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Combining Coherence and Effectiveness in Entrepreneurship

Doctoral Article-Based Dissertation

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Abstract

Before becoming seasoned scholars, novice entrepreneurship researchers begin with a doctoral journey to learn how to do relevant research. This chapter explores how to combine coherence and effectiveness in entrepreneurship doctoral article-based dissertation. To understand the rise of the article-based dissertation in entrepreneurship, the authors look back at its origins (massification of scientific production, standardization and professionalization of the doctoral path) and then identify the major issues and challenges of the doctoral pathway for doctoral students, supervisors and research laboratories in a competitive international context. Based on an integrative literature review, this chapter highlights the reasons why the article-based thesis can be a 'good' answer to these issues and challenges by analyzing the semantic fields around 'paper/article-based thesis' and what educational science research tells about 'paper-based writing' *versus* 'monograph'. Finally, the authors suggest to both PhD candidates and supervisors key issues, guidelines including a canva (ABPhD² Canva, license Creative Commons CC-BY-NC-ND) and avenues for reflection to ensure the coherence and effectiveness on an article-based PhD dissertation in entrepreneurship.

Key Words: article-based dissertation, entrepreneurship scholarship, doctoral pathway, ABPhD² Canva, PhD students, PhD supervisors

INTRODUCTION

The doctoral pathway is a process that starts with an initial exchange between the student and a potential supervisor about a research project (in this case, entrepreneurship). It ends when the doctoral thesis (a product) has been defended before an academic jury. Developing a doctorate is part of the formation of academic identities (Dowling et al., 2012) and includes a wide range of institutionalizing actions (Yazdani & Shokooh, 2018). These are embedded in a pathway comprising several rites of passage that transform the doctoral student into a researcher, a doctor (Hodgson, 2020) and then an Assistant/Associate/Full professor. The cleverly ironic title of the article *'It's a PhD, not a Nobel Prize': how experienced examiners assess research theses* (Mullins & Kiley, 2002) sums up the difficulty of assessing the academic quality of doctoral work. It is no longer simply a matter of training a research novice to produce a relevant thesis that is critically engaged in the academic conversation, well-constructed and coherent, theoretically and methodologically sound, original, creative and elegant. Inscribed in a highly competitive international context, the doctoral process now often requires the production of early publications in scientific journals dedicated to entrepreneurship, with an ever-higher level of demand.

Initially, the PhD by publication was designed to enable practitioners who had already published¹ to gain high-level academic recognition (Butt, 2013). In a context of ever-accelerating academic productivism and strong competition, it quickly became a rational way to respond to both the pressure to publish and the canons of academic employability. A subject of study for just over two decades, the article-based thesis² is now a hot topic in the

¹ Professional doctorate (in arts, health, management, ...).

² The term 'article-based PhD dissertation' is broader than 'PhD by publication'. We invite the reader to go to the second section of this chapter to find their way through the semantic jungle surrounding this object.

academic world, almost monopolistically among researchers in the educational sciences, even though there is still no real national or international consensus on what a PhD by publication is (Niven & Grant, 2012) and what it should include (Jackson, 2013) depending on the discipline. However, the training of PhDs in entrepreneurship is an issue that deserves to be addressed by the players in the field³. This question concerns the formation of professional identity and the professionalism of Entrepreneurship PhDs and supervisors.

Preceding the very function of the PhD to train responsible scholars (Lin & Cranton, 2005), should the sole choice of thesis format prevail (Frick, 2019) over the PhD project? Since the 1990s, the number of single-authored papers has been steadily decreasing in favour of the rise of co-authored papers (Hagen, 2010), and the determination of authorship credit in published dissertation is becoming a real issue in the training of PhD students⁴. At the same time, the number of PhDs by publication has steadily increased in the entrepreneurship research field. Finally, it is only very recently that critical approaches via feedback are proposed around the doctoral experience in entrepreneurship and more broadly in management sciences (e.g. Germain et al., 2020; Gaillard et al., 2023).

The purpose of this chapter is to give the PhD candidate in Entrepreneurship the insights and practical keys to combine coherence and effectiveness in entrepreneurship doctoral article-based dissertation. To do so, we draw on both an integrative literature review⁵ and our own experience. We first propose elements of explanation for the rise of this format by analysing the contextual elements of the massification of scientific production in parallel with

³ The idea for this article came about after one of the authors, an entrepreneurial researcher, defended her thesis and obtained an associate professorship: it is the article she wished she had read when she was struggling to complete what she then called her 'Frankensteinian article-based PhD dissertation'.

⁴ It is easily observable in universities that the regulation underlying the submission of an article-based thesis varies regularly (number of articles, number of articles published or under revision, number of articles in authorship and co-authorship, formal format, ...).

⁵ The integrative literature review (Torraco, 2005; 2016; Elsbach & van Knippenberg, 2020; Snyder, 2019) makes it possible to investigate in a robust manner themes that are little or not dealt with in the literature of the field under study by borrowing from other fields (in this case, mainly the educational sciences).

the standardisation and professionalisation of the doctoral path (section 1). Faced with the issues and challenges raised for PhD students, supervisors and research laboratories (section 2), we present the reasons why the article-based dissertation may constitute a methodological response that satisfies the current expectations of the academic world in entrepreneurship (section 3), without prejudging that it is of better quality than the monograph format. On basis of this study, practical guidelines both for doctoral candidates intending to submit article-based dissertation and for supervisors and examiners are provided to support their reflection and decision making regarding the choice of format. Finally, we present a canva proposal (ABPhD² canva) to combine coherence and effectiveness in entrepreneurship doctoral article-based dissertation.

UNDERSTANDING THE RISE OF THE ARTICLE-BASED DISSERTATION: MASSIFICATION OF SCIENTIFIC PRODUCTION, STANDARDISATION AND PROFESSIONALISATION OF THE DOCTORAL PATH

Since the 1990s, academic work has been standardised (Vähämäki et al., 2021) in order to better compare different practices within a competitive and productivist global culture (Knights & Clarke, 2014; Kallio *et al.*, 2016; Deuchar, 2008; Kihn & Näsi, 2017). This process of neoliberalisation of higher education supported by the introduction of new public management techniques at universities (Shore & Wright, 2000) has been widely studied (Cannizzo, 2018; Sutton, 2017; Miller, 2016). It has impacted on the educational objective: from developing PhD students' capacity for thought and inquiry towards preparing them for employment and for employability, e.g. to act entrepreneurially (Holdworth, 2018) in an academic world of performance measures and benchmarking (Cannizzo, 2018).

