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# Marshalling the Professional Experience of Doctoral Students: Towards Bridging the Gaps Between Theory and Practice

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# MARSHALLING THE PROFESSIONAL EXPERIENCE OF DOCTORAL STUDENTS: TOWARDS BRIDGING THE GAPS BETWEEN THEORY AND PRACTICE.

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## Abstract

*We propose a partial solution to the problem of the relevance of IS research by adjusting doctoral programs to the specific needs and talents of doctoral students, who are distinguished from traditional doctoral candidates by significant prior professional life experiences. The purpose of this paper is first to clarify the concept of "professionally qualified doctoral students" (PQDS). Next we examine the epistemic evidence for the claim that practical experience constitutes a specific type of "applicative" knowledge that should be considered as different but of equal value as theory, which has been the mainstay of academic education. Three independent lines of academic research have contributed such evidence: neurological brain research, the communities of practice literature and the philosophical discussion on applicative knowledge. We enumerate some reasons why qualitative research may be the most effective research methodology for PQDS. Finally we outline some key principles for adjusting doctoral programs.*

**Keywords: Professionally Qualified Doctoral Student, applicative knowledge, communities of practice, qualitative research, hermeneutics,**

## Introduction

One of the major challenges facing the field of MIS today is to become more practically relevant so that it will better serve its business and public sector stake-holders and in turn can count on better political support. The failure of IS research to redeem its claims to practical relevance continues to undermine the legitimacy of IS research and has become known as the relevancy problem (Benbasat, Zmud, 1999). Lynne Markus' call at the address to the 1997 IFIP8.2 conference in Philadelphia argued that one of the directions the field needs to take in the future is "the appreciation of practicality in IS research (Markus 1997, p.18)." The intent of what she termed practical research is not to replace or overshadow research that builds or tests academic theory, but rather to complement theoretical research with "rigorous research that describes and evaluates what is going on in practice (Markus 1997, p.18)." It appears that this call has gone unheeded. Such research is weak at best if not still missing altogether. The purpose of this paper is to suggest some answers why it is difficult to meet the call for obtaining a better understanding of "what is going on in practice" through IS research and what could be done to overcome the difficulties with providing it.

One of the obvious causes for the intractability of the relevancy problem is that the IS researchers and professionals have evolved into different communities of practice (CoP) with differing mind sets, priorities, values and criteria for what each considers relevant knowledge. From this perspective, we need to think about institutional changes in both the academic and professional communities of practice which could bring about more interaction in order to achieve better cross-fertilization between these two communities. The usual exhortations that practitioners and academics should attend each others conferences and study each others work have not and will not work without some fundamental changes in the education of future members of these two communities. In this paper we propose a partial solution to this problem focusing on the academic side mostly.

One such possible change, which the leadership of the IS research community can initiate, is producing more doctorally qualified faculty whose research would be considered practically relevant by "expert" practitioners (and not just by academic tenure and promotion committees). If this challenge could be met, then in a few years it would help bridging the currently two separate communities of practice with greater emphasis on boundary spanning activities. This strategy could be expected to be effective if one of the principal causes of the relevancy problem is insufficient interaction between the world of academia and practice, which has resulted into a communication gap (Daft et al., 2001; Hirschheim and Klein, 2003) and a knowledge production gap (Van de Ven, Johnston, 2006). Scholars suffer from an inability to span boundaries and translate their work for those who can most benefit (Benbasat, Zmud, 1999; Hoffman, 2004). The problem we face is not merely a communication problem from the researcher to the practitioner community, that could be solved by a new incentive and support system as suggested by Hoffman's analysis. Instead there is also a knowledge production problem. The knowledge we produce is not regarded as sufficiently grounded in the problems encountered in practice.

Applicative knowledge and its importance for more relevant research have been recently noticed in the management literature (Van de ven, Johnston, 2006). However, its characterization has only been superficially looked at, while its potential for helping for solving the knowledge production problem remains underestimated. In particular, we contend that the alternative solution we propose here has not yet been discussed in the literature. We view this more as an alternative solution rather than as a complement. In fact while we agree with Van de Ven and Johnson (id.) that there is a knowledge production problem, we do not think that they go far enough or are even right by advocating that engaged scholarship based on the concept of arbitrage – a strategy of exploiting differences in the kind of knowledge that scholars and practitioners possess – is the best way. Indeed we see the problem of knowledge production not as a question of complementarity between researchers with *techne* and *episteme* on the one hand and practitioners with *phronesis* through a deeper (and common) engagement in field research, as it is put forward by Van de Ven and Johnson (id.). Without disregarding the former strategy, we rather offer another one consisting in providing with some minor adaptations the necessary technical skills and theoretical background to those who already have already developed some understanding of a certain lifeworld.

Of course, in the current system of doctoral programs, a fair number of doctoral student applicants do come with significant professional experience and contacts. However, in our combined experience with doctoral programs spanning more than 40 years in several developed countries we observed that this potential symbolic capital (cf. Bourdieu) is not harnessed as a valuable resource for the field. In most cases it is lost during the years of doctoral education and dissertation research. Therefore our solution proposes to educate better qualified future boundary spanning IS faculty by embarking on a two-pronged strategy. First, those doctoral programs who already receive applications from professionally qualified students (as further defined below) need to adjust their program contents and management (specifically student supervision) to take advantage of the doctoral students' practical knowledge while also maintaining academic standards. After having gained some experience with such adjusted doctoral

programs, the field as a whole needs to attract more professionally experienced doctoral students into doctoral education thus adjusted for developing the leadership in capitalizing on their prior experiences with external communities of practice. While this proposal cannot overcome the communication gap completely, it has two major advantages. First, it requires almost no new financial resources, but only intellectual and attitudinal adjustments to reconsider some details of education in qualitative research methods; second it could educate a new type of IS faculty, who are qualified to produce publications that not only meet the evolving standards of more rigor in qualitative research, but also make significant contributions to boundary spanning efforts and contribute to solving the knowledge production gap.

In light of these considerations, the purpose of this paper is first to describe and characterize the profile of the Professionally Qualified Doctoral Student profile (PQDS) to be addressed in section 2. Care must be taken not confuse our proposal with the executive doctorate or the DBA, which could also improve industry interaction, but are likely to have differing roles and standing in the academic community. With a view of the strong publishing emphasis of our proposal, a second purpose is to clarify the theoretical basis of the proposed solution. Section 3 is grounding its justification in the recent CoP discussion and in the relevant segments of the philosophical background literature of Gadamer hermeneutics and Heideggerian phenomenology. The third purpose is to outline the principal methodological adjustments required in PhD programs and doctoral education (cf. section 4). The paper concludes with an outline of the changes that our proposal implies for PQDS, their host institutions and the IS research community, in particular for the publication culture, external relations, tenure and promotion.

