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Michele L. Strutz
Purdue University

James E. Cawthorne Jr
Purdue University

Daniel M. Ferguson
Purdue University, dfergus@purdue.edu

Mark T. Carnes
Purdue University, carnesm@purdue.edu

Matthew Ohland
Purdue University, ohland@purdue.edu

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AC 2011-2425: RETURNING STUDENTS IN ENGINEERING EDUCATION: MAKING A CASE FOR "EXPERIENCE CAPITAL"

Michele L. Strutz, Purdue University, West Lafayette

Michele L. Strutz is the first NSF Graduate Research Fellow (2009) in Engineering Education. She is an Engineering Education doctoral student, with a secondary doctoral focus in Gifted and Talented Education, at Purdue University. Michele's research interests include stEm talent development and identification. Prior to completing her Master's Degrees in Gifted and Talented Education and in Curriculum and Instruction, Michele worked as an engineer for 13 years in Laser Jet Printer product development and marketing at Hewlett Packard Co., computer systems design at Arthur Andersen & Co., sulfuric acid plant engineering at Monsanto, and traffic engineering with the City of Cincinnati. Her positions in the high-tech field stemmed from her undergraduate degrees in Civil Engineering and Mathematics from Vanderbilt University. Contact information: mstrutz@purdue.edu

James Edwin Cawthorne Jr., Purdue University, West Lafayette

Daniel Michael Ferguson, Purdue University, West Lafayette

Daniel M. Ferguson is a graduate student in the Engineering Education Program at Purdue University. Prior to coming to Purdue he was Assistant Professor of Entrepreneurship at Ohio Northern University. Before assuming that position he was Associate Director of the Inter-professional Studies Program and Senior Lecturer at Illinois Institute of Technology and involved in research in service learning, assessment processes and interventions aimed at improving learning objective attainment. Prior to his University assignments he was the Founder and CEO of The EDI Group, Ltd. and The EDI Group Canada, Ltd, independent professional services companies specializing in B2B electronic commerce and electronic data interchange. The EDI Group companies conducted market research, offered educational seminars and conferences and published The Journal of Electronic Commerce. He was also a Vice President at the First National Bank of Chicago, where he founded and managed the bank's market leading professional Cash Management Consulting Group, initiated the bank's non credit service product management organization and profit center profitability programs and was instrumental in the EDI/EFT payment system implemented by General Motors.

Mark T. Carnes, Purdue University, West Lafayette

Mark Carnes is a licensed Professional Engineer (PE) and is currently a doctoral student and a future faculty fellow in the School of Engineering Education at Purdue University. Before coming to Purdue, he spent over 30 years as an electronics designer of control and power conversion circuits. He received an MS from the University of Michigan (1982) and a BS from the University of Notre Dame (1975), both in Electrical Engineering.

Matthew W. Ohland, Purdue University, West Lafayette

Matthew W. Ohland is Associate Professor of Engineering Education at Purdue University. He has degrees from Swarthmore College, Rensselaer Polytechnic Institute, and the University of Florida. His research on the longitudinal study of engineering students, team assignment, peer evaluation, and active and collaborative teaching methods has been supported by over \$11.4 million from the National Science Foundation and the Sloan Foundation and his team received the William Elgin Wickenden Award for the Best Paper in the Journal of Engineering Education in 2008 and multiple conference Best Paper awards. Dr. Ohland is Chair of ASEE's Educational Research and Methods division and an At-Large member the Administrative Committee of the IEEE Education Society. He was the 20022006 President of Tau Beta Pi.