The hypercompetitive culture of research (Coriat, 2019) and academic productivism lead in fact to increased competition, both at individual (PhD candidates, supervisors and researchers) and institutional (higher education institutions) levels. The relationship to time is changing⁶ in a context of constant acceleration (Rosa, 2010), following the model of performance management practices. Thus, the neoliberal university invites researchers to adopt individualistic approaches to scholarship and a performance culture (Dowling et al., 2008). The doctoral experience is then impacted, with the duration of completion now being much shorter (three years) with the parallel pressure to publish (Frick, 2019) inscribed in a productivist culture (Sharmini et al., 2015) oriented towards employability. Depending on the country, the relationship to the article-based dissertation varies between two extremes: either it is seen as a norm or it is seen by dissertation committees as a 'quick-fix' solution or an 'easy-way-out' to the qualification (Niven & Grant, 2012).

This productivism leads to the search for short-term tangible outcomes (high ranked journals) at the expense of long-term sustainable academic work. For example, US accounting research has been increasingly criticised for its lack of innovation and progress by training PhD students with a focus on standard journal content, methods and research topics (Pelger & Grottke, 2014). Curiosity and intellectual interest in reading and participating in academic conversation can be sacrificed for a streamlined and technical approach to using knowledge to produce research articles, with journal rankings as a benchmark for successful research. Yet the most innovative research is rarely produced in A-ranked journals. It is only after following a path of institutionalisation that the innovative contribution produced can be disseminated in these journals. In any case, inspired by a format model derived from the hard sciences, which are well versed in journal rankings, the article-based dissertation has

⁶ In France, for example, there was the format of the state thesis, which took seasoned researchers an average of ten years to write.

gradually found its way into the humanities, particularly in management sciences and entrepreneurship.

Ultimately, the article-based dissertation seems like a win-win format (Frick, 2019) for PhD students, supervisors (Laurance et al., 2013 in Pretorius), peers and the whole scientific community. Indeed, it seems to respond to the constraints of time (papers seen as so many short projects during the doctoral course), productivity (producing to publish) and quality assurance of articles (thanks to the peer/double blind-reviewing system) with a view to employability in the academic field⁷. In 2015, 83% of the 50 participating educational institutions (UKCGE study) allowed PhD by publication or equivalent (Christianson et al., 2015).

MAJOR ISSUES AND CHALLENGES OF THE DOCTORAL PATHWAY FOR DOCTORAL STUDENTS, SUPERVISORS AND RESEARCH LABORATORIES IN A COMPETITIVE INTERNATIONAL CONTEXT

Entering a doctoral research pathway is therefore the PhD candidate's first step in elaborating and developing their professionalism as an academic. Academic practice is the vehicle for moving from the periphery to the centre of professionalism (Rae, 2017), i.e. from being a PhD student/candidate in entrepreneurship to being a PhD in entrepreneurship/assistant-associate professor or consultant in business. It is this shared peer practice that opens the doors to the research ecosystem and its explicit and implicit practices,

⁷ In 2023 (France), the Fondation Nationale pour l'Enseignement de la Gestion (FNEGE) had already shown that 75% of PhDs in management sciences chose an academic career. Over the last 10 years, the number of theses written in English has more than doubled and these are mainly article-based dissertations, which shows the impact of the internationalisation of the doctoral research process.

codes and norms. PhD students develop their identity as young researchers by learning how research is conducted and how its conduct informs the activities of the research community (Löfström & Pyhältö, 2019). The creation of the researcher identity in the PhD student is supported by peers, colleagues in the professional environment and supervision (Mawson & Abbott, 2017). Three main areas constitute this academic practice: researchers' actions (reading, collecting data, (re)writing, publishing, presenting at conferences, evaluating, ...), their level of socialisation including their ability to integrate research communities, and their motivations to produce research by claiming a specific professional identity (Le Pontois, forthcoming publication). Thus, the professional identities of PhD students, supervisors and peers are interdependent as they evolve in the same communities. Entering the communities is the result of the legitimisation process: obtaining the PhD is the first step of this recognition, which is itself supported by the ability to publish.

The doctoral thesis is thus the entry point to academic practice from two major angles: academic writing (a central activity in higher education) and varied and iterative contingent learning cycles (de Lange & Wittek, 2014). However, the quality of doctoral work is measured by its contribution to knowledge and its originality (Gilbert, 2009; Lee, 2010). The aim for the doctoral student is to take part in academic practice through internalisation (acquisition of knowledge) and externalisation (participation in a practice), to use Vygostky's model (1978). Writing may be perceived as identity formation (de Lange & Wittek, 2014) through the lenses of study skills approach or academic socialization approach.

Several issues then emerge for the PhD candidate. First of all, the *main* challenge for the PhD candidate concerning his/her research production is to learn. Learning to collect and analyse data, learning to use methods consistent with the epistemological positioning of their research, learning to articulate and explain their results clearly in an academic conversation and learning to take into account the suggestions of reviewers to improve their research work,

all this through the iterative experience of reading/writing/presenting. All of this is part of the necessary consideration of time, maturation and the influence of feedback on the thinking and writing experience (de Lange & Wittek, 2014). Furthermore, he/she has to project him/herself into several types of professionalism (academic/corporate researcher) and reflect on a strategy to support the desired professional trajectory. If the chosen path is the academic one, the PhD candidate must ensure her/his potential to meet the standards of academic practices (see above) including networking. Other issues then emerge: his or her ability to read and write English (*academia lingua*) as a pass to establish credibility as an international researcher; his or her eligibility for research grants (fellowships) which often assess candidates on the basis of their previous publication capacity (impact and productivity) (Coriat, 2019); the choice to write a monograph or an article-based dissertation with intrinsic temporal issues that impact the writing itself, the degree of ownership of one's own writing (more or less individual or collective process) as well as the identity of the academic author (Burgess & Ivanič, 2010). The challenge here is for the PhD candidate to try to adjust as well as possible (or to limit the mismatch) between the temporality of the doctoral course -which is generally three years- and the temporality of writing: the monograph requires a long writing time *versus* the article-based thesis which is based on different 'mini-projects' with mix-methods, to be coordinated with the central question of the thesis (or study). In both cases, doctoral time is seen 'as circular', including a continuous series of time negotiations (Araújo, 2005).