## **The Profile of PQDS (Professionally Qualified Doctoral Students)**

In order to define the profile of the type of students that we have in mind, we use both educational and professional experience indicators to identify an acceptable level of professional expertise, because the knowledge of PQDS cannot be easily observed or measured. Much of it is undocumented and tacit. We compare PQDS to traditional doctoral students and tabulate some examples for PQDS profiles in the first subsection (cf. table 1). Then the next subsections outlines the domains of knowledge in which these doctoral students should gained significant insights through their professional experience that they can bring to the doctoral program. We are aware that substantial differences in PQDS profiles exist among different countries, which cannot be described here. In the following we relate primarily to the situation in France and the U.S.

### ***2.1. Description and Illustration of PQDS Profiles***

Traditional students qualify for a PhD program in the following way. They have earned a high school degree in academic subjects, which typically takes twelve years. This is then followed by two university degrees, which in most is an undergraduate bachelor and a master in business administration or a related field. Any relevant work experience is an additional plus for admission, but typically is not reflected in the program of studies.

In contrast to this, we propose that professionally qualified applicants to PhD programs are expected to meet the following *two* conditions in *addition* to complying with an acceptable level of scholarly criteria that are typically set for admission to doctoral programs. Most importantly, our notion of educating potential academia-practice boundary spanners includes *a rigorous thesis requirement* as the prerequisite for succeeding at future publications in premier journals. Without proper training in the academic publication culture, the knowledge transfer that boundary spanners could make to both academia and industry, would be greatly impaired.<sup>1</sup>

*First* PQDS in the sense as used here must have career initiating work experiences in an orderly career path for at least two to three years. Typically, such career paths start with an internship or a trainee program. *Second*, they must have grown into supervisory responsibility or other type of advanced work placement by which they have established an initial, successful record of accomplishment in their profession. This adds another 2 to 3 years to the time since their first professional qualifications, which is typically a masters or a four-year bachelor degree (in the US) with a

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<sup>1</sup> The last point, i.e. a strong scholarly orientation with training in premier journal publication practices, is a key characteristic of our proposal for bridging the knowledge production gap distinguishing it from the concept of a *non-research-oriented* DBA as a terminal degree. Besides, much variation exists which prevents coining criteria and definitions that can be universally applied in a bureaucratic way. For instance at Harvard and at Boston University, the Business School must call its degree a DBA no matter how research oriented it is. We also believe the difference in practical experience between PQDS and traditional students to be lower in the US due to experience requirements for MBAs especially in the best business schools.

management or technical orientation<sup>2</sup>. These two conditions distinguish PQDS prominently from traditional doctoral students who might have up to two years of work experience of some kind. What makes PQDS special is that they can combine their learning experiences from their degree work with the insights from day to day experiences yielding practical wisdom and comprehensive know-how, partly involving leadership responsibilities. Table 1 for illustration these two conditions further.

<b>Table 1: Illustration of the indicators of PQDS</b>					
Person ID	L	E	B	Y	R
FIRST DEGREE NAME, FIELD, UNIVERSITY, MAJOR YEAR,	Business School, MBA at Audencia in Accounting, 1995	Engineering School, Master of Science in Agricultural Engineering, 1987; also earned a bachelor in bus.	Engineering School, ME in Computer Science at ENSIMAG, 1983	Engineering School, ME in Civil Engineering, 1987	Master of Science in Agricultural Economics, Cornell U., NY., in Agricultural Policy Analysis, 1990
TOTAL YEARS OF WORK EXPERIENCE IN INDUSTRY FOLLOWING FIRST DEGREE	6 years as an Auditor	7 years including 4 as commercial and 3 as business process planner	8 years including consultant for 4 years,	8 years including 6 as supply chain manager and 2 as Head of Market studies	Senior programmer analyst for 7 years
TECHNICAL EXPERIENCE:  TOTAL YEARS OF IS WORK EXPERIENCE	0	1 at least, 6 or 8 if being a commercial in the IT sector counts	8	0	About 8 years as programmer and SW instructor
BUSINESS EXPERIENCE NUMBER OF YEARS IN SUPERVISING OR ADVISING CAPACITY (TITLE)	3  senior auditor	2  assistant to the CEO	4  Training Manager	2  head of marketing studies	7  senior programmer analyst
DOCTORAL RESEARCH THEME	User interaction with KM system in consulting firm differentiated by professional specialties	Global organizational reengineering of the sales delivery process and process modeling	Why IS projects are not economically evaluated ?	Senior management ICT use	The influence “Conflict and ambiguity during information systems development”.
PRINCIPAL RESEARCH METHODOLOGY	Intensive interviewing	Analysis of documentation and participative observation (or action research)	Research action and semiotics	Neutral observation	Traditional case study plus interpretive auto- ethnography

<sup>2</sup> Traditional PhD students in Europe and at least in France generally have very little professional experience at the end of their first degree. In France for example there is a two track system. Track one consists of three years of university towards a Bachelor degree, plus two years of graduate studies, all taken before work experience starts. Track two, le systeme des Grandes Ecoles, consists of two years of prep schools and, after having passed a competitive examination, three years of graduate studies at one of the recognized Grandes Ecoles finishing with a Masters degree. This is mostly completed before any relevant work experiences acquired. Other variations exist in Germany and the UK.

## 2.2 Domains and sources of knowledge for PQDS

The faculty members of a PhD program may presume that PQDS, by virtue of their prior career path, have come with a good background knowledge in the following three practical domains:

- A) Business knowledge and know how,
- B) IT knowledge and know how,
- C) Social networking and communication skills.

Type A consists of prior coursework combined with direct observations from participating in complex business practices such as contract negotiation, project management, promotion procedures, product development, etc.. The domain revolves around their knowledge of the social-cultural context in which professional work practices are situated. This context is a source of emotional support and background knowledge on which practitioners rely for coping with ambiguities, risks and uncertainties. The context can be layered into the more general context of industry and the more specific one related to organizational culture of their work organization. Type B is similar except that the business practices are replaced by technical work such as data modeling, requirement specification, technical documentation, systems maintenance, computer systems purchasing, RFP, etc..

Type C is different from A and B because it relates to socialization into professional and industry associations. It primarily consists of company-paid on the job training for developing communication capabilities and leadership. It is part of what earlier was called *symbolic capital*, namely what Bourdieu calls social and cultural capital. Students with several years of professional experience would have been socialized into the lifeworlds of one or more communities of practice, which would enable them to interact easily with seasoned practitioners; this in turn is an important prerequisite to interpret the meanings intended by practitioners in any discourses with them. In other words, they are able to easily grasp and translate into academic terms what the phrases of practitioners really mean, because these students would remember where their conversations partners “are coming from. This skill is essential when it comes to formulate interview guides, i.e. the selection of questions and their proper wording so that “the questions really click with the practitioners mind sets.” These mindsets are influenced on the one hand by their prior experience and on the other hand by the professional community with which they continuously interact. This includes the communication with immediate work colleagues as well as the advice giving and taking from the larger professional community through as personal contacts and meetings (workshops, conferences etc.)

