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## **REMOTE TEACHING DURING THE LOCKDOWN – EVOLUTIONS AND TRANSFORMATIONS OF PEDAGOGICAL PRACTICES**

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### **Abstract**

The lockdown, announced on March 16, 2020, led to a massive use of digital tools to offer pedagogical continuity. The objective of this exploratory research is to highlight the digital practices of 1,994 teachers who took part in this research from May to July 2020. A questionnaire measuring their digital practices during the lockdown, as well as the factors of change, was sent to them by email. Although the use of digital tools increased during the lockdown, the underlying pedagogical practices have not changed much. Teachers report that they mainly used digital tools to maintain communication as well as for the deposit, storage and sharing of content, thereby reproducing what is done in class. The results of this study targeting teachers' practices support the idea that the appropriation of digital tools should be considered over a long period of time and through a change in teaching practices.

### **Introduction**

On March 16, 2020, the lockdown was announced in France; all schools and institutions were closed, and all teachers were told they would have to continue teaching their students online. The news came suddenly, many teachers did not feel digitally prepared, they could feel that they lacked equipment, guidance and training to implement this remote teaching.

The aim of this exploratory research was to find out what transformations the necessary and massive use of digital tools had brought in the pedagogical practices of primary school, secondary school, and higher education teachers. What could account for the evolutions observed? Did they depend on the level of the target students?

### **Digital practices at different levels of education in France**

Many studies such as the latest by Tricot and Chesné (2020) state the digital revolution has not taken place in French schools and institutions.

In primary schools, the Talis report (OECD, 2019) showed that France was lagging behind other countries in terms of digital integration, with only 14% of teachers who have their students use digital tools in class. Similarly in secondary schools, the Becchetti-Bizot report (2017) stated that digital tools were little used in class, due to a lack of autonomy left to teachers and schools, and to a lack of support for innovative experiences. In higher education, Duguet and Morlaix (2018) showed that beside some innovative practices, many courses at university were still held in a traditionally and transmissive way.

### **Processes of appropriation and change in the use of technological tools**

From the works of Engeström (1987), Rabardel (1995) and the activity theory (Vygotsky, 1980), we know that appropriation comes from an evolution in the use of these tools, that gradually evolves from a stabilised and well-known practice to another use, as the person tries to overcome the constraints of a given object in order to accomplish a project. In doing so, the person may use the tool differently from what the designer imagined for this very tool. More recently, Derboven et al. (2017) showed that in a virtual learning environment, teachers tended to use generic tools and modify them through a process of appropriation. We could therefore imagine that teachers during the lockdown would use generic tools but would use them differently.

What could encourage teachers to evolve in their pedagogical practices to use the necessary digital tools that would allow remote teaching?

In 1958, Kelman identified three processes of attitude change: compliance, identification, and internalization. We may comply with new tools and attitude because we expect a favourable reaction from another person or group. A symbolical or real reward from the higher educational institutions could have motivated teachers to adopt new tools and attitude (Malhotra & Galleta, 1999). Yet, French teachers are quite independent from these institutions. The identification process could have worked for teachers if they perceived the use of digital tools as a possibility to maintain good social relationship with peers. However, French teachers are used to working on their own. Maintaining relationship with their students and students' families could play a role. Internalization occurs when the new behaviour is intrinsically rewarding because it corresponds to the core values of the person (Malhotra & Galleta, 1999). As teachers place a high value on maintaining contact with their students so that they will not drop out, they might have been convinced by the use of remote teaching.

The theory acceptance model proposed by Davis (1989) and then Venkatesh et al. (2003) showed that determining factors in the acceptance of digital tools were: perceived usefulness and perceived ease of use, which led in turn to the acceptability of these new tools. Digital tools probably appeared as extremely useful to the teachers who were forced

to teach online when schools closed. The perceived ease of use could explain the choice of some tools over others.

Nevertheless, we must keep in mind Paquelin's (2009) works around the resistance to change, and particularly the fact that individuals tend to use the tools they know best as much as they can in order to save the energy that is needed when adopting new tools.

## **Objectives of this research**

We conducted this exploratory research with four objectives; we wanted to describe:

- What digital tools teachers used or modified during this time of remote teaching.
- To what extent pedagogical practices were modified.
- What motivated the teachers to change their practices.
- To what extent the adaptations depended on the target students (primary, secondary, or higher education).

## **Method used for collecting data**

We originally collected 3165 answers from teachers all over France to the questionnaire we sent online, collected between May 4 and July 1, 2020; we didn't keep the 865 people who had quit the questionnaire before the end or spent less than 7 minutes on it. We also didn't consider the 313 trainee teachers in this study because their profile was different. Over the 1994 answers that constitute the base for our study, 702 came from teachers in primary school (with students from 3 to 11 years old), 1034 came from French teachers in secondary school (with students from 11 to 18 years old), and 258 came from higher education teachers.