Supervisors face other challenges. Choosing to supervise a PhD student requires having validated the fit between the PhD student's research project and the supervisor's own expertise, having assessed the candidate's learning, writing and perseverance skills, his or her ability to integrate into research communities and finally being clear together about the envisaged post-thesis professional project, i.e. the employability objective. Supervising an

article-based dissertation or a monograph requires different support and a different relationship to the written production of the PhD student (see section 3). The supervisor's ability to meet these challenges conditions his or her legitimacy among peers (Le Pontois et al., forthcoming publication).

For the institution, via the research laboratories, the main issues are the quality of the doctoral training provided (success/dropout rate, professional insertion rate -professional or academic), the funding of this training and the ability to hire competent supervisors to accompany the PhD student to recognised publications in ranked journals.

REASONS WHY THE ARTICLE-BASED THESIS IS A "GOOD" ANSWER TO THESE ISSUES AND CHALLENGES

Recurrently, two formats of doctoral thesis (de Lange & Wittek, 2014), also called 'dissertation book' (Fridlung, 2010), are presented as diverging: the 'monograph' format, also referred to as the 'traditional dissertation', and the 'paper/article-based thesis' format (see definitions Table 1).

<p>'the article-based dissertation' or 'the PhD by publication' (modern dissertation)</p>	<p><i>"in which a dissertation comprises a number of stand-alone 'publishable' papers, along with introductory and concluding overviews"</i> (Dowling et al., 2012: 293)</p> <p><i>"... consists of an unspecified number of stand-alone published or 'publishable' papers"</i> (Robins & Kanowski, 2008)</p>
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	<p><i>“Articles suitable for publication and bounded together with an introduction chapter and integrated discussion chapter”</i> (Baggs, 2011 in Lewis et al, 2021)</p> <p><i>“...consists of a number of published peer-reviewed academic papers or equivalents [...] accompanied by an over-arching text [which] summarizes the contributions of the publications to knowledge in the field”</i> (Peacock, 2017)</p>
<p>‘the Monograph’ (traditional dissertation)</p>	<p>A genre, in both form and content: including introduction, literature review, description of methods and procedures used, presentation of results, discussion of the meaning of the results, in an original research written as a unified and coherent work (Duke & Beck, 1999)</p> <p>A comprehensive and extensive book with a theoretical part (introduction, concepts, literature review and theoretical framework) and an empirical part (design, data collection and analysis, results, discussion, conclusion/implication, references) (Fridlung, 2010)</p>

Table 1. Definitions: the ‘PhD by publication’ *versus* the ‘Monograph’

While the contours and processes of the monograph seem fairly clear in the minds of researchers and their communities, this is less the case for the paper/article-based thesis format. What are we actually talking about? In fact, the expressions 'paper-based thesis' and 'article-based thesis' cover different formal realities, more or less explicitly specified by other expressions (Table 2). This first semantic field thus refers to the intrinsic material of the thesis, the articles and chapters. A second semantic category is linked to the notion of publication ('PhD by publication', 'PhD dissertation book', 'dissertation book based on article', 'publishing during the PhD', 'PhD by published works/papers'). The third category evokes the idea of compilation: 'compilation thesis', 'compilation dissertation'. The fourth semantic category refers to the recent and innovative nature of the format employed by the use of the

expression 'modern thesis'. Finally, Niven & Grant (2012) question the lack of rigour of the term, which does not cover the reality of the steps and processes used by the doctoral student to construct a thesis that includes scientific articles published during the doctoral path. They propose (category 5), following the example of Biggs evoking the forms of Entrepreneurship Education, names reflecting the approaches and writing projects of students enrolled in a doctoral path: 'PhD *by* publication', 'PhD *through* publication', 'PhD *with* publication' and 'PhD *along* publication'.

Semantic categories	Expressions	Authors of the corpus studied
1. Articles and chapters as thesis material	'paper-based thesis' 'article-based thesis'	Pretorius, 2016 De Lange, 2010 Lewis, 2020
2. Articles and chapters as publication material	'article-based dissertation' 'PhD by publication' 'Publication-based thesis' 'PhD dissertation book' 'publishing during the PhD' 'PhD by published works/papers' 'dissertation book based on articles'	Lewis, 2020 Dowling, 2012 Frick, 2019 Jackson, 2013 O'Keeffe, 2019 Peacock, 2017 Robins, 2008 Sharmini, 2014 Horta, 2015 Fridlung, 2010 Peacock, 2017 Fridlung, 2010
3. Articles and chapters as serial elements constituting an object	'compilation thesis' 'compilation dissertation' 'dissertation book based on articles'	Fridlung, 2010

4. Articles et chapitres comme characteristics of an innovative thesis format in the humanities and social sciences	'modern thesis' 'alternative format'	Hagen, 2010 Duke & Beck, 1999
5. Taxonomy proposal	'PhD <i>by</i> publication' (in the sens of 'by means of') 'PhD <i>through</i> publication' 'PhD <i>with</i> publication' (alongside a main thesis) 'PhD <i>along</i> publication' (publication/project)	Niven, 2012

Table 2. Semantic fields around the expression 'paper/article-based thesis' (16 articles in the corpus)

There are therefore as many formats of paper-based PhD dissertation as there are names, referring to the objective pursued by the PhD candidate. The first category refers to publications as a support for the thesis defended in the PhD dissertation. This thesis becomes a new contribution to the academic conversation. The second and third categories refer to publications as material that will be aggregated and presented in a more or less coherent way within a single work. These first three semantic categories present the format as a strategic choice of opportunity to publish. The fourth category notes the novelty of this format in the 2000s, a format that is institutionalised or in the process of being institutionalised in the field of entrepreneurship today. The fifth and final category proposes a unifying taxonomy of article-based dissertation names, taking up the previous categories.