Of course, what PQDS still lack is the academic background. In this way they are no different from other doctoral applicants and therefore it may be assumed that in principle they can apply the necessary academic background in the usual way. However, they should be advised not to replace one by the other, but consider both as prerequisites that complement each other; they are equally important for their future work, because their prior experience has provided them with a hermeneutic horizon of meanings that could substantially improve their pre-understandings in the data collection and analysis phases. Such valid pre-understandings are important not only to save time and effort, but also to improve the accuracy of qualitative research. Therefore, in addition to the above domains of experience typical only for the PQDS, all students will acquire a thorough grasp of the following two domains of knowledge through their doctoral studies: research methods and theory.<sup>3</sup>

We shall argue that these students have acquired a significant amount of symbolic capital (Bourdieu, 1984), that is now wasted rather than systematically developed. A key component of this symbolic capital is a special type of knowledge, acquired in the context of community of practice which we shall call applicative knowledge and for which exists a philosophical justification in Gadamer’s theory of understanding and in Heidegger’s analysis of the very foundations of human existence.

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<sup>3</sup> Altogether these five types of knowledge can also be developed *during* the PhD program by using appropriate financing modes, such as those existing in Europe (Rowe, Pries Heje, 2005), that foster a better understanding of the professional community of practice. However they would not produce doctoral students with a comparable experience like that of the PQDS described in this section. It is difficult for these students to take the perspective of industry professionals at the same time as they are making their own careers in academia, except for those already coming from an industry.

## Theoretical foundations for the proposed principles of doctoral education for PQDS

The purpose of this section is to further clarify the nature of experiential knowledge in the various domains by outlining its foundation in the philosophical theory of knowledge. In particular, the insights that emerged from the linguistic and hermeneutical turns in 20<sup>th</sup> century philosophy, help to clarify the notion of “applicative knowledge”, because they point to the importance of social experience as a necessary complement to theoretical knowledge. In fact, in recent research, two rather different literature streams have testified to the importance of experiential knowledge under somewhat differing labels: Applicative and intuitive knowledge. Both of these will be briefly outlined in the next subsection and related to the community of practice discussion with its similarity to research community concept as coined by Kuhn (1970).

### 3.1 Experiential, applicative knowledge, intuition and its value

Theoretical knowledge (*episteme* in the sense of Aristotle) has been the primary concern of academia all the way back to scholasticism, in modern times primarily in the form of theories. However, this bias towards rigorous theory has led to the disavowal of practice and reflection in the modern era from the renaissance and the age of enlightenment forward until the appearance of the writings of Wittgenstein II, Husserl and Heidegger. After World War II, the philosophical background literature for qualitative research has revitalized the interest in applicative knowledge, in particular through the absorption of Husserl’s lifeworld phenomenology, Heidegger’s existential philosophy in *Being and Time* and Gadamer’s *Philosophical Hermeneutics* (theory of human understanding). The hermeneutic and phenomenological reconceptualization of the theoretical understanding of applicative knowledge supports the claim that it must be given the same consideration as theory. Indeed, the ultimate source of all knowledge, theoretical and otherwise, are the immediate meanings acquired through social interaction in the lifeworld (Heidegger, 1931). This knowledge acquisition process begins with learning the first sentences and effective during childhood all the way to learning the most advanced “language games” (Wittgenstein, 1953) through the socialization into a research community or other professional community of practice.

Interestingly enough, these philosophically based insights have most recently received support by an entirely different research stream in neurological brain research. In neural research, Dane and Pratt (2007) define intuition as affectively charged judgements that arise through rapid, non-conscious and holistic associations. What the science suggests is that intuition -- or instinct, or hunch, or "learning without awareness," or whatever you want to call it -- is a real form of knowledge. It may be non rational, ineffable, and not always easy to get in touch with, but it can process more information on a more sophisticated level than most of us ever dreamed. Some psychologists now say that far from being the opposite of effective decision-making, intuition is inseparable from it. However, Khatri and Ng (2000) argue that such intuitive knowledge does not come easy, it is not simply armchair reflection that comes with age but requires years of experience to be effective. This kind of experience can typically only be acquired through intensive work in professional environments, such as law, medicine or management or academic work in research communities. For this reason we need to return to the community practice concept further below.

For specifying the general characteristics of intuitive or applicative knowledge, it is best to rely on its discussion in philosophy, where the tradition distinguishing *different types of knowledge* extends all the way back to Aristotle. Hermeneutic philosophy is concerned with identifying the human capabilities or “talents” that are involved in the act of understanding complex matters. Gadamer, referring to Aristotle’s knowledge types of *phronesis* and *ethics*, relates this type of knowledge that is required for understanding a difficult text simply under the label “application” as in the following quote: “Hermeneutics was divided up in the following way: a distinction was made between *subtilitas intelligendi* (understanding), and *subtilitas aexplicandi* (interpretation). Pietism added a third element, *subtilitas applicandi* (application)... The act of understanding was regarded as made up of these three elements. It is notable that all three are called *subtilitas*, i.e. they are not considered so much methods that we have at our disposal as a talent that requires particular finesse of mind. ...” (Gadamer, 1975, p. 274).

By freely interpreting Gadamer (1975) and Habermas (1984, 1988), we can identify the following two partly overlapping characteristics by which applicative knowledge differs from the positivist knowledge ideal of the scientific method (adapted from Hirschheim and Klein, 2003, p. 266):

*First*, applicative knowledge closely connects to personal emotions and interests. It depends on the whole complex of presuppositions, fundamental beliefs (prejudices in the sense of Gadamer’s Hermeneutics) and attitudes that are part and parcel of a person’s character. In contrast, technical knowledge is relatively neutral and external to a person’s inner core. Insofar as applicative knowledge is acquired from the environment, e.g. by participation in political groups or professional communities of practice, the process is more one of socialization than cognitive learning even though cognitive, intellectual abilities are important to filter and digest what is acquired through social interaction. Because of these characteristics applicative knowledge tends to have a close relationship to a person’s identity, because to acquire

it, takes hard work and painful mistakes. Therefore such knowledge takes on the value of a cherished property and becomes part of an individual's personality. It is mostly learned through various forms of apprenticeships, mentoring and the "school of hard knocks". As such, it is closely related to personal insight and wisdom.

