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To cite this version:
Nolwenn Quéré. Collective designing of Open Education Resources: what effects on teachers’ design capacity?. Re(s)ources 2018 International Conference, May 2018, Lyon, France. hal-02422171

HAL Id: hal-02422171
https://hal.science/hal-02422171
Submitted on 20 Dec 2019

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Collective designing of Open Education Resources: what effects on teachers' design capacity?

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Abstract: In this paper the case of a language resource production group is introduced. Due to the centrality of the OERs in the members' activity I show that the documents they produce are essential to their work. The theoretical framework of the pedagogical design capacity is used in order to analyse the design of the group's resources and the resources of one of its members. The comparison between the two will allow the identification of the effects of collective work on the members' professional development.

Keywords: OER, collective teacher work, professional development.

Introduction

The availability of Open Education Resources (OERs) has introduced drastic changes in education (European Commission 2013), regarding both the nature of resources and teachers’ interactions with such resources, as users as well as designers. Designing and using an OER, in particular OERs like lesson plans incorporating the use of software, require new competences and more specifically with digital resources. In aiding the development of teachers' practices it is essential to involve them in the designing of tools and resources (National Digital Council, 2012). In collective work the interactions of teachers with their resources have an impact on professional development (Gueudet & Trouche, 2010). In this paper, the effects of collective designing of OERs on individual work are analysed in order to highlight their impacts on teachers' professional development.

Theoretical frame

In the documentational approach Gueudet and Trouche (2009) consider not only artifacts, but all kinds of resources. They argue that resources influence the teacher's activity (instrumentation) and that the teacher acts on his/her resources in return by adapting them (instrumentalization) during documentational genesis, which produces a document, encompassing resources and a scheme of use of these resources (Vergnaud 1998). Teachers develop structured resources and documents systems during their work. Their professional development is directly linked with the development of these systems.

In recent evolutions of the documentational approach, Pepin, Gueudet & Trouche (2017) associate their theory with Brown's work on curriculum materials (2009). The authors underline that the characteristics of curriculum materials described by Brown can be connected to the documentational approach and more particularly to the concepts of instrumentation / instrumentalization. Indeed, they explain that the characteristics of the curriculum materials in Brown's theory “represent an interface between the knowledge, goals, and values of the author and the user” (Pepin and al., 2017, p.801). They link this point to the instrumentation's concept. The authors show too that Brown presents the curriculum materials as “[...] inert objects that come alive
only through interpretation and use by a practitioner” (Pepin and al., 2017, p.801) which can be connected to the concept of instrumentalization.

Brown presents teachers' work on their curriculum materials as a design activity. To describe it he introduces the two concepts of design work and pedagogical design concept. Design work can be defined as the creation of a new resource by teachers. The resource can rely on something existent or can be created with completely new elements. The second concept, the pedagogical design capacity (PDC), is described as the knowledge / abilities of the teachers to make pedagogical choices to prepare his/her resources in order to reach his/her education goal.

In their work on this theory Pepin, Gueudet & Trouche (2017) describe a method adapted to a case study. They present ten questions (see Pepin and al., 2017) that can be used to analyse teachers' design work and can promote the comparison between the collective design work and the individual design work. Teachers' design capacity can be analysed with three elements: the goal, a set of design principles and reflection-in-action. The goal helps to understand where the new resource will be situated in the teachers' work, (in the progression of the lesson for example). The second element is a set of design principles. They are the robust design rules teachers can apply/follow to each design. The principles include a little flexibility. It means the design rules can be slightly adapted to the situation: level, context, for example. The third element is reflection-in-action. The design work might evolve during the use of the resource. For example, teachers can adapt a part of the resource according to students' reaction. To conduct the analysis the two concepts of design work and teacher design capacity are used as tools to describe a case of a collective and an individual design work.

In this paper the following question will be treated: Does a participation in a collective designing resource contribute to the development of teachers’ design capacity, and how?