What then are the decisive factors to take into account when choosing between the monograph and the article-based dissertation when pursuing a doctoral path in entrepreneurship? Curiously, this does not really seem to be a topic discussed in the entrepreneurship methodological literature. If the current standard of three years to complete

a PhD and the possibility in several countries⁸ to change the format along the way seem to encourage PhD students and their supervisors to turn to the article-based dissertation format, it is worth looking at the scientific literature on paper-based writing. Since very few articles on the subject are available in management sciences and even fewer in entrepreneurship, we have opened our scope to the educational sciences, which study the whole range of doctoral courses. We selected 17 articles dealing with the subject ('paper-based writing') to examine the pros and cons of the choice of the 'paper-based writing' format, the authors of these articles sometimes comparing it to the monograph. We then aggregated the data collected thematically (Table 3).

⁸ Depending on the country, organisational cultural dimensions reinforce this choice (e.g. pools of doctoral students involved in research projects born before their arrival *versus* more artisanal and creative research for the PhD student).

Implications for	Paper-based writing	Monograph writing
Academic culture	Performance culture (Dowling et al., 2012) > publishing during doctoral studies	Craft culture: long-term work of shaping (Dowling et al., 2012) > possibility of publishing during the doctoral course or after obtaining the doctoral degree
Levels involved (micro, meso, macro)	By publishing, three levels may be involved: micro level (individual), meso level (local academic network -university), macro level (international network, institutions, policies) (Horta & Santos, 2015)	Monograph involves two levels: micro and meso (conferences may involve the third one)
Pedagogy	Necessity of a pedagogy that supports the publication of doctoral work (Paré, 2010 in Frick, 2019)	
Peer roles	Assessment Project-based work (Dowling et al., 2012)	Supervision (Dowling et al., 2012)
Supervisor roles	Potential visible and literal co-author who mediates reviewer comments (Kamler, 2010 in Frick, 2019) Formative (Frick, 2019) assessment (Dowling et al., 2012) Project-based work (Dowling et al., 2012)	Invisible second author (Paré, 2010 in Frick, 2019)

Characteristics of the supervisor-PhD student relationship	<p>Focus on writing work supported by mentoring for publication</p> <p>Thesis writing is collaborative with support from the broader scholarly community (supervisors, editors, reviewers, colleagues, peers)</p> <p>(Dowling et al., 2012)</p>	Identical, if the doctoral student submits proposals for articles to conferences
PhD student's motivations	Develop the requisite skills for an academic career (expertise in academic writing / experience in publishing process) and publication record (Dowling et al., 2012)	<p>Leading your own project with your own voice (de Lange & Wittek, 2014)</p> <p>Finding your own voice (Dowling et al., 2012)</p>
Creativity vs Crafting	<p>Fosters creativity and interdisciplinarity (Dowling et al., 2012)</p> <p>>developing a writer's identity and self-discipline (Dowling et al., 2012)</p>	Encourages a craft-based approach
Topic fit and thesis mode/genre	<p>mix-methods mini-projects (Dowling et al., 2012) or multiple project format (Jackson, 2013)</p> <p>The 'multiple project format' allows for a closer relationship with practice (Davies & Rolfe, 2009 in Jackson, 2013)</p>	
Conceptual framing	Different papers with different conceptual frames and different contributions	One conceptual framing

	<p>>overarching argument = PhD thesis (stand-alone papers > able to be woven together into a thesis) (Dowling et al., 2012)</p>	
Methodology and data	<p>Opportunities for PhD students to take different angles on their data: different articles and different methodological approaches</p> <p>(Duke & Beck, 1999)</p>	<p>Need for a central methodological focus included in an explicit template framing a single research study (substantial and coherent plan)</p> <p>(Duke & Beck, 1999)</p>
Doctoral temporalities	<p>New rhythm</p> <p>Meeting journals' requirements may be time-consuming -lengthy timeframe (Robins, 2008)</p> <p>Writing and data collection may occur simultaneously, applied on different parallel paper projects</p> <p>(Dowling et al., 2012; Robins, 2008)</p> <p>Desirable to produce one article per year (Fridlung, 2010)</p>	<p>Conventional rhythm</p> <p>Year 1: setting up topic and contextual framework</p> <p>Year 2: data collection</p> <p>Year 3: writing</p> <p>(Dowling et al., 2012)</p>
Publication	<p>Progressive publication as a necessity: adopt a very productive writing</p> <p>Uncertainty of the reviewing process, flexibility is essential</p> <p>(Dowling et al., 2012)</p>	<p>Few monograph publications; often reworked in depth (Duke & Beck, 1999) and over a long period of time (Fridlung, 2010) before being read.</p>

	The long evaluation process means that it is not always possible to publish before the end of the doctoral process (Bluntz, in Germain <i>et al.</i> , 2020)	
Dealing with emotions, stress and learning during assessment	<p>Significant exposure to critical academic conversation generating feelings of uncertainty and anxiety (articulation of current conversation/data/theory within a coherent framework) (Dowling et al., 2012)</p> <p>A destabilizing and uncomfortable journey (Peacock, 2017)</p> <p>Publication-related anxiety from lengthy review processes aggravated by rejections or major revision (Jackson, 2013)</p> <p>Co-authoring is a way to manage anxiety around uncertainty (Dowling et al., 2012) as PhD by publication offers possibilities for collegial collaboration (Jackson, 2013)</p>	<p>Much less training in integrating academic conversation (done through lectures)</p> <p>Authoring as an individual</p> <p>Monograph implies a risk of isolation (Jackson, 2013)</p>
Degree of involvement in communities, academic culture, frameworks and standards	Paper-based enables becoming a member of the community (engagement with supervisor, peers, ...) (Dowling et al., 2012)	

Impact of the doctoral thesis process on the development of academic skills	<p>Development of KSA⁹ : disciplinary knowledge, research skills, project management skills, leadership, communication and networking skills, teaching skills, team working skills (Mowbray & Halse, 2010 in Horta)</p> <p>Planning and writing skills are challenged when creating a coherent narrative both close to the publication and easy to read for the audience (Peacock, 2017)</p> <p>Instil professional work practices and foster academic development (Robins, 2008)</p>	Developing an academic voice (Dowling et al., 2012)
Impact of the doctoral process on the thesis defence	The components of the thesis (articles and chapters) have already been peer-reviewed: a priori confidence in the quality of the work produced (Dowling et al., 2012 ; Fridlung, 2010)	<p>Discovery of an academic voice by the jury (Dowling et al., 2012)</p> <p>More common not to pass when doing a monograph (Sandstedt et al., 2005 dans Fridlung 2010)</p>
Impact of the thesis on the audience	<p>Written often in English (Fridlung, 2010)</p> <p>Larger audience than the thesis defence committee because of publications (Duke & Beck, 1999)</p>	<p>Written often in the native language (Fridlung, 2010)</p> <p>Limited readership of the traditional dissertation (PhD student's committee, friends, family, colleagues)</p>

⁹ KSA is the acronym for Knowledge Skills Attitude.