This naturally leads to the *second* characteristic of applicative knowledge, which is its holistic nature. It cannot be easily split into ends and means or generic methods and task specific facts. Rather is rooted in integrative, lived experiences such as work, play, and travel, various forms of symbolic communication and, last but not least, the tradition into which someone is born or into which a person has chosen to integrate when leaving his/her native community.

A further consequence of these observations is that professional applicative knowledge can at least be partially shared among frequently interacting groups, but much of it remains tacit knowledge. This leads as to recognize the importance of CoP (communities of practice) for acquiring good intuitions or applicative knowledge. Insofar as it can be shared, professional CoP are the principal arenas where it is acquired. These ideas illustrate a further shift in post-modern ideas on the nature and origin of scientific knowledge, namely a shift of the locus of knowledge creation from the knowing subject to the shared practices of a competent community specialized on specific domains such as law, medicine, plumbing etc. including the many academic disciplinary specializations.

### **3.2 Origin and Importance of the Applicative Knowledge of PQDS**

The CoP literature emerged from detailed empirical studies of professional communities. The ideas associated with its central concept are particularly suited of capturing the organizational, work-related aspects the human condition in the modern world, in particular of those adults, who are integrated in the income producing, economic sectors or society and activities related to these. A short working definition is as follows (cf. also Wenger 1998):

"The community of practice is that level of the social world at which practice is common, coordinated, and reproduced, at which significance is created, and consequently, in which the border is socially recognized and generic conventions are developed and shared. Thus, it is also the locus in which it is possible to explore and understand the social context of artifacts." (Brown and Duguid, 1994, p. 19- 20)

The original CoP concepts directs special attention to *the local work contexts* (cf. Brown & Duguid, 2000; Nonaka and Konno, 1998; also cf. <http://www.ewenger.com/theory/index.htm>), which commands most of our wake hours and which assume a critical role in helping us to acquire and maintain the knowledge that we need to earn a living:

"Work-related knowledge is embedded within the social and cultural rules of behavior that pertain to a specific group, performing specific work, in a specific place (a community of practice) (Alavi and Leidner, 2001; Lave and Wenger, 1991; Suchman, 1987, 1998). " (Gasson, 2005)

Associated with this idea is the insight that a substantial part of the knowledge, which CoP share cannot be clearly articulated and therefore only be acquired through apprenticeships, workshops, mentoring and similar types of social interactions. The shared frame of reference among the members of a particular CoP facilitates the transfer of intuitive knowledge but creates boundaries between different CoP. Therefore the knowledge transfer between different CoP is fraught with serious difficulties. Overcoming them requires the special skills of boundary spanners. Understood in this sense, academics, too, also have their own CoPs, their ways of being-in-the world, but these are quite different from non-academics working in industry, government, or other non-profit sectors of the economy. This accentuates the barriers of communication and is the root cause of the well-known gap between industry practitioners and academia (cf. Klein and Hirschheim 2006). Since the linguistic turn, it has become accepted that the meaning of language is bound up with specific forms of life such as are sustained by CoP. A fortiori it follows from the previous that specific, specialized (work) languages cannot be learnt and maintained without continued participation in their underlying forms of life, the CoP practices: "all need to walk the walk before they can talk the talk." Professionally qualified doctoral applicants already come equipped with this type of knowledge that cannot be acquired from books, but is important for functioning in field work (cf. section 4).

In summary, CoP are important for understanding the origin and characteristics of applicative knowledge of PQDS, which are not easily available to traditional doctoral students including but not limited to the following:

- Familiarity with specialized work languages (Holmqvist and Andersen, 1991, 1996) that are at the core of the work practices of their specific employer organizations and modes of thought.
- Command of work and social practices that are never fully documented and even if they are documented, outsiders cannot easily grasp them because they lack the necessary background to interpret them properly.
- Philosophically, the meanings associated with the work languages and work practices can be said to define «forms of life» 'in the sense of Wittgenstein (1953) or with reference to Heidegger (1931), a certain way of "being-in- the world" and "being with".



- The lifeworld of the CoP provides the ultimate grounding of core knowledge of CoP. This is consistent with Heidegger's viewpoint that all knowledge is rooted in "being-in-the-world" and "being-with".
- Because the meanings of practice are often tacit, they can only be understood by participant observation, by becoming familiar with the frames of references and stocks of knowledge (the lifeworld background cf. Habermas 1987) that practitioners take for granted. This requires a presence in the community in its natural settings for observing attitudes and behaviors in action (Duguid, 2005).

## Implications for aligning research methods with students' qualifications

The purpose of this section is to outline the principal changes that need to be made in the practice of doctoral education when the goal is to leverage as much as possible the applicative knowledge distinguishing PQ students from their traditional counterparts.

So far it has been implied, but not articulated that the doctoral education of PQDS should somehow be different from those of traditional doctoral students, but it is not different in all regards. However, their advantage in applicative knowledge should deserve special consideration during their doctoral education. This raises the question which lens could be used in course designs to focus on the type of knowledge and skill that serves the needs of PQDS relatively best. We argue in this section that qualitative research methods, which can be interpretive or positivist, and action research are the two preferred research methods best suited to capitalize on experiential (applicative) knowledge during the dissertation research. For this reason, the following overview of the key aspects of the doctoral program design is based on the principles of qualitative research.

In drafting this overview of doctoral education for PQDS, we also looked for a scheme that has been established for some time and preferably has been refined through past discussion leading to some revisions. Finally we preferred a scheme that has been kept up to date regularly, but the history of which also remains easily accessible in the literature. For these reasons we selected the two most recent descriptions of the qualitative research process by Lincoln and Denzin (2003, 2005 p. 22-26).<sup>4</sup> They discuss five "stages" of qualitative research that appear of importance in planning any qualitative (including action research) research project. For this reason, we also specify general cognitive knowledge domains that need to be covered in doctoral education, albeit not necessarily in the same order and in the same degree of detail. Table 2 summarizes the authors' interpretation of the Denzin and Lincoln (2005) categories that we shall use to systematize the proposed adjustments in doctoral education for PQDS. We are not implying that this systematization is the only possible one. Table 2 should be read as an illustrative example, because our goal here is not to spell out in detail what should be taught. Rather our purpose here is to raise doctoral advisor's awareness of matters that should be considered at various stages in the educational process of PQDS and that therefore affect the doctoral course designs for the PQDS. The next five subsections relate to the five rows of table 2 and discuss the some key points for each.