Several types of questions were asked: first of all about themselves (age, gender, years in the job, place of work), about material conditions (we will not use these data here), about the tools used (multiple choices fell into 7 categories of pedagogical practices). We also asked if they felt they had used some tools with an intention different from its original design, if they had the impression of having changed their pedagogical practices, why they had started or stopped using certain tools.

We collected and analysed the data thanks to the software Sphinx IQ2. The rise in percentages given below refer to the rise among the total number of teachers surveyed (total sample).

## **Results**

### ***Evolution in the use of different tools before and during remote teaching***

The first digital tool mentioned by 70% of the teachers before and during lockdown is *the mail*. Before the lockdown, 63% in primary school said they used the mail, 84% in secondary school, 95% in higher education. With remote teaching, the evolution was +20% in primary school (83% of total sample), +3% in secondary school, -7% in higher education.

*Forms and surveys* (which enable to question students and parents directly or indirectly) were used by 19% in primary school, 21% in secondary school, 34% in higher education before the lockdown. With remote teaching, the evolution was important: +14% in primary school, +15% in secondary school, +35% (69% of total sample) in higher education.

*Online resource data bases* (which provide teachers with institutional ready-to-use material) were used by 20% in primary school, 16% in secondary school, 7% in higher education before the lockdown. With remote teaching, there was little evolution: +13% (33% of total sample) in primary school, +5% in secondary school, -1% in higher education.

*Online learning management systems* (such as Moodle) were used very differently before the lockdown: 4% in primary school, 29% in secondary school, 58% in higher education. With remote teaching, there was an important evolution: + 40% (44% of total sample) in primary school, +38% in secondary school, +5% in higher education.

*Tools to share and store files* with students were used by 25% of primary school teachers, 51% in secondary school, 65% in higher education before the lockdown. With remote teaching, the evolution was +27% in primary school (52% of total sample), +12% in secondary school, +3% in higher education.

*Video conference systems* (which enable online classes) were little used in primary and secondary education before the lockdown (less than 3%, contrary to higher education 31%). Those figures jumped with remote teaching: +40% in primary school, +38% in secondary school, +50% (81% of total sample) in higher education.

60% of the interviewees answered they had changed their practice with remote teaching. About a third said they changed it right away (34% in primary school, 33% in secondary school, 38% in higher education), while another third said they adapted gradually (37% in primary school, 35% in secondary school, 22% in higher education). Less than a fifth said they tried to transfer the same pedagogical practices from the class to remote teaching (19% in primary school, 14% in secondary school, 16% in higher education). Some said they continued using the same digital tools as before (10% in primary school, 18% in secondary school, 24% in higher education). A small part of the teachers answered they had used no

digital tools (2% in primary school, 21% in secondary school, 4% in higher education) during the lockdown.

About a fifth of the teachers thought they had used digital tools with an intention different from their original design (17% in primary school, 21% in secondary school, 21% in higher education). Those were mainly communication tools such as Zoom, WhatsApp, Discord which were not part of their professional practices before.

### ***Justifications for the use of the digital tools used during remote teaching***

*Pedagogical usefulness* is the first reason why the teachers say they have used new tools (82% in primary and secondary school, 61% in higher education). From more important to less important, here are the different objectives assigned to the digital tools used during remote teaching:

- To give access to learning content (for 90% in secondary school and higher education, 70% in primary school);
- To give access to activities online (for 60% in primary school and higher education, 80% in secondary school);
- To allow human interaction (for 59% in secondary school and higher education, 63% in primary school);
- To assess students (for 17% in primary school, 57% in secondary school and 60% in higher education).

Only 20% of the teachers in primary and secondary school take *institutional requirements* into account when choosing new tools, contrary to 47% in higher education.

The fact that *students (families) may ask for certain tools* does not constitute a reason for adopting new tools for most teachers (8% in primary school, 15% in secondary school, 20% in higher education).

To an open question on the advantages of remote teaching, some primary school teachers stated that it would allow more interaction, contact and involvement of the students' families. Some secondary school teachers said it enabled them to get in touch with shy students and could favour students' autonomy. Some higher education teachers valued the time students saved on transport and the possibility for students to go deeper into the reflexion started in class.

## **Analysis**

As we had imagined, teachers used more digital tools with remote learning even if a few say they have not used any (between 2 and 21% depending on the level they teach). They favoured tools which enabled them to carry on teaching. The use of tools for

videoconferencing increased greatly, as well as tools for sharing and storing files in primary school, online learning management systems in primary and secondary school, and the mail for primary school teachers. The increase may be due to the necessity to favour interactions and keep in touch despite the distance. The greater use of online learning management and video conference systems in higher education may account for the decreased use of the mail at that level. We expected the teachers to use more online data and resource data bases, but they only did so in primary schools. French secondary school teachers are used to editing their own teaching resources; they continued to do so during the lockdown.