		Need for recrafting the dissertation into publishable forms (Duke & Beck, 1999)
Impact of format on early career	<p>Puts the student/researcher ‘on the scientific map’ very early / easier to get fundings (Fridlung, 2010)</p> <p>Publishing during the PhD journey induces greater research production and productivity, greater numbers of yearly citations during the career and positive effects on employability – including networking (Horta & Santos, 2015 ; O’Keeffe, 2019)</p> <p>More likely to be successful in all scholarly facets (pedagogy, research) (Sutherland et al., 2013 in Frick 2019)</p>	

Table 3: 'Paper-based writing' versus 'Monograph': what does educational science research tell us?

This literature review identifies six key factors that may underlie the choice of PhD dissertation format:

Academic culture: performance culture is associated with paper-based writing while craft culture is linked to the monograph. It is the amount of time available for each of the two projects and their volume that condition this vision (a set of 'mini'-projects that can be published vs. a 'large work' that gives rise to a 'voice');

Networking: the paper-based writing format induces more collaboration and interaction to learn about writing than the monograph format: co-authoring, reviews, responses to reviewers. It allows for rapid integration into the community, international if the articles are written in English;

Topic fit and conceptual/methodological framing: the multiple project format inherent in paper-based writing allows one to stay as close as possible to academic practice (publishing) but increases the risk of incoherence in the final essay, which is much less present in the monograph. It is necessary to foresee a phase of writing an overarching argument to reconcile different approaches;

Relationship to time: the multiple project format requires the PhD student to be able to move from one writing project to another, and therefore from one writing phase to another (writing for submission, responding to reviewers, finalising the manuscript before publication, etc.) and from one team to another. The monograph remains the expression of a voice and allows for more creativity;

Relationship to stress: the high exposure to critical academic conversation can generate feelings of uncertainty and anxiety: what if at the end of the three years of the doctoral career not enough papers have been published or accepted? The monograph is written and can be submitted for defence without prior publication;

Academic recognition over time: the components of the thesis (articles and chapters) have already been peer-reviewed in the paper-based writing format (a priori confidence in the quality of the work produced which enhances perceived employability). The monograph is discovered in its entirety by the community only from the defence.

Ultimately, it is the nature of the research project, the student's interests (topic, methodology, ...) and the timelines associated with the doctoral work project that invite a choice of format by themselves. Whatever format is chosen, the PhD student can use it creatively (O'Keeffe, 2019) by being the entrepreneur of his or her doctoral journey (Bluntz; Muhlerin, in Germain et al., 2020). He/she is accountable for his/her learning and its depth (Sharmini et al., 2015). In particular, the PhD candidate is invited to reflect on her relationship with stress and her ability to manage it before choosing the article-based thesis format in a context where the pressure of publication and time pressure are aggravating factors requiring, for example, certain personality requirements: time management skills, strong writing capabilities, understanding of the current literature (Jackson, 2013).

To address all the issues and challenges formulated in section 2, the PhD by/with publication seems to be an efficient vector¹⁰. During the defence, the publications constitute an outcome that is easy to evaluate for the supervision team and the members of the thesis jury, both quantitatively (number of articles and chapters) and qualitatively (journal ranking, blind peer-reviewing, entry into an ongoing academic dialogue through collective writing). Co-authored publications guarantee the PhD student's ability to work in a team, to integrate a network and to identify role models, to enter into the academic conversation by responding to reviewers before publication. They guarantee the supervisor's competence to guide and

¹⁰ This is not to say that a monograph presented at the end of a doctoral course including participation in several conferences followed, later, by publications, is not a vector that can meet the same expectations and requirements of the academic community.

accompany the PhD student from the periphery to the centre of the targeted academic professionalism. Finally, they include the name of the institution that will be able to count these publications. Compared to writing a monograph, writing an article-based dissertation thus constitutes an opportunity to experience the reality of publication processes and to contribute to the frontiers of academic research. However, one major limitation is that developing one's own voice as an academic may be more difficult than in a monograph.

KEY ISSUES, GUIDELINES AND CANVA PROPOSAL (ABPHD² CANVA) TO COMBINE COHERENCE AND EFFECTIVENESS IN ENTREPRENEURSHIP DOCTORAL ARTICLE-BASED DISSERTATION

The paper-based dissertation approach has advantages but also risks that need to be taken into account. Writing different papers around the same research object can lead to conceptual, theoretical or methodological inconsistencies between papers written in different contexts and time frames (Niven & Grant, 2012; Sharmini et al., 2015). Maintaining coherence is one of the very purposes of the process. As we have seen, there are several elements to consider before embarking on a PhD by publication: Phd student's competence at juggling multiple projects/frames, capacity to write (and rewrite, and 'let go'), coping skills to face criticisms from peers, potential to become a publishing academic (Dowling et al., 2012), capacity to establish boundaries around the relevant literatures (Robins, 2008). A major challenge concerns the impact of the evaluation of the articles and chapters submitted during the doctoral journey and the temporality in which these evaluations are carried out; the evaluation processes and the different journal pipelines imply potential changes of direction on the focus and contributions of the written output that iteratively impact the internal

economy of the PhD project and may threaten its realisation in case of rejected articles (de Lange & Wittek, 2014). It is therefore important at the end of the PhD process to clearly dissociate two distinct activities: 'doing research' (work reported in articles) and 'reporting on a PhD process' (the PhD study).

In order to contextualise how to combine coherence and effectiveness in Entrepreneurship doctoral article-based dissertation, we propose to immerse you in a singular doctoral path (Box. 1).