### 4.1 Contextual experience and subjectivity of the researcher

Under the first heading, "The Researcher as a Multicultural Subject," students should be introduced to what we would prefer to call "the pre-formation of the researcher" or "the researcher as an instrument affecting the process and outcome of the research". The reason for this is that the contextual experiences shape each researcher into a unique subject "locating him in history simultaneously guiding and constraining the work that is done in a specific study." (id., p. 22). This aspect expands on what has already been discussed in section 2 under "student profiles". In distinction to Lincoln and Denzin's (2005) emphasis on multi- or cross-cultural aspects we emphasized the different knowledge profile of PQDS. This is not to deny that multicultural differences are equally or maybe even more important but they would apply equally to traditional and PQDS. Indeed, we were surprised when checking various text books on qualitative research methods that none of these paid attention to the background knowledge on which different qualitative research methods depend and how their application should be sensitive the degree of prior experience of the researcher with the same or similar business contexts she already knows.

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<sup>4</sup> We also evaluated other schemes for structuring qualitative research, because we agree with (Denzin and Lincoln, 2005, Introduction, p. 7, 8) "that qualitative research, as a set of practices, embraces within its own multiple disciplinary histories constant tensions and contradiction over the project itself, including its methods and the forms its findings and interpretations take." Among the other schemes that we considered are Creswell (2003), Miles and Huberman (1994), Maxwell (1996), Yin (1994), plus some widely used Franco-Canadian texts (Giordano, 2003).

Maybe this lack of sensitivity to experiential knowledge is another manifestation of the prevalent attitude in the academy to value theory above practical experience. Therefore an additional key concern for PQ student education is to convince them that the *subjective* knowledge and total life experiences they gained as members of a specific community of practice are a key resource that are of equal importance with theory. However, in order to realize the competitive advantage thus afforded to them, it is mandatory that *they also need to reflect their past lifeworld experiences with the theories*, which they are now learning. This aspect might be taught most effectively when introducing PQDS to the importance of hermeneutic pre-understandings and to the various ways of dealing with subjectivity in qualitative and quantitative research. Another important theoretical vehicle of driving this message home would be to introduce explicitly the community of practice literature, which was already outlined earlier. Care must be taken that students do link this literature to their personal lives and experiences by serious reflection and exercises such as a phenomenological essay or autobiographic analyses.

If successful, this part of the doctoral education should create a new personal and social identity for PQDS. This new identity of PQDS on the one hand should maintain positive attitudes toward their past experiences, but on the other should also fully embrace the new insights that can be gleaned from theories. They will need both to become effective in their new roles as growing members of our academic community in particular of mastering the challenges of contributing to the literature and to their former CoP colleagues as boundary spanners.

#### **4.2 Reviewing possible ontological and epistemological beliefs (paradigmatic orientation)**

All students should be made aware of the alternative ontological and epistemological assumptions underlying any research project. PQDS could and in the past have followed the tenets of a positivist research paradigm as well as an interpretivist. However, from past experience with PQDS, we noticed three concerns that are specific to PQDS.

The *first* is our observation that PQDS often come with an inadequate notion of what counts as a valid research finding. This misconception takes two possible forms. One is that their understanding of what counts as valid research is too loose because of the differing criteria by which professional communities of practice define what valid knowledge is. Professional CoP often count as valid knowledge whatever works without reflecting upon the causes and explanations for this. On the other hand, their conception of validity is sometimes too narrow because PQDS often believe that nothing has validity unless it has an immediate, proven relationship, to success. (An example of the latter is the early dismissal of relational database by practitioners as “academic toys”.)

At least two educational strategies can be pursued to lead PQDS to come to a balanced judgment between these two conflicting considerations. *On the one hand*, the PQ students need to be made aware of the perspectives of the research communities. These are concerned with what is intellectually interestingly and theoretically valid. In that way the subjectivity of the researcher is disciplined if not corrected by the usual vehicle of informal critical debate in the academic community from course seminars to conference presentations leading up to the formal reviewing process in the publishing community. It ultimately legitimizes which findings can be viewed as valid in the corresponding academic CoP. *On the other hand* their socialization into the research community must not completely undermine their appreciation for the perspectives of the CoPs that are more concerned with common sense appeal and usefulness. One possible vehicle to achieve this is to teach alternative truth *theories* (Habermas, 1973). The main difference between traditional students and PQDS is that while for all students most truth theories can be taught as they apply to different epistemologies, for PQDS special emphasis must be made to distinguish usefulness and self evidence from the rest.

A second point of concern is that PQDS tend to have difficulties with accepting that facts are theory dependent and that academic “truths” nowadays are considered as socially constructed based on available evidence. As the evidence base changes, so will the accepted truth. Emphasizing *the issue of causality* (i.e. Hume’s insight that causality cannot be directly observed but only be inferred from co-occurrence) might also be helpful to overcome this problem and at the same time raise awareness of ontological issues.

Discussing alternative epistemological and ontological sets of assumptions with the PQDS could address all these issues. The course literature needed for this is now readily accessible, beginning with the appearance of the classical work by Burrell and Morgan (1979) and subsequent adaptation in the IS literature (Hirschheim and Klein, 1989; Orlikowski and Baroudi, 1991; Mingers and Willcocks, 2004). In conclusion the major difference in educating the two sets of students maybe is not so much of contents, but of sensitivity to their predisposition and fundamental attitudes. In the case of PQ students there exists an urgent didactical need to “sell” the academic insights about the constructed nature of research and its subjectivity.

#### **4.3 Research strategies and overall methodology**

This subsection addresses the differences between traditional and PQDS regarding matters preceding the execution of the dissertation research project. In particular these are research strategy definition. The next section turns to data collection and analysis, which are at the core of the dissertation project. Before reaching this stage, all doctoral students including PQDS should be trained in quantitative methods at a level so that they would be able to critically read the research literature. This would be an introductory level in which all students practice elementary applications of standard quantitative analysis, such as descriptive statistics and basic hypothesis testing. After all students have passed a common core exam on quantitative and qualitative methods, the qualitative education should be of equivalent breadth and depth as the quantitative training in conventional doctoral education. Such qualitative education need not necessarily depend on elective courses, but it could also be provided through independent study tutoring or an "apprenticeship" with properly experienced faculty as long as it will go to a level of depth so that PQDS can apply qualitative approaches creatively in their dissertation and future publication projects.