Even if some tools were used more extensively to adapt to remote teaching, teachers did not seem to change their pedagogical practices fundamentally: they used digital tools mainly for giving access to learning content, for sharing and storing files which shows they still relied on a traditional and transmissive approach. However, a majority of teachers declared they had changed their practices. This apparent contradiction may be explained by the difference which exists between feeling and reality: they may have had the impression of teaching differently because remote teaching was different; yet the tools they chose were those they used before. This is probably due to the principle of economy referred to by Paquelin (2009). They mainly reproduced what they were doing in class, which may account for the large choice of activities online they proposed. French educators know the importance of keeping students active and of constructivist theories for learning. We remember that the appropriation of new tools is a long and complex process. Despite the institutional demands, the new tools that were provided and advertised, the training sessions online which existed, the little time that had been given to teachers was not enough to enable them to innovate and take advantage of the distance to promote other pedagogical uses with the tools they use in daily life (e.g. WhatsApp).

The institutional requirements or the wishes of the students and families did not account for choosing new tools, which was mainly driven by pedagogical usefulness. French teachers are independent and social identification plays a minor role in their choices. As pointed by Davis (1989) perceived usefulness and perceived ease of use are essential as long as they are compatible with the organisation of time and space (Tricot & Chesné, 2020).

We have seen that the choices and uses vary according to the target students. Three reasons may explain the differences in evolutions. Firstly, the increase is more important for the tools that appeared absolutely necessary in the new context. This can account for the high increase of the mail and tools for storing and sharing files in primary school where they were little used before the lockdown. Similarly, the use of online learning management system did not increase much in higher education because they were already quite developed before the lockdown, probably due to the age and autonomy of the students.

This leads us to the second factor explaining the differences among teachers: the high increase of forms and online surveys in higher education may be explained by the age of the students whose opinions can be considered; they also enable to maintain interaction with the high number of students enrolled in a university course. The important use of tools to assess in higher and secondary education, contrary to primary school, may be accounted for by the place final exams have in these institutions. The advantages of digital tools the teachers put forward depend on the needs of different students at different stages. In primary school, it seemed essential during that time of remote teaching to maintain interaction with students and families. In secondary schools, teachers considered digital tools as a way to increase their students' autonomy. In higher education, teachers highlighted that digital tools would enable students to think by themselves and would simplify their daily life by saving on transport time.

The third factor for the differences among the teachers' answers lies in the role the institution plays. Higher education teachers seemed to take institutional demands into account. The link with their institution (the local university) where the decisions are taken is tight enough. On the other hand, as secondary school teachers and primary school teachers are very independent in their schools where the Head does not have any hierarchical pressure, they may have been less inclined to follow the requirements of their institution and may have felt isolated at home. The secondary school teachers who are recruited nationally are probably those who feel the least concerned by institutional demands; this could account for the 21% among secondary school teachers who answered they had not used any digital tools (as opposed to 2% in primary school and 4% in higher education).

## **Conclusion**

Observing remote teaching during the lockdown led us to 4 conclusions which are correlated. Some tools which enabled to maintain interactions and to keep teaching as in class increased, but teaching practices were not modified fundamentally. The tools were firstly used according to the teachers' perception of their pedagogical usefulness and to the perceived needs of their students which differed according to their ages. They enabled primary school teachers to keep in touch with families, secondary school teachers to favour autonomy and activity for their students, higher education teachers to give more time to their students to organize themselves and to assess final exams. The link between these different categories of teachers and their institutions played a role in their adoption of new digital tools and practices. Because of the short time that was given to teachers, there was little appropriation of the new tools which were promoted by the institutions.

The limit of our study is that it relies on an online digital questionnaire, since we could not observe their practices. Teachers were preoccupied and very busy at the time when they answered our questionnaire, which might have had an influence on how they responded. Besides, they may have misunderstood or interpreted our questions differently from what we intended them to be. This probably accounts for the numerous people who quit the questionnaire before the end or the many questions left unanswered, which we had to take out of our study.

The results we obtained could lead us to other studies, a comparison between the answers of trainee and expert teachers, or a study on the material and psychological conditions of teachers during that time. Other statistical studies could be made from these data, to compare the results between the different categories of teachers, depending on the level they teach, on gender. This was not the goal of this exploratory research which aimed at shedding light on the digital practices of different teachers before and during the lockdown.

Beyond the very particular context of the lockdown, our study raises questions as to what encourages or discourages students to adopt new digital tools and pedagogical practices, and how to train teachers for these new uses.

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