Returning Students in Engineering Education: Making a Case for “Experience Capital”

Abstract

Using an emancipatory theoretical framework, this exploratory qualitative study captures the perceptions of professional non-traditional students with several years of experience in one or more disciplines returning for a doctoral degree in engineering education. This study addresses the research question: how do professional non-traditional students engage with a doctoral program? Participants were selected using criterion sampling from a single doctoral program and they were interviewed. These professional non-traditional students described the experiences they bring to the doctoral program and reactions to those experiences from their academic colleagues. Open coding is used to identify common themes. The results of this study are that professional non-traditional students (1) come with a more developed habitus and substantial capital, which (2) prepare them well for the program, and (3) significantly affects their engagement during their PhD program. These results position the participants’ experiences at the partial union of their human, cultural, economic, and symbolic capitals. The participant’s capital developed and accumulated from their professional work and life experiences is what we call “experience capital.”

Introduction

Very little is known about professionally-experienced non-traditional students who return to a university for a graduate degree. These individuals desire graduate degrees as they pursue new directions in life due to interest, job requirements, or economic necessity. These professional non-traditional graduate students may be expected to model similar characteristics as their inexperienced traditional graduate student peers, yet they personify a richer capital built on professional expertise, personal maturity developed in a professional context, and a habitus shaped by their work and life experiences. We contend that the habitus of professional non-traditional graduate students is significantly different from the habitus of their inexperienced student peers.

This research is an exploratory investigation of the habitus and capital of professionally-experienced non-traditional graduate students in a specific PhD program at a major Midwestern university. Our purpose in conducting this research is to determine if experience capital exists. The framework for our research is emancipatory action research which is based in phenomenology.

The concept of social capital originated with Aristotle’s term ‘community governance’¹, however, since then, other capitals have been defined, such as human, cultural, and symbolic capital. Individuals acquire varying degrees of capital, which make up one component of their habitus. An individual’s habitus consists of capital, transposable dispositions, and internalized principles^{2,3}.

This study explores the interactions of the habitus and capital of professional non-traditional PhD students with the habitus and capital of the doctoral program by capturing their descriptions of their lived experiences.

Literature Review

There are many reasons individuals decide to pursue advanced graduate degrees. Traditionally, graduate degrees were attempted as means to increase one's domain knowledge of a subject (a masters degree), or to pursue a career in academia, or to become a specialized researcher in a given field (a doctoral degree). While this is true of many individuals, there is also an emerging group of "adults in America today – and [potentially] even more so in the future – [who] cannot stop learning"⁴. In many cases these are individuals who have been working professionally for many years before returning for advanced degrees for a variety of reasons – the desire for professional advancement, a career change for personal reasons, or a need for retraining caused by a shift in the labor market – yet there is a dearth of research regarding what these returning students bring with them to graduate programs. It is probable that professional non-traditional students bring attributes similar to other re-entry students pursuing a baccalaureate, such as clear educational goals that are related to their work^{4,5,6}, and motivation to learn⁷; however, professional non-traditional students are distinguished by their accumulated life and professional experiences. Bourdieu believed that individuals distinguish themselves in terms of their habitus and capital in a specific field².

Habitus

Although originally conceived as hexis by Aristotle, and translated as habitus by Aquinas, Bourdieu further developed habitus to represent a set of internalized principles and transposable dispositions that determine an individual's views of the world and inform actions⁸. Dispositions include the habits, beliefs, values, tastes, bodily postures, feelings, and thoughts of an individual that Bourdieu argues are socially produced^{2,3}. The original sources of a child's habitus, or principles and dispositions, are upbringing and education. Bourdieu called learning these principles and dispositions adopting 'structured structures'^{9,10}. Internalizing these structured structures into one's habitus influences future behavior in a social context and perception of that social context¹¹.

Habitus is not a fixed set of principles or dispositions, and is subject to change as an individual gains experiences, interacts with others, or engages in a different field¹¹. "While habitus reflects the social position in which it was constructed, it also carries within it the genesis of new creative responses that are capable of transcending the social conditions in which it was produced"¹². Individuals' habitus are 'structuring structures' as their dispositions generate new practices in different situations^{9,10}.

Field

Field is a social space of specialist domains of practice with rules, structure, and training. Examples of fields are education, law, economics, engineering, politics, science, and the arts.