The difficulties with formulating research strategy for qualitative dissertation projects arise from the complexity of concisely formulating the phenomenon of interests and associated research goals. Both continue to emerge and therefore can only be addressed by an iterative process of strategy definition, redefinition and refinement. These difficulties are well-known qualitative research methods (in general cf. Denzin and Lincoln 2005; for positivist case studies Dube, Pare, 2003; for Grounded Theory DeVreede et al. 1999; for action research Baskerville, Myers, 2004; and for phenomenology Introna, Ilharco, 2004). These difficulties are best addressed through guidance and not through course work. As part of this process, PQDS' advisors should draw their attention to research strategies that are particularly well suited to them and which are less suited or even unavailable to traditional students. Action research and auto-ethnography (Hayone 1979; Behar 1996; for a recent application by a PQDS, cf. Barnes 2005 chapter 4) are examples for research strategies not feasible for traditional students; even if the advisor can provide a site for action research, the chances of conducting actions research *effectively* will be much better with PQDS (some exceptions apply). For these reasons, PQDS can focus on an obvious pool of research strategies from which they can choose, i.e. (auto-)ethnography, case study, grounded theory, action research and phenomenology. This will help them with finding earlier concentration and give the advisor the chance for more in depth coaching of the preferred research than is often possible with traditional PhD students. In turn, this is likely to permit PQDS to finalize their research strategy and design earlier than regular students, in particular when the latter adopt a qualitative research design. PhD advisors should be aware of this and encourage it, not so much because it could shorten the study but in order to free up time for theory and more thorough study of the philosophical foundations of qualitative research.

However, in our experience, PQDS in the past have not fully exploited all research strategy opportunities. In most cases they have conducted case studies based on in-depth interviews or conventional ethnographies (cf. van Maanen 1988). This permitted them to benefit from their easier access to the field, their confidence that their dissertation project is both meaningful and doable. Such confidence is not just a matter of age, but also based on their pre-understanding of the kind of data they needed and could collect. This takes us to the central topic of data collection and analysis.

#### **4.4 Methods of data collection, analysis and synthesis**

This section will have to concentrate on a few key differences between PQDS and traditional students. In order to keep the discussion within bounds, for data collection we will only address the most common methods of data collection, which PQDS have applied in the past, i.e. the in-depth interview, the open-ended questionnaire and participatory observations (ethnographies). For analysis we will focus only on those approaches to inference making and synthesis, which relate to the advantage intuitive knowledge that PQDS acquired from their prior professional lifeworld experiences. This omits discussing the kind of difficulties that all students tend to encounter when reaching this stage in their dissertation research.

##### **4.4.1 Data Collection Advantages for PQDS**

From our experiences with various PQ students we have to conclude that they are more capable to anticipate the time required, manage the duration of the interview and bring the interviewee back to the subject as the student knows the (kind of ) background (has a pre-understanding) or story.

In the case of participant observation there is less of a time management problem. In addition PQDS are better able to "blend into the scene" than traditional students, who will therefore have more difficulties as participatory observers, because they have not been socialized into the practices of the research site participants. The key challenge is to interpret and track the "relevant" observations of the work environment. Clearly the traditional students are at disadvantage here because they lack the prior understanding to succeed with this sense-making cognitive (over-)load. The jargon used by participants is known to the PQDS and therefore is not a hindrance to understanding. To some extent this also applies to interviewing, which deserves some more comments.

- PQDS have less difficulty with focusing the data collection on what is really relevant than traditional students who often collect endless amounts of data because they lack the background information for judging practical relevance. On the other hand PQDS may be more susceptible to parochial biases, but this ease is more easily counteracted by the advisor than to tell the students which data are really relevant.
- One of the most difficult tasks is typically the design of the interview guide. Qualitative methods textbooks simply recommend that researchers should typically begin with a large question in order to put the problem into its context (Giordano, 2003; Erlandson et al., 1993, p.93). However, PQDS may be embarrassed to ask the broader question of organizational policy-making and politics, because they identify with the culture of their former peers to get down to specifics quickly. This is especially a problem when the data collection site is the same as their former work place. The advisor can counteract this by allowing the student to go from specifics to the larger questions and discuss the larger issues with them in the advising meetings.
- Once the interview guide has been settled, the next challenge is the proper conduct of the interview which typically raises two issues. One issue is to keep the interview on track and the other to interpret the responses before asking the next question. Some questions will inescapably have to be skipped during the interview. For traditional students these kinds of choices are more error-prone than for a PQDS. A particularly delicate situation occurs when the interviewee uses his/her authority to speak of another subject. A quick judgement is needed to decide if this deviation is more valuable for the research than the predefined questions or if it is beside the point. Our combined experiences with PQDS indicate that they are better able to handle this situation than traditional students, maybe because of their more extensive experience with management meetings.

#### **4.4.2 Data analysis and synthesis**

The principles of data analysis involve dimensionalization and categorization. General principles of coding are well explained by Glaser and Strauss (1967) and Strauss and Corbin (1990) for the grounded theory approach. However, their application is by no means limited to applying the grounded theory approach. They are easily adapted to other strategies of abstraction and generalization.

Maybe the most difficult part of working with the data is their synthesis and generalization because it involves theory construction or theory testing and often both. We agree with other recent publications on research methods that the logical principles involved here are by no means limited to classical induction by statistical inference methods. Lee and Baskerville (2003) have explained why statistical sampling based methods are too narrow and proposed a fruitful framework for classifying four different forms of generalizing (cf. p 233). In order to locate the special expertise of PQ students, we shall refer to their types of generalizing and to two dimensions of data analysis in the mainstream literature (Lincoln and Guba, 1985).

The first dimension of Lincoln and Guba (1985) is concerned with the domains of discourse that research must bridge. One consists of the language of the research participants at the chosen site and the other the language of academic discourse. Schultze (2000) makes the point that both of these domains relate to their own realms subjectivity and hence the discourse of academia is by no means privileged. Of course, during data analysis the researcher is now concerned with formulating a phenomenon in the academic discourse, but doing so relies on translating data meanings from the discourse in the lifeworld of the site participants to the language of academia. Given that the PQ students have a deeper grasp of the language and practices of the site participants, they should stand a better chance of interpreting and representing them for the research community if their command of the academic language is at least as good as that of their traditional peers. All students should be made conscious that they are now using the accepted terminology of the academic world and not blur the boundaries between the two domains of discourse.

The second Lincoln and Guba (1985) dimension of data is defined by the difference between testing a given theory and generating a new theory. PQDS students should be encouraged to practice the four types of generalizations described by Lee and Baskerville (2003), and interpret them as major modes of inference. Advisors should be aware that PQDS have both major advantages and disadvantage in learning all of them and should coach accordingly. The following two modes of inference need special attention, because in these two situations concerned with theory generation or on theory testing, PQ students should benefit from their prior experiences. In the other two modes, which we call induction and synthesis, PQDS have no advantage or are even at a disadvantage.

The first situation is moving from empirical statements to theoretical statements through abduction (Pierce 1931, Mingers 2004). Indeed the case that PQDS are making (not just observing) is based on their experience. Their experience along with their intuition allows them to make sense of these cases from an actionable theory viewpoint and thus to generate a theory that is more *valid*. PQ students have the creative ability to explain a curious result as a consequence of an hypothesis they generate by intuition and by ruling out other hypotheses which according to their experience are unlikely to work. In fact in order to examine whether or not an hypothesis can truly explain the curious observation, "one has to deduce possible experimental consequences from the general (law-like) meaning of the predicate by an experiment of thought with the form of an operationally conditioned prognosis" (Apel, 1972, p.87).

