the six teachers (83.3% of respondents). The teachers also mentioned difficulties they faced to integrate the design of learning sequences held in weekly planning meetings with the design done in the preparation of the PO, considering the pedagogical intention of the document and its particularities (cited by four of the six participants, 66.7% of the total). Lastly, the deconstruction of the "traditional" view of teaching and learning and the construction of an interdisciplinary approach was characterized as a difficulty by three teachers (50% of respondents). In relation to this last point, it is worth noting that it was considered, at the same time, as a difficulty and as one of the most important elements learned in the process.

Finally, we found that the suggestions for improvement given by the research participants are directly related to the difficulties reported by them. Thus, first, there is the proposal to assign more time to the weekly planning meetings (cited by four teachers, 66.7% of the total). Subsequently, two suggestions formulated, in both cases, by three teachers (50% of respondents): providing spaces for collective analysis and review of the learning sequences available in the PO; and a greater emphasis on projects (Project Based Learning) as a starting point for the design of learning sequences during the initial training program and/or in weekly planning meetings. Two teachers (33.3% of the participants) also suggested the improvement of the group dynamics in the hiring process, fundamentally about the composition of the work teams and the clarification of the performance parameters observed.

3. Final considerations

As a synthesis of our study, we observed, first, that the analysis of the statements of the teachers who participated in the research corroborated our initial perception (obtained through the documentary research focused on the records of the formative actions performed in EMED and supported by the investigation of the theoretical assumptions implicit in these actions) that learning sequences design as a formative strategy was relevant to the TPD in the context of EMED. At the same time, although it is possible (both by the documentary research mentioned above, and by the feedback of the teachers in the questionnaire) to deduce that the design of learning sequences was relevant not only for teacher professional development in general, but also for the construction of pedagogical content knowledge (largely, taking into account the interdisciplinary proposal of the course and the teaching practices consequently required), we consider that the research did not generate sufficient evidence as to support this statement, which would require complementary studies to be verified. Finally, we consider that the reports of the educators who participated in the study brought evidence that the relevance of learning sequences design for teacher professional development is invariably conditioned to the adequate configuration of various dimensions of the school organization, both from the pedagogical and administrative point of view. Using this information as a starting point for further academic studies that deepen this analysis, as well as for the planning of teacher training programs and actions in different school contexts, can contribute to the construction of spaces favorable to the emergence of teacher professional development processes characterized by efficiency and authenticity, which, in turn, can bring us closer to a perspective of constant improvement of teaching practices and, thus collaborating with the necessary transformation of the Brazilian and Latin American educational scene.

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