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Learner Support in Online Learning Environments

Chrysta Pélissier

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Learner Support in Online Learning Environments

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Foreword

It is with great pleasure that I have accepted the honor of opening the present volume with the following few words. The common research interests that the author and I have shared for a long time have led us to develop an intellectual proximity and to collaborate around academic projects, often in connection with an educational question that seems essential in the current socio-educational context: that of the assistance in digital learning systems.

As a need that transcends the compartmentalization between disciplines, the issue of assistance – also known as “support” in certain scientific communities – has always aroused the researchers’ curiosity and stimulated their pedagogical-academic endeavors. From Socrates’s maieutics, to Comenius’s epistemological and pedagogical principles, through the forms of cooperation that support Freinet’s essentially humanist approach, the purpose has always been more or less the same: to develop, implement, test and deploy educational means to promote the development of learning autonomy. However, since the advent of digital technology, the democratization of online training has resulted in more complex training spaces, and has led the researchers’ community to consider the assistance concept from different angles. For example, if it is now technically possible to manage the “informal spaces” between training time, to individualize the training pathway or even to consider various forms of mediation, many educational questions are, in fact, still pending: what are the skills required to ensure the tutor’s new roles in the mediated learning systems? In what

way(s) can we redistribute these roles? Which methods can we consider to intervene effectively with learners?

To feed the reflection on the (broad) issue of digital assistance, it is in the more specific disciplinary fields of educational sciences and digital humanities that Chrysta Péliissier chose to widen her research and develop her own epistemological positioning, that she also had the opportunity to present and defend during her professional HDR thesis, in June 2017.

The chosen articulation follows a double dichotomy: temporal, on the one hand, with a focus on current/future epistemological, pedagogical and methodological challenges; a dichotomy relative to the beneficiaries of the assistance, with a distinction between assisting needs of learners' with various profiles (high school students, prisoners, MOOC users, students in initial training, to name only a few) and forms of digital assistance that could in the future simplify some of the teaching, research and administration tasks which are the responsibilities of the teacher-researcher.

The fields of application of the assistance models presented in the book are numerous; the complexity and variety of the scientific devices which have been solicited to respond to the users' diverse needs in terms of assistance are reflected in the invocation of a multitude of methodologies, concepts and other theoretical references which – like Lev Vygotsky's zone of proximal development concept – are sometimes revisited. The application benefits are achieved, for their part, through a wide variety of data, devices and productions that support semi-systematically the theoretical considerations that are addressed.

From a more personal perspective, I would say that through the dynamics of this book, Chrysta Péliissier has a dual purpose: on the one hand, to highlight the vigor and richness of research aimed – from a design perspective of tutoring forms – to compensate for the impossibility to predict *a priori* the learners' difficulties, needs and work strategies in digital teaching-learning systems; on the other hand, through the sharing of reflections, analyses and feedback, to advance academic thinking in the ever-changing field of digital humanities and, thus, to contribute to the stabilization of the scientific scope of this same disciplinary field.

In the end, by making it possible to apprehend – both from a practical and theoretical point of view – the current and projected issues inherent to the concept of assistance in digital devices, this book can be read profitably by any reader interested in educational issues, whether they are (apprentices-) researchers, trainers, teachers or policy makers.

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Introduction

I.1. Context of reflection

Since 2007, France has been eighth in the world in its number of researchers and third in the European Union (behind Germany and the United Kingdom)¹. In 2011, it awarded² 11,500 doctoral degrees³ (Harfi 2013), while globally, in 2008, this number was 393,700 (*idem*, p. 9). Commencing their scientific training with a master's degree (research, professional, or undifferentiated⁴), many⁵ apply for further education. The number of doctoral students has increased by 2% between 2002–2003 and 2012–2013, and the discipline distribution among registrants has been stable since the beginning of the 2000s: 45% in sciences; 34% in literature,

1 According to the 2014 report on the state of scientific employment in France: “L'état de l'emploi scientifique en France”, written by the Directorate General of Higher Education and Research & the Directorate General of Research and Innovation, http://cache.media.enseignementsup-recherche.gouv.fr/file/Personnels_ens_sup_et_chercheurs/20/1/rapport_emploi_scientifique_2014_382201.pdf.