The second situation is moving from theoretical statements to empirical statements by deduction. In this case PQDS should also benefit thanks to their knowledge of applicability of the theory and of the practical conditions prevailing in real world settings. PQDS would be aware of the many side effects that an intervention can cause in practice and thus explain why in certain contexts theory predictions are true and fail in others. Theories are never able to anticipate all possible circumstances and the possible side effects associated with them. Of course, no theory valid under all circumstances, but very often traditional PhD students are unable to see whether “their” theory has a good level of expected applicability.

In teaching all modes of inference, using Toulmin’s *Theory of Arguments* may be a helpful reference for broadening the students’ conception of what constitutes possible valid argument patterns with rebuttals and qualifiers. Habermas (1984) has extended Toulmin’s framework to arguments about values including sincerity of arguments (cf. practical and therapeutic discourses as contrasted with theoretical discourses, pp. 22 section C). In the IS literature, Toulmin’s theory has gained currency in the context of so-called “Issue-based IS” (IBIS). Heng and Moor (2003) reviewed some of the pertinent literature.

#### **4.5 Finding a publication strategy matching research and practitioner community interests**

The fundamental issue at stake in this phase of the education for PQDS is how to make sense of the “mountains of empirical materials” (p. 26) with which the (prospective dissertation) researcher emerges from the work at his or her research site and “sell” them to the larger research community. This tends to include the consideration of the politics of the research community, but the issue of making good sense of the research findings is at the core of this phase.

The sense making involves at least three major horizons. The first is for herself or himself. The second addresses the creation of a shared understanding with the advisor and the dissertation committee members (if such exists at the host institution). One of the roles of the advisors is to help the candidate to address the third round of sense-making. It is concerned with framing the emerging dissertation in such a way that becomes acceptable to the other dissertation committee members (and where applicable the unknown, external reader) as an academic production meeting institutional standards. The third and in the longer run most important task of interpretation concerns the presentation of the results to the research community at large through a variety of channels, most importantly journals and refereed conference proceedings. In the current doctoral programs the criteria applied in these three sense-making horizons are mostly those of what is interesting and theoretically valid for other researchers.

For PQDS arises an additional concern. It consists of finding a form of representation and communication for their research results that can speak to professional CoP so that their former peers can see the practically relevant implications of the research results. This goes far beyond the usual checking of research results with the study participants from the research site for internal validity. Without finding at least a partial match between research and practitioner community interests and publicizing them through the preferred channels of the CoP involved, which are quite different from academically preferred publication outlets, the special boundary spanning contributions that PQDS should make, would be lost. After clearing the initial hurdles of an academic career, the workload for such a double involvement is not much different from that of traditional academics who often publish in more than one area of specialization. PQDS would have the additional advantage that their continued involvement with practitioners should have a stimulating effect on their academic publication projects as well. We agree with Hoffmann (2004, p. 217) that “all our communities provide inspiration, emotional support and intellectual challenge” and that practitioner communities in particular “help us to ground our ideas in the real world, a place where our ‘data’ originated and where our future phenomenological questions will emerge.”

## **Conclusions**

PhD education should take into account the professional experience of students into account. It is amazing to find so little reference to that in most textbooks about research methods. We argued that training PQDS students primarily in quantitative methods denies them a large part of their potential competitive advantage, which would enable them to make substantial contributions to solving the knowledge production problem leading to a disturbing gap in relevance in IS research and serving as future boundary spanners between academia and practice. The conclusions of our analysis is that, whereas dealing with the researcher’s subjectivity and choosing a paradigmatic orientation is not easier for PQDS than for regular doctoral students, the former can benefit from their past experience and applicative knowledge:

- if they focus more quickly on a qualitative research strategy,

- because their better pre-understanding of the work situation and language games help them interpret complex matters and avoid traps
- and because they can combine inference modes to their advantage for they know the practical conditions prevailing or acceptable in real world settings.

Following such a path, they would not only have the possibility to publish their findings in the academic outlets, but also to communicate them to the professional communities of practice they have studied. That these additional actions be valued by the academic community is arguable and will commend some institutional changes. Indeed, working out the curriculum implications of the previous principles is only the first step and maybe the easiest one that university academics and administrators need to take to bring about the results hoped for with applying the principles outlined in the practice of doctoral education. To make this approach a reality, several practical issues need to be addressed. Prominent among these are:

- marketing the program in relation to the industry proximity and prior experience of the host institution
- human resources issues like the availability of faculty with appropriate motivation and qualifications to serve as dissertation chairs and committee members and the recruiting and academic career perspectives of the candidates
- Possible funding mechanisms which would depend on the laws and traditions governing higher education in different nations

First, not all institutions will wish to embark on the road proposed here. It is not just that the host institution needs easy access to broad base of work environments in industry or the NPO (not-for-profit) services sector. Even those Universities that are in such locations and already have programs accepting cross-overs from professional work environments, need to carefully consider how to market the concept to attract qualified candidates and while at the same time avoiding misunderstandings. For that purpose, some future survey research should examine more systematically the frequency, demographics and background of PQDS students. This type of data is also needed for planning the organizational arrangements best suited for welcoming these new types of students in adjusted doctoral programs and study arrangements. An important consideration is, whether to propose a new PhD program for PQDS only or to accept these students in courses with the traditional ones. Mixing the populations seems to be at odds with the idea of adjusting the curriculum to a specific segment so as to take into account the diversity of experience regarding applicative knowledge. But we have shown that it is more a matter of adjusting the requirements and their education, especially for their dissertation related-work so, and in practice our experience indicates that this would be feasible. Another important issue is, whether to accept them on a part time basis or insist on full time status. The latter may be preferable for two reasons; one is to finish their studies in a timely fashion; the other that they need to be properly socialized into academia, which is difficult with part time students who are not in residence during their course and proposal writing. Of course, partly this will depend on the funding by their home organizations, more on the funding aspect below.