When I started my doctoral journey in the middle of my professional career in 2016, I was both full of enthusiasm and apprehension. On the advice of my supervisor, I embarked on the paper-based PhD dissertation process with the common goal of publishing part of the papers in English and the other in French. My initial subject was student entrepreneurial teams and I immediately adopted a qualitative research approach. In my first year, I had the opportunity to collaborate with fellow researchers at my university to submit a first article in a collective work and then with my supervisor's network for a second paper in a French classified journal. By the middle of my second year, I had co-authored four papers (conceptual and empirical) and had two papers under review. These were all initiated by my supervisor, whom I consider a great gate opener. But despite the enthusiasm and success of the publications, this was the start of a long period of doubt. Although I was enjoying working on really different research projects, I was having real difficulty imagining how I would be able to fit them together at the end of the day. During a presentation of my doctoral work in front of other PhD students and researchers, I was firmly questioned: "*What is the conceptual framework of your thesis? What is your epistemological posture?*" For the next two years, feelings of confusion, discomfiture, incomprehension and discouragement, even flabbergasting (in the sense of not being able to act anymore) arose in the face of my inability to articulate a research production of all different articles (empirical/theoretical, different objects) within a study (the dissertation) on various objects of entrepreneurship education. In parallel with the production of other articles, I first looked for guidance in the textbooks accompanying the writing of a thesis in management sciences. I then identified the need to adopt an encompassing epistemological positioning to ensure the coherence of the whole of my research work produced by unit of articles. The major difficulty was that although I had thought through the epistemological positioning, methodology and conceptual framework of each of my co-authored papers, they were different from one paper to another. I was not then able to carry out the epistemological reflection that is consubstantial (Martinet, 1990) to the elaboration of the research *design* that allows the researcher to build a coherent and dense scientific discourse. In retrospect, it seems to me that this is only possible when the researcher is a researcher and not an apprentice researcher, as is the case for any doctoral student, especially when the thesis project is built through articles and in an abductive approach. Indeed, the novice researcher is expected to be able to include, in the same movement, several scientific productions (which may come from different epistemological positions) in a single epistemological current, which is the foundation of the research carried out over several years. The institutional demand for a precise epistemological positioning at the beginning and during the course of the thesis by articles does not necessarily seem to be fruitful in my case. This is not to say that one should not ask oneself the question of the said positioning, nor that it is not possible to decide on it *a priori*, because asking oneself the question of the positioning remains obviously fundamental (Dumez, 2011). In this case, it is during the various stages of learning about research that the doctoral student's positioning and approach - sometimes intuitive and dictated by the choices of action - builds *ex post* an anchorage in a clearly defined epistemological current. Dumez (2013: 29) specifies that '*epistemological considerations are concrete questions that must be confronted throughout the research process, from its beginnings to its conclusion, in a reflexive mode*'. Five months before I submitted my PhD dissertation, I had not written a line of what I then called my 'Frankensteinian PhD thesis'. I was paralysed. To comply with the classical canons of a thesis, writing an introduction and a conclusion would have been enough, as my doctoral work was already recognised by the community because it was published. But this possibility did not suit me intellectually in the sense that I absolutely wanted to solve this problem of lack of coherence between the articles. It was then that, less than six months before my defence, I immersed myself with great pleasure in the

literature on epistemology and research methodology. After having rather easily positioned my research in pragmatic constructivism, I felt a lightning strike when I discovered the Hlady-Rispal model entitled 'From empirical data to theory. A helical representation of process' (2002: 178). It was then that I realised that I had conducted a dialogical qualitative study (Le Pontois, 2020: 96) in which my articles responded to each other. Instead of applying this model to a specific piece of research resulting in an article, I applied it to my entire research process, i.e. my study, in a retrospective manner. This led me to propose a new original contribution resulting from the perspective of my articles through a meta-reflexive practice. I have chosen to adopt an integrative approach that goes beyond the simple compilation of articles framed by an introduction and a conclusion. Finally, I chose to write a 150-page dissertation defending a thesis (new contribution composed of a model) including a state of the art of my research object, the setting of research objectives (including the design and epistemological positioning), the presentation of the stakes of my research object accompanied by the presentation of the articles as well as the new contribution, and then a conclusion on the scientificity of the research work by articles and the synthesis of the contributions. This ability to integrate my scientific work into a broader epistemological, methodological and philosophical reflection than the standard requirements has been rewarded by the French-speaking scientific community (obtaining two thesis prizes awarded by international French-speaking learned societies). Beyond this recognition, what has marked me the most is to have felt this flow of being on the edge of the limits of knowledge.

Box 1: Paper-based PhD dissertation: Personal views on a Doctoral journey (Le Pontois, 2020)

Ensuring the coherence and effectiveness of an article-based dissertation relies on weaving a robust research model (design) involving either a prospective or retrospective approach.

The PhD candidate who embarked on the paper-based dissertation adventure was offered two possibilities of formal formats: the 'PhD *by* publication/research papers' (prospective) and the 'PhD *with* publications' (retrospective).

On the one hand, the 'PhD *by* publication' makes it possible to write a book comprising a general introduction, followed by a presentation of the conceptual framework and epistemological positioning of the thesis, to then integrate the various articles produced as chapters, taking care to give the reader access to understanding the links between the articles, and to finish by writing an integrated discussion chapter. This chapter preceding the conclusion can be written in four steps (Lewis et al., 2021): 1/ outlining the integrated discussion chapter (summary of the overall purpose of the dissertation, main findings, main point of discussion, strengths and limitations of the dissertation, practical, managerial, methodological and theoretical implications, conclusion), 2/ mapping individual article's findings (discussion points of each articles, overarching points, disciplinary implications), 3/ drafting the main integrated discussion point (identifying supporting or refuting arguments

from the individual articles) and finally 4/ writing the integrated discussion chapter. It should be noted that a good integrated discussion can be published as such as an article. This is the format most commonly followed by doctoral students and most often follows a forward-looking approach (Peacock, 2017) in that the publications are planned -form, topic, temporality. For example, it is common to construct a thesis in entrepreneurship in three articles, the first conceptual (literature review), the second empirical (qualitative exploratory) and the third quantitative to validate the hypotheses identified earlier.