2 These figures are not easy to find and vary by source. Concerning the doctoral students and doctorates awarded, there are two data sources: SISE (Système d'information sur les étudiants – French student information system) and Siredo. The first one is carried out via “computer” enrollments and only concerns universities (not taking into account the doctorates awarded by engineering schools). The other one is linked to the monitoring of doctoral schools. SISE therefore underestimates the actual number, but it may be that the monitoring of doctoral schools is not perfect either.

3 And the number of doctoral students was 65,000 the same year.

4 Training offering preparation for the research and professional path.

5 The number of enrollments in the second year (research, professional or undifferentiated master) was 152,474 in 2012–2013. This number seems to have stabilized since 2010–2011.

languages and human sciences; and 19% in law, economics and AES⁶. Thus, if we compare the number of researchers to the active population, France, with 8.8 researchers per thousand active in 2011, is behind Japan (10.0‰) and the United States (9.1‰) but ahead of Portugal (8.5‰), the United Kingdom (8.3‰), Germany (7.9‰), Spain (5.7‰) and Italy (4.3‰).

Today, the French institutional desire is to most fully train its 25,000 doctoral students/year⁷ and to link the research carried out in laboratories with training (initial, continued), the general public (in a perspective of knowledge dissemination) and all the other interested sectors⁸. In order to accomplish this, it relies on a rapidly expanding dynamic in humanities and social sciences (HSS): digital humanities. These digital humanities are at the intersection of computer science and arts, literature, and HSS. Characterized by the convergence of the so-called scientific (production and dissemination of knowledge), educational (didactic transposition integrating the interpretation of knowledge produced and written in scientific articles), and instructional design (presentation and dissemination of this knowledge gained through IT applications/environments) activities, digital humanities are at once a field of research, teaching and engineering.

In particular, as a research field, digital humanities, which already has a long history (Berra 2015; Doueïhi 2011; Doueïhi 2013; Sinatra and Vitali-Rosali 2014), lead the people involved in the scientific world to question the research methodologies, the actual and potential uses of technological tools, as well as the (innovative) practices allowing the development and sharing of results, offering new educational content (informational and/or didactic and/or scientific and/or technological content) to the training world (among others). This research field can be apprehended both as a human and scientific dynamic. On the one hand, it suggests a resurgence for researchers wishing to examine their own approaches by questioning their research

6 Economic and social administration.

7 According to the StrANES (Stratégie nationale de l'enseignement supérieur – French national strategy for higher education) project, let's build the France of tomorrow, act for equality, give a future to young people, <http://www.enseignementsup-recherche.gouv.fr/cid/76975/la-strategie-nationale-de-l-enseignement-superieur-stranes.html>.

8 “The 2014 report on the state of scientific employment of the Ministry of Higher Education and Research reveals the strong growth of the sector in France, which has increased by 22% since 2001. Most jobs are concentrated in the private sector.” *Le Figaro.fr*, published on January 15, 2005, <http://etudiant.lefigaro.fr/stage-emploi/actu/detail/article/la-france-au-8e-rang-mondial-en-nombre-de-chercheurs-10581/>.

methodologies from the point of view of computer science contribution. On the other hand, these humanities constitute a pretext to make progress in several issues, by soliciting, in particular, collaborations between researchers from different disciplines. The issue of multidisciplinary in digital humanities is today essential and pluralist: plurality of disciplinary approaches, diversity of views on the same research topic, on the same question, or even on a scientific approach in order to build a global vision of a targeted phenomenon or a set of phenomena that seem to be similar or related. Multidisciplinary is considered fruitful on principle; however, it is difficult to implement. It was, in some projects and for some participants, the basis of a fragmentation where each approach was more or less separated from the others. This approach, which up to this point seemed to cause confusion in the roles of each of the participants in the overall approach and fuel identity insecurity, is currently being implemented, by digital humanities, in the coherence and respect of a certain continuity of social scientific practices (Hooland *et al.* 2016).