A second set of issues concerns faculty qualifications and personnel policies related to education, recruiting, retention, tenure and promotion (Bennis, O'Toole, 2005). In fact the curriculum might be the effect, not the cause of the knowledge production gap. Regarding educational issues, initially senior faculty with established publication records would be needed to jumpstart the program. They would need to mentor the involvement of junior faculty without jeopardizing their career progress by not focusing on building their publications portfolio with quality standards that are generally accepted by the tenure and promotions committees currently in charge of personnel actions. Naturally, doctoral programs for PQDS require several faculty members with sufficient exposure to the industry or public sector work environments, who can give sound advise on qualitative methods. However adjusting the curriculum and providing the human resources for doing that might still be insufficient. We have to deal with the issue of recruitment, tenure and promotion of the PQDS profile. Indeed, PQDS need to see that their research can help them secure a good position in academic institutions while not denying their value for practitioners. We think they can have a competitive advantage over traditional students if they publish what is considered high quality research by their peers, but also because they would be able to attract much greater students interest thanks to their experience and field work in businesses and probably receive more easily funding from stakeholders. While we do consider that bridging the knowledge production gap is very important and has been our more original focus in this paper, bridging the communication gap by reporting the results of the research to practitioners is also very important and again has to be done through the preferred channels of the CoP involved. That this second gap is narrowed can be measured in various ways and not strictly by counting practitioner-oriented publications. Our important concern here is that the academic institutions recognize the effects regarding knowledge production and communication towards various stakeholders, so as to retain the most valuable and successful PQDS and sustain such PhD programs. Successes, let alone attempts, at external boundary spanning like publishing in practitioner journals, writing practitioner books and speaking at practitioner conferences have to be rewarded and not just considered impractical waste of time. Some metric of external impact should register as valuable for recruiting and tenure (Hoffman, 2004). If this has not happen yet, we

believe that this external boundary spanning activity can not be at the expense of not producing excellent scientific publications at all. Our view is that this boundary spanning activity should be in addition of very rigorous and relevant ( in quality), but limited ( in quantity) academic publications. Indeed besides the boundary spanning efforts, the number of required top-tier publications would be reduced for the PQDS profile.

A third issue is it create effective funding arrangements. Given that PQDS are likely to have been full time earners for several years, might be more difficult to address the funding of their study time than for traditional doctoral students in order to attract well qualified candidates. Maybe the CIFRE arrangements of France could provide a possible model for other countries as well. CIFRE stands for Convention Industrielle de Formation par la Recherche en Entreprise (CIFRE), which is a special industry contract (cf. Rowe and Pries Heje). The CIFRE student has a full time employment contract with the company and is treated as a full time employee, except that a certain amount of time is negotiated and contracted between the company and a university research centre so that the PhD student has time to devote to the advancement of his/her dissertation. In return the sponsoring company or organization receives 15000 Euros per year from a government agency during three years. Originally CIFRE was meant to offer the possibility of working on a PhD after a Master of Research degree by working approximately half time in a company and half time in a research centre. This was meant to bring research to the industry and these students were supposed to return working there. However when they finish many CIFRE Doctors apply to academic positions (cf. Rowe and Pries Heje). Therefore, a similar arrangement to that of the CIFRE in France could be very promising for attracting more qualified PQDS providing that the current age limit for eligibility be reconsidered.

Our next step will be on further strengthening the theoretical foundations that were only outlined here in section 3. They made some fleeting references to Heidegger's phenomenology and Bourdieu's theory of symbolic capital for strengthening the CoP perspective and improving the epistemological and ontological foundations for a research stream concerned with closing the applicative knowledge production gap. These hints beg for expansion. We believe that the CoP discussion could be put on a stronger theoretical basis if its connection to Heidegger's phenomenology of the conditions of human existence would be more clearly articulated. Of particular significance appear Heidegger's descriptions of *being-in-the-world*, *being-with*, *thrown-ness* and *care*. These concepts involve the notion of "caring" for a community with a consciousness of the problems that it faces and a sharing of its members' worries. In addition, the *social significance* of the knowledge and practices acquired in CoP could be developed further by relating to Bourdieu's theory of "symbolic capital". We feel that the ideas can be used to demonstrate that knowledge capital for successful career performance is much broader than is typically admitted in traditional doctoral programs. If so its articulation should help to focus research on producing knowledge that is practically more relevant than Popperian "conjecture and refutations" type of theory construction and testing.

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**Table 2. Fundamental Differences for the Education of ‘Traditional’ and PQ Doctoral Students**

Denzin and Lincoln (2005) phases of the qualitative research process	Possible interpretation and focus for IS doctoral education	“Traditional” doctoral students	PQ doctoral students	Comments
1. “The Researcher as a Multicultural Subject”	1. Contextual experience and subjectivity of the researcher,	Experience is considered in the student’s background, but more as a first step to open up a research site and not as an essential source for executing the research methods.	The students’ experiences of self and others within a professional community of practice enter the research process as a resource	This difference is entailed implied in the definition of applicative knowledge and Community of Practice
2. “Theoretical Paradigms and Perspectives”	2. Reviewing possible ontological and epistemological beliefs, shift from the knowing subject to research community as a CoP	The primary focus is on expanding students’ perceptions of alternative research approaches and what counts as “truth” in different contexts and scientific communities (e.g. authenticity, plausibility, criticality and reflexivity in critical interpretive studies cf. Pozzebon, 2004).	The primary focus is on expanding students’ understanding of the difference between validity (“truth”) criteria in industry and academia, (e.g. usefulness and self-evidence (plausibility) vs. theoretical foundation (validity) .	PQDS often adhere to the classical notion of truth as that which is self-evident and immutable or, <i>alternatively</i> , which is internally consistent with their mental model or models
3. “Research strategies and overall methodology”	3. research strategies and overall methodology	The match between a student’s preferences and competencies and the preferred research methodology is often <b>not</b> obvious; therefore, the focus on a preferred research approach may come late in the students’ program of study, i.e. when the focus of the dissertation proposal becomes clear.	Typically, PQ students can choose from a subset of preferred research strategies; this allows for earlier concentration and in depth coaching of the preferred research approach and principles.	This choice may not be limited by an interpretive or an action research perspective (Avison, Myers, 2002)
4. “Methods of Data Collection and Analysis ”	4. methods of data collection, analysis and synthesis	Difficulties and pitfalls in site selection, data collection, meaningful analysis and data interpretation need extensive coverage. Current emphasis is on statistical methods of inference and theory testing.	Prior work contacts usually facilitate site selection and a-priori understanding of data collection issues; the statistical methods are both less useful and more difficult due to less use of these methods in most professional contexts.	Cf. discussion of caveats below (cf. 4.4). For both types of students, the coverage of general principles of theory construction and testing should be expanded.
5) “The Art, Practices and Politics of Interpretation and Evaluation”.	5. Finding a publication strategy matching research results with research and practitioner community interests.	Theoretically conceived research problems and questions may face a credibility gap with uncertain practical usefulness; however they may have good match to what the research community considers interesting and valid.	The students’ practical experience may lead to practically useful and credible results; however they may not match what the research community considers interesting and valid.	These differences relate to the interrelationships between the evaluation criteria if research results are valid, interesting and useful.