On the other hand, the 'PhD *with* publication' is an emerging format that allows for a monograph to be written about the entire doctoral research process and for published articles or articles under review to be placed in an appendix (e.g. with appended publications). The doctoral student then dissociates his articles (body of work) from his study (PhD thesis). This approach requires a clear dissociation between the epistemological positioning and the theoretical/conceptual framework of each article (which may be different from one to the other) and the epistemological positioning and theoretical framework of the whole doctoral research or study. This involves the doctoral student entering into an integrative process of constructing an overarching meta-inference (or meta-narrative / over-arching narrative) which requires an alternative epistemological positioning (Niven & Grant, 2012; Peacock, 2017). This format is epistemologically and ontologically different from classical formats. The challenge is then to construct a posteriori its retrospective design by re-contextualising papers within the setting of the doctoral study. The question of the connectiveness of the papers becomes central. This connectivity can for example be found at the theoretical and conceptual level, in common literature reviews or in the elaboration of a new original contribution based on the contributions of the different articles put in perspective (deeper findings). The abductive approach is then often the most appropriate and leads to a reflexive practice on the part of the doctoral student (deconstruction and reconfiguration) to crystallize

the methodology underpinning the research (Peacock, 2017). In a sense, the doctoral student adopts the entrepreneurial approaches of bricolage and effectuation. This format follows a retrospective approach. It is this second format that was finally adopted by the PhD candidate (Box 1). To summarise, it is necessary to understand the explicit and implicit expectations of evaluators of doctoral theses in general and in entrepreneurship in particular¹¹.

The overall aim of this chapter is to provide some insights and guidance to build a successful article-based PhD thesis in entrepreneurship. On the basis of this research, we recommend some guidelines both for PhD candidates and supervisors to ensure the necessary links between the research object, epistemological positioning, research methodology, knowledge of the literature and the dissertation format.

Guidelines for doctoral students intending to submit a paper-based PhD dissertation: a PhD candidate should:

- (a) Be aware of the different article-based PhD dissertation formats and their specificities (notably in relation to time and stress). Discuss/negotiate them with his/her supervisor, before and during the doctoral journey, as the context may lead to a modification of the initial choices;
- (b) Clarify the research approach adopted: prospective (the study design is pre-defined before starting work on the first article) or retrospective (a research object is examined in a multi-angulated way through several articles, with a study design carried out a posteriori). Whatever the approach chosen, be attentive to the alignment between the different publication projects (thematic and/or methodological and/or procedural);

¹¹ For example, the identity of a doctoral thesis in entrepreneurship can be recognised if at least two of the following conditions are met in the doctoral research work (Paturel, 2004 : 49): *"presence in the title of the term 'entrepreneurship' or a word in the same family or a word related to entrepreneurship ('entrepreneurship', 'entrepreneur', 'business creation', 'business takeover', 'intrapreneurship', 'spin-off', 'start-up', etc.); title with very common words in entrepreneurship ('craft', 'TPE', 'PE', etc.); research supervisor directly recognised in the field we are interested in; jury composed for the most part of colleagues with a reputation specialising in the discipline or interested in it for one reason or another"* (translated from French by the authors).

- (c) Dissociate the epistemological positioning of each article from the epistemological positioning of the study (doctoral journey);
- (d) Specify for each of the articles whether it is published or under evaluation, in which journal, indicate the form of intellectual contribution of each of the authors in case of co-authorship (in particular that of the PhD candidate) and at which stages of the article the author contributed and in what way: editorial, methodological, conceptual, ... ;
- (e) Give an account in the thesis of a professional development trajectory and produce a quality scientific object in the field of entrepreneurship. Ensure that you demonstrate a sufficiently wide range of academic skills to be recognised as a fully-fledged researcher at the end of the course;
- (f) Structure the final document (PhD dissertation) in such a way as to present the research process in a coherent manner, with particular attention to bridging sections between chapters that are published (prospective dissertation).
- (g) To present in conclusion the scientificity of the research work by articles, the synthesis of the theoretical, methodological and managerial contributions of the articles, the practical implications for the management sciences and the field of entrepreneurship, and to conclude with the limits of the study and the avenues for future research.

Guidelines for supervisors coaching doctoral students intending to submit a paper-based PhD dissertation: a supervisor should:

- (a) Present the different PhD dissertation formats (monograph vs. article-based PhD dissertation) and their specificities (notably in relation to time and stress).

- Discuss/negotiate them with your PhD student, before and during the doctoral journey, and explain that the context may lead to modifying the initial choices¹² ;
- (b) Ensure the PhD student's ability to quickly integrate academic practices: learn quickly to read, write and rewrite articles (concepts, method, data, overall coherence) and to integrate into an academic community and research teams;
 - (c) To mediate between the reviewers and the PhD student during the evaluation phases; to accompany the acculturation to academic practice by adopting a 'gate opener' behaviour; to know how to welcome moments of doubt;
 - (d) Bringing to the attention of the PhD student the extended set of criteria for assessing article-based PhD dissertation in Entrepreneurship;
 - (e) To explain to the PhD candidate the different levels of defense issues

In order to support students' reflective thinking throughout their doctoral studies, we are proposing an evolving tool to put the research design of the PhD dissertation on the table. The Article-Based PhD Dissertation Canva (for Management Sciences) or ABPhD² Canva (license Creative Commons CC-BY-NC-ND) is an artefact made up of different boxes grouped into six areas: components of the PhD thesis (book) as the result of the doctoral path; ABPhD thesis format; key KSA learned and professional trajectory (professional development); articles/chapters design (1/2) : types and epistemological positioning; articles/chapters design (2/2) : research question, theory, data; articles' findings. This canva is designed to allow the doctoral project to evolve. The doctoral journey takes time and it is not uncommon to change course, to branch off, to go backwards in order to find one's way. Each

¹² One of our colleagues had initially planned to present an article-based dissertation. Due to the long evaluation and revision time of some of the submitted articles, she was forced to finally produce a monograph a few months before the end of her doctoral course, which was awarded two thesis prizes (Gabay-Mariani, 2020).

box contains one or more questions linked to key research concepts and issues to guide the doctoral student in his or her thinking and in drafting and writing the PhD dissertation. As the format of the book means that the ABPhD² Canva cannot be viewed clearly (the canva has to be printed in 42x49.4 cm format/A3 or better, A2), the authors are offering it as a free download on the Open Science portal HAL¹³.