Individuals maneuver and struggle as they pursue desirable resources and modify or preserve the field ¹⁰.

Bourdieu likened a field and its practices to knowing ‘the rules of the game’ or ‘how the game is played.’ From there, strategies that an individual may use to act on the world come from an individual’s ability to ‘play the game’ or to take advantage of opportunities that materialize. Bourdieu claimed that “the code of culture, or the rules of the game, is not imposed and fixed as a way of being. Actions and ways of being are generated, created, and invented, though they are limited within structuring mechanisms” ¹¹.

Bourdieu’s habitus changes and evolves in 3 ways: 1. as a generative dynamic structure, habitus adapts and accommodates into a new structure that includes other agents and practices in other fields; 2. the field constrains and affects the social agent’s developmental, cognitive and emotive aspects; and 3. habitus records a person’s history of developing dispositions, perceptions, and actions, which in turn, influences and records the new history that is created ¹³.

This changing and evolving concept of habitus describes the ways that a returning professional non-traditional student is affected by the experience of entering a PhD program. First, a PhD student’s habitus is changed as it adapts to the habitus of the colleagues and practices in the new doctoral field. Next, the field constrains and affects the PhD student developmentally, cognitively, and emotionally, and adjusting to the altered habitus from the effects of the new doctoral field can be relatively easy or quite difficult. Finally, adapting to the schemata of the new field is necessary so that the perceptions, classifications, and actions of the PhD student are both historically and currently appropriate to the new field.

While non-traditional undergraduates also develop maturity and expertise, they are not generally qualified to develop those in a professional context. This is a critical distinction, because the work of Lave and Wenger ¹⁴ tells us that the learning context is critical—learning through practice and participation as a professional means that the graduate student returning with professional experience is already a part of the community of practice, whereas the graduate student with no professional experience is delaying, possibly indefinitely, integration with the community of practice. Even if the community of practice in which the returning professional non-traditional graduate student has experience is not central to the PhD focus, the experience will still have transformed the professional’s habitus.

Capital

Capital was first conceived when early western philosophers considered the concept of social capital in terms of ‘community governance’. Others credit Dewey ¹⁵ with the first use of the term ‘social capital’. Since then, sociologists, anthropologists, and economists have described other forms of capital, including cultural, human, economic, and symbolic capital.

Social Capital: Dewey ¹⁵ was the first to use the term ‘social capital’ in *The School and Society*, but he did not define it—leaving its definition subject to whatever characteristics the reader might ascribe to the metaphor. Bourdieu ^{2,3} defined social capital as networks, relationships, and connections of influence and support. The connections are within and between social networks

¹⁶. The social relationships and networks are found with family, friends, clubs, school, community, and society ¹⁷.

Cultural Capital: Bourdieu invented the notion of cultural capital “in the course of research, as a theoretical hypothesis that made it possible to explain the unequal scholastic achievement of children originating from the different social classes relating to academic success” ³. These non-financial assets involve educational, social, intellectual, and artistic knowledge in both tangible and intangible forms ¹⁸. Cultural capital is the accumulation of manners, credentials, knowledge, and skill, acquired through education and upbringing ¹⁹. There are 3 main kinds – embodied (the component of the habitus which lends us the capacity to act in a certain way), objectified (occurs in choosing, owning, and consuming things such as art objects, food, dress, and buildings), and institutionalized (recognized as educational degrees, academic and professional titles, and credentials) ³.

Human Capital: Although A.W. Lewis originated the term ‘human capital’ in 1954, Becker redefined the term to mean “physical means of production” in 1964. Today human capital encompasses knowledge, competence, ability, skills, and attributes, which can increase with job training and completing higher education ²⁰. Education results from the combined effects of cultural transmission by the family and school ². The value of the education is often measured by years of schooling, status of the academic institutions attended ², number of publications, quantity of academic fellowships, and research experiences ²¹.