Following on from this, where the computer tool participates in and encourages the evolution of research practices, especially in the methods of data collection, analysis, presentation and dissemination of results, the first objective of this convergence is to facilitate scientific work in areas that have yet to be investigated, or in the same area but in a different way: taking into account new indicators (more explicit, more massive, more precise and/or more targeted) and/or new, more appropriate means that make it possible to interpret them (quantitatively and qualitatively). The second objective is to re-question certain monodisciplinary models/concepts which are historically present in literature. These models/concepts are brought up to date with digital technology, reconfigured according to new components and/or situational participants. Finally, the third objective of this convergence is to be able to foresee and initiate changes which are taking place in (and on) a society where the people involved in the scientific world are constantly solicited by a dematerialization (digitization) policy, and connected to others through their work in databases that interact with each other.

I.2. Research training: a rapidly changing field

Research training, proposed in France by doctoral schools, supports the training and the future of each doctoral student by responding to the needs of

PhD supervision⁹ regarding both specific disciplinary skills and a scientific culture going beyond the strict scope of the dissertation.

This training “is part of a rapidly changing university research landscape: new conceptions in the production of knowledge, the transmission of acquired knowledge; the need for new digital skills and editorial know-how, the need for the dissemination and development of doctoral research during the curriculum, the internationalization of research networks, taken into account starting from the design of the doctoral project, orientation prospects and professional insertion, etc.”¹⁰.

Under these circumstances, the institutions are no longer only questioning the scientific knowledge and practices which must be the subject of a transmission; they are also led to consider ways to support these future researchers in the development of the digital skills necessary for the advancement and development of their research results, as well as the development of their scientific approach.

The objective of the book is not to question the different practices implemented in these doctoral programs but, firstly, to question the place digital tools¹¹ occupy today and could occupy tomorrow in the activities carried out by apprentices and experienced researchers, and secondly, to contribute to the provision of means to these people in order to allow them to question their personal practices, in such a way as to consider “getting assistance” from digital resources/solutions made available to them. Digital

9 Dissertation supervision: decree of May 25, 2016 laying down the national framework of training and the methods leading to the awarding of the national doctoral diploma. *Article 13 – An individual monitoring committee of the doctoral student ensures the proper conduct of the curriculum based on the doctorate charter and the training agreement. It evaluates, in an interview with the doctoral student, the conditions of his/her training and the progress of his/her research. It formulates recommendations and sends a report of the interview to the director of the doctoral school, the doctoral student and the dissertation supervisor. In particular, it ensures the prevention of any form of conflict, discrimination or harassment. The methods of composition, organization and functioning of this committee are determined by the council of the doctoral school. The members of this committee do not participate in the direction of the doctoral student’s work.*

10 Extract from the “Livret du doctorant”, Inalco doctoral school, http://www.inalco.fr/sites/default/files/asset/document/livret_doctorant_16-17.pdf.

11 Also designated by instruments (Loizon and Mayen 2015).

technology thus supports¹² “fragmented”¹³ activities (Fave-Bonnet 1998), to which we will have the opportunity to return.

I.3. Content of the book

In this book, you will not find any sociological data referring to the place of digital technology (Boullier 2016) in today’s society¹⁴, nor a presentation of methods of the existence of social links entangled with techniques (Dagiral and Martin 2017). Our desire is to open a debate focused on the role that digital technology can play in the university research landscape in HSS today. More particularly, we contemplate the assistance that different digital resources (Develotte and Pothier 2004) can provide in the realization of the scientific activities conducted. Thus, in light of the various possibilities offered by technologies in the 21st Century, our contribution aims to implement work on the identification of the needs of disciplinary, inter-disciplinary, individual and collective “assistance”, oriented toward the success of the professional projects of each future doctoral student and experienced researcher, as well as the definition and the role of (present and future) digital resources that could respond to these needs in the near future.