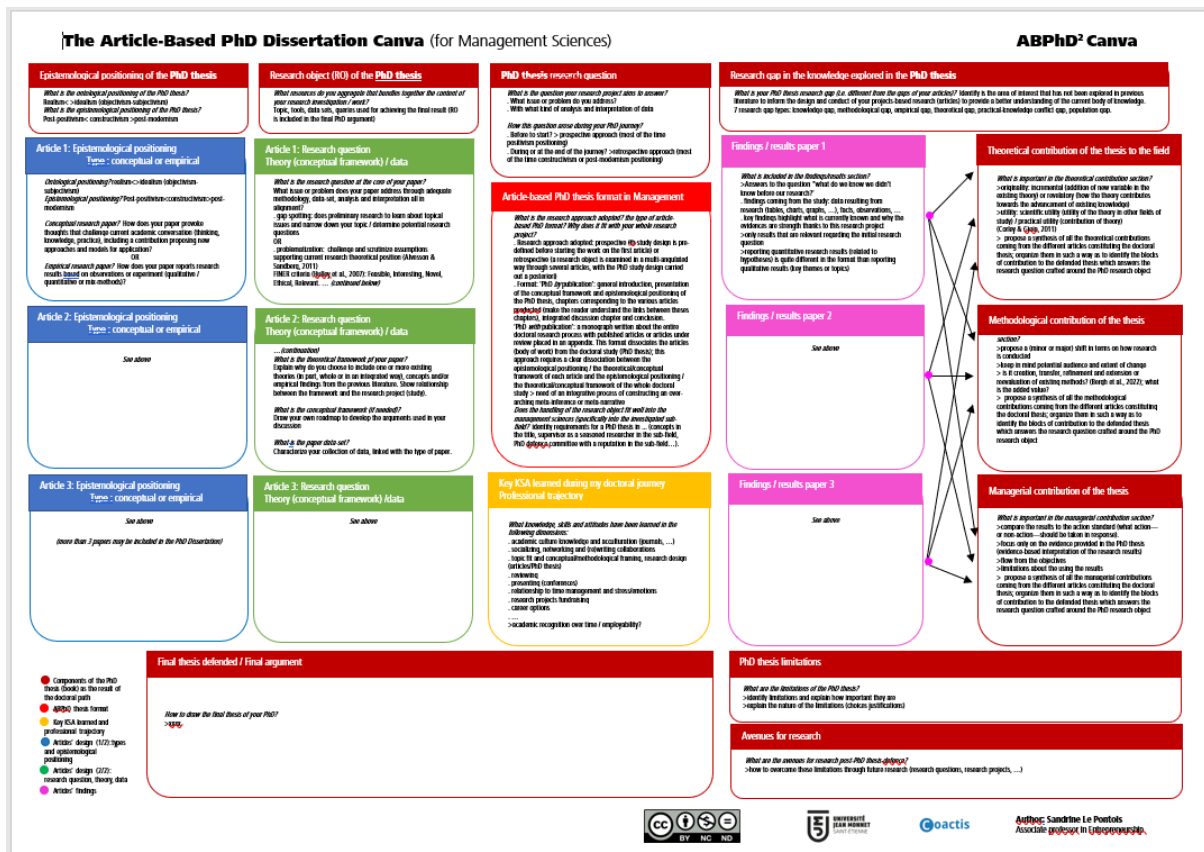


Figure 1. The Article-Based PhD Dissertation Canva (ABPhD² Canva)

¹³ ABPhD² Canva, Article-Based PhD Dissertation Canva: 1/ with explanatory notes: <https://hal.science/hal-04401588>; 2/ to be filled in: <https://hal.science/hal-04401584>.

AVENUES FOR REFLECTION

Our intention in this chapter is not to advocate for the paper-based PhD, nor to provide an analysis of its benefits and costs. But it is important to underline the rise over the last three decades of the fabrication of the *homo academicus neoliberalis*, shaped as a subject who has to commit to '*publish or perish*', albeit with the help and support of peers, supervisors, reviewers, The rationality of the market has transformed higher education from a public social good to a personal investment in the individual future where the young researcher marks her/his network, his papers for ranking and his own employability (Brown, 2015). Choosing to write a PhD dissertation *by/with* publication can be an eminently rational, calculated and entrepreneurial decision, guided by performativity, in the context of a neoliberalized higher education measuring the academic performance (O'Keeffe, 2019). But it is also to choose the option to 'play the game' and enter into the challenging and exciting competition to publish with the following benefits for the PhD student, the discipline and the institution: entry into the academic community, generation of new knowledge promoting understanding in the discipline, and increased research productivity within institutions (Peacock, 2017).

Indeed, the growing and now exclusive use of the census and the measurement of scientific publication of authors to measure their impact can raise questions about choices guided more by the famous '*publish or perish*' than by innovation, the quality of research that requires a long time and chosen collaborations. At the same time, Phd students and early career researchers are confronted with the challenges and detrimental effects of the current academic system (Coriat, 2019). While the academic career of doctoral students remains

satisfactory for a majority of them, the overall level of satisfaction (including mental health) has been declining for several decades¹⁴ (Bleasdale, 2019).

Doctoral training provides useful qualifications for many careers outside academia (Coriat, 2019) so why focus almost exclusively on publication, which ultimately concerns only doctoral students wishing to work in higher education? It seems necessary to look again at the very nature of the PhD, its purpose, the interest of the student and the ethics underlying the choice of a dissertation format before even determining its form (Frick, 2019). What research excellence do we want? Should our research be limited to the goal of publication to support one's career or can it (also) pursue a greater purpose? Research should remain a place of emancipation, a "*liminal space rather than a solely institutional space*" (Germain & Taskin, 2017) where critical thinking (evaluation, analysis by the doctoral student of his or her own work) allows emancipation within the framework of scientifically robust and excellent research. It is less the format than the time and we can devote to our research, doctoral and academic, that will make the difference.

¹⁴ "722 PhD supervisors (45%) said they had noticed increasing cases of mental health issues among PhD students."

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