**Data collection and analysis: presentation of the group and methods**

The data is collected from a language resource production group created in 2013. The group followed is named: group of pedagogical integration of the uses of digital technology (GIPUN). It is composed of 7 language teachers (4 English teachers, 2 Spanish teachers and 1 German teacher). The collective concentrates a part of its activity on designing resources for a national platform named Cartoun. The latter offers a collaborative geopositioning service listing pedagogical activities designed and uploaded by teachers, or pedagogical experts, for teachers. Its stated objectives are to allow the consultation of educational activities, to encourage the exchange of practices or to publish didactic activities based on the use of digital technology.

The qualitative methodology is built as follows: regular follow-ups of meetings, audio recorded, and all shared resources used in the online collaborative space used by the group are collected. To process the data, synopsis (synthesis of the meetings with their main episodes) and transcriptions are made. The first elements collected from the meeting are analysed to highlight collective design work. Secondly, an interview with a member of the group, Dunbar, is conducted to better understand her design activity. She has been an English teacher for twenty four years at high school. She joined the GIPUN four years ago as a designer with one objective to « respond to a need for stimulation and sharing of knowledge ».
Design work collective and individual

Based on the series of ten questions presented by Pepin, Gueudet & Trouche, a collective and an individual design work is described.

Collective design work : GIPUN

For the collective design work, the members have one meeting a year under the supervision of a regional inspector. They use a mailing list during the rest of the year for their exchanges. During this meeting, they mainly discuss the new orientation(s) of the group's work. Members present and discuss the new resources. The resources are produced in a digital version and they are made available to teachers for free.

Individual design work : Dunbar

The example introduced describes an activity that Dunbar designed earlier in the year. The teacher was not observed in her classroom. An interview was conducted in which she describes the cycle of the resource design from the idea to the enactment in class. The focus is on her resource named Book in Project¹ (students select a few books in a list, other students do the same in another school then they share their reading impression on Twitter). Dunbar started working on her resource in December for an implementation around March in her class. Then she designed a document for the Cartoun platform based on this activity.

Comparison of collective and individual design work

The analysis emphasizes the importance of digital tools in the design work of group's members and of Dunbar. In their design work, using Cartoun has a lot of impact on the members' practices. Indeed the members put the resources they design on the platform but are themselves using the same media to develop their design work. In the case of Dunbar, she explains the evolution of her practices. She uses both Cartoun and Twitter to find resources. Previously, she conducted her research using a search engine. She declares that this change is directly linked to her participation in the group.

Dunbar's development of design capacity

Dunbar explains that she finds different resources on line (Twitter, Cartoun, eteach.net) and then categorizes them using lists on her computer to be worked on later. With her work on this new resource, Dunbar wants to show that it is possible to use a social network, like Twitter, for sharing interests and hobbies in a safe manner. Some elements interpreted as keys to understand the development of her design capacity are identified in her speeches.

Dunbar’s goal is to design an activity with a digital resource she is familiar with and uses daily. She starts her design work from the resource itself, from Twitter but not from the lesson. Concerning her robust design principles, she explains she needs at least two hours to learn how to use a new tool but sometimes more when the project is more complex. She also states that a new resource has to be tested. In the case of her Twitter's resource she tested it with her husband and children at home before using it in class. Dunbar has flexible design principles. For example, before using a resource in class, she might work with other teachers when she is less knowledgeable about the topic. In the case of her Twitter's resource, she collaborates with the school documentalist to design her activity.

¹ https://sites.google.com/site/defibabelio/book-in-project
In order to realize the activity in class, Dunbar, the documentalist and the Canadian assistant were there. Dunbar has a reflection-in-action. She had not anticipated the lack of her students' knowledge of Twitter. When she implemented her activity, she noticed their difficulties to follow Twitter’s rules such as the 140 characters limit. She declares she has to be sure now how much the students know about a digital tool before using it.

**Conclusion**

In this paper, the link between collective and individual design work is shown. Dunbar’s participation in the collective influenced her way of looking for resources. In return, the group give her new elements to look at and a massive interest in sharing. Some elements can be interpreted as the development of her design capacity. Her set of design principles can evolve with the situation when she is working with a resource. Using the two concepts of design work / design capacity, the interactions between teachers and their resources are highlighted as a vector of professional development. These first observations will be refined in the coming months. These concepts will be used to analyse a collective designing work and the implementation of the ressource designed in class in order to uncover the effects of this work on the development of the teachers' design capacity over a long period.

**References**