Of course, each researcher/apprentice-researcher is different. It therefore seems *a priori* difficult to propose a finite and identical set of target activities and digital resources of assistance for all. In fact, it is not possible, in the framework of this book in any case, to take into account all the parameters which participate in the choice of the implementation of digital research assistance. Among them, we can mention the diversity of activities carried out throughout a career (several affiliate institutions, several

12 Composed of a research, teaching and administrative activity described in Article 3 of the Decree of June 6, 1984 at the lecturer-researcher level.

13 Composed of a research, teaching and administrative activity described in Article 3 of the Decree of June 6, 1984.

14 “La société a besoin aujourd’hui de chercheurs aptes à comprendre ces mutations, à les anticiper, à les expliquer grâce à leur formation et à leur bagage intellectuel. Et c’est là que l’on pourrait parler d’humanités numériques.” (“Society today needs researchers able to understand these changes, to anticipate them, to explain them through their training and their intellectual background. And that is where we could talk about digital humanities.”) In *Les humanités numériques: une nouvelle discipline universitaire*, Suzanne Dumouchel: <http://dhiha.hypotheses.org/1539>.

disciplines, research laboratories): the disciplinary research habits, the knowledge of the digital world, the initial training experience, the monodisciplinary or multidisciplinary practices, etc. This is the reason for which we have made the choice to present, based on different results of research conducted over the last 15 years, a methodological approach aimed at facilitating the reflection of each scientific participant on his/her own activities, supported (or not) by the use of digital technology.

Regarding the solicited tools, you will, again, not find a detailed presentation of each of them (when they exist) in this book, but rather examples which illustrate the methods of proposed approaches. The aim is to enable the readers to better understand the reflection methods implemented around the digital assistance concept, so as to enable them to implement a reflective approach themselves on their activities, to integrate them into a professional practice, or even to create their own digital assistance. Thus, we have made the choice to present only a few resources which are related to the scientist's activity in the field of language sciences, to which our work belongs. We do not provide an exhaustive list but rather examples which illustrate the principles governing the assistance process in which the digital resource is involved. That's it! The word "assistance process" makes its appearance. In particular, it will be presented in the first part of the book.

Finally, we note that this book was written based on the results of our work and our personal experiences as participants wishing to assist and be assisted on a daily basis by digital resources. Other reflections on the assistance concept in a scientific context, for a wider audience and/or in reference to other disciplines, can be proposed in the coming years and fuel the debates. In the meantime, our ambition is perhaps to give a "breath of hope" to researchers, giving a glimpse of the days when, for example, the temporal organization of the different tasks incumbent upon them will be alleviated through the implementation of digital assistance adapted and adaptable to each one, which they will have selected to assist doctoral students or to assist themselves (to better plan their actions, in a way that is more oriented toward a chosen professional strategy, while taking into account personal but also situational, political and institutional factors). Thus, a greater place will perhaps be left to creativity in the research projects initiated by researchers, which will be better supported in data processing and interpretation, and questioned by work from other disciplines. The objective is to facilitate the researchers' daily work (Leclercq 2006), while

seeking to achieve new investigations or to implement new, not yet imagined methodologies.

Thus, like Bruno Latour and Steve Woolgar (2008) in their book entitled *La Vie d'un laboratoire*, we present a perception of “this strange world” (Latour and Woolgar 2008, p. 15) that is scientific research, an activity which remains very poorly known and which we apprehend by the potential of the assistance offered through digital technology. The challenge of such a work is to facilitate the production of scientific knowledge, to participate in the changes in existing professional practices, as well as to pool the works carried out and to articulate them in a manner which will make it possible to advance science.

I.4. To whom is this book addressed?

First of all, this book is aimed at researchers in education and language sciences. By its definition in the systemic context, assistance is presented as a fully-fledged, complex, multifaceted entity, which can be difficult to identify by the different forms it can take. Scientists will find in this book theoretical references (e.g. Vygotsky’s zone of proximal development approach; Bruner’s support) for questioning assistance as it is implemented in a training context (initial and continued), for conducting personal reflections on their own uses, and finally, perhaps for questioning the content of the doctoral programs.

In addition, this book is aimed at young researchers (master or doctorate), who must integrate, as soon as possible in their careers, a reflective approach to their personal professional projects, as well as the different ways to implement it. In this book, by definition of the proposed digital assistance, we give to apprentices-researchers avenues to question the reasons that push them to use certain digital resources and not others, to implement deviations of use of available resources, as well as ways of developing their professional digital skills. Concerning this last point, the objective is to make the reader aware of the importance of the place that this digital assistance can take in the framework of a skills assessment in preparation for professional integration¹⁵ or a presentation of a career path.

¹⁵ We align with the approach advocated by the French Confederation of Young Researchers (*Confédération des Jeunes Chercheurs* – CJC) and the National Association of Doctors

We then enlighten the stakeholders from the industrial world on the digital resources that they could consider designing and developing in the near future. In fact, at the end of this book we present an action researcher model. This model makes it possible to question the participants about their activities, their needs and the contributions of digital resources that they are likely to use or to consider using. It constitutes a means of characterizing current digital resources as well as those that have not yet been designed, in order to respond to real and explicit needs. In addition, throughout this book, some existing digital resources are presented, others are described as being able to be adapted to the world of research, while others still have to be imagined, for example by involving 2D, 3D graphic art, virtual reality or augmented reality, a promising innovation.

With regard to doctoral training, we initiate a methodological reflection, through the action researcher model, on the multiple dimensions of the research profession in HSS envisaged by some of the doctoral students, that goes beyond training sessions related to the academic field in the use of office and communication tools (with social networks, for example). Based on the role given to the digital resources in the assistance provided to the researcher (as a person giving and receiving assistance), along with their functions and their places in the professionalization process, we offer the means to implement a reflection method that can be integrated into a personal reflective approach facilitating professional integration.

1.5. Document structure

The first part of this book is devoted to the context of our reflection, namely digital humanities, and to the definition of the digital assistance concept. In Chapter 1, we describe digital humanities as a research field that we reposition in the history of disciplines. We also discuss the current issues in this field for Humanities and Social Sciences, its fields of action, and establish interaction as essential to its development. In Chapter 2, we propose a break from the common understanding of the word “assistance” and we provide the outline of the “digital assistance” concept. We first

(*Association nationale des docteurs – AND*), which, through the proposed training, focuses on the implementation of a research work, the professional development as a researcher, and the construction of his/her professional project. *Le Doctorat à la loupe*, no.12, published on April 3, 2014, <http://cjc.jeunes-chercheurs.org/doctorat-a-la-loupe/fiches/FicheDoctoratALaLoupe-12.pdf>.

define it based on the different trends in education psychology spanning throughout the centuries. We then describe this concept as a process, a cycle; each stage is described, illustrated by specific examples from research, and produces a result.

The second part addresses the question of digital assistance in a scientific context. It consists of three chapters. In the first chapter (Chapter 3), the researchers' work context and their daily activities are described. Based on these activities, the digital resources which are integrated into the digital assistance process are presented in their contributions. In the next chapter (Chapter 4), the researchers' professionalization concept is questioned. This leads us to define the implementation of a new concept, the scientific scenario, through which the researchers consider their activities supported by digital technology, which is put in a professional activity that integrates into a professionalization process. Finally, in Chapter 5, the last chapter, we discuss the manner in which digital technology can support the researchers' cognitive activity and even increase it through its contributions to meet identified needs within the framework of repetitive tasks and connections that can be implemented.

Throughout this book, the assistance provided by digital technology is questioned: in the pedagogy context (first part), and then in the researchers' professionalization context (second part). The objective is to give the reader the possibility to implement a personal reflective approach on the uses of the digital tools which are available today and on their needs of support that can be expressed and filled tomorrow with the help of digital technology.