Economic Capital: Economic capital is either money or what is convertible into money ³.

Symbolic Capital: Symbolic capital is “the form that the various species of capital assume when they are perceived and recognized as legitimate” ²². It is the “power granted to those who have obtained sufficient recognition to be in a position to impose recognition” ²². Symbolic capital includes an individual’s honor, prestige, or recognition by others ².

Experience Capital: We believe that missing from these is a type of capital that describes the recognition of life and professional experiences. As such, we define experience capital as an individual’s developed and accumulated capital from his/her professional work and life experiences, which exists at the partial union of social, human, cultural, economic, and symbolic capital. We will analyze our results in terms of the experience capital professional non-traditional graduate students bring from their personal and professional experiences as they engage in a graduate program.

Theoretical Framework

The theoretical framework for this paper is emancipatory action research through the lens of lifeworlds. Emancipatory action research attempts not only to “empower people, but once people have decided to empower themselves, [to determine] precisely what research can then do to facilitate this process” ²³. One portion of the larger emancipatory action research agenda focuses on developing a “description of the experience in the face of academics [or others] who abstract and distort the experience” of a group ²⁴. There are many approaches within the methodology of emancipatory action research. This research study takes advantage of the

concept of lifeworld, where lifeworld is “concerned with human experience and the meanings people attach to them”²⁵ in the context of individuals whose voices may be marginalized²⁵. This study attempts to capture the lifeworld of professional non-traditional students returning for a doctoral degree with numerous years of professional experience.

Method

This is an explorative qualitative research study which explored the phenomenon of professional non-traditional students returning from the working world to obtain advanced degrees. Exploratory qualitative interviews²⁶ were used to capture the experiences and understanding of the participants. The interviews lasted 60-90 minutes and, through open-ended questions, covered undergraduate education experiences, work and life experiences after graduation, and current graduate school experiences. The interviews were “open coded”²⁷ using an inductive analysis method that allows themes, patterns, and ideas to emerge from the data. The conventions used in quoting participants in this document are as follows. Statements by interviewees are presented in italics without quotations followed by their pseudo name. Words in square brackets are added by the researchers to clarify context.

Participants

The participants in this study were determined using criterion sampling²⁶ to obtain a population capable of answering the research question, yet extreme enough to provide clear identifiers of significance to justify further research. In this approach, we established the criteria for our sample selection, since this determined the characteristics of the population under study. For this study, the participants were college graduates who graduated with engineering degrees and worked in their field for at least 5 years before choosing to return to a University to seek a graduate degree. There were eleven participants, five men and six women, interviewed; however, only seven (3 men and 4 women) participants have their voice represented in this paper. All participants were provided an alias from the “2009 Top Ten Baby Names List” relative to their gender.

Results and Discussion

Professional non-traditional students entering a doctoral program bring with them a habitus that has been developed through the accumulation of capital and established transposable dispositions from many years of work and life experiences. Integrating themselves into their new domain of doctoral studies provides them many opportunities to use their developed habitus and accumulated capitals, but also may cause conflict with the capitals and habitus of their peers, faculty and administrators.

Assertion 1

Habitus directs the way an individual engages the world. It exists as a representation of the impact one’s capital – social, human, symbolic, and economic –, transposable dispositions, and internalized principles. The professional non-traditional student returns to the doctoral program with a habitus that has been developed through the accumulation of capital and established transposable dispositions from years of experience in work and life. The developed habitus of

participants in this study, returning for their doctorate in engineering education, consists of extensive human, social, and symbolic capital, as well as established dispositions.

Participants made clear statements about the capital and dispositions they bring with them as they return to academia after nearly a decade in the professional world. These professional non-traditional students provide examples of increased capital - time management, project management, recognizing diversity of ideas, leadership, and technical knowledge - that they gained from their professional experience.

Time management was absolutely huge skill that I felt served me well, something that I brought to the table. I guess I probably looked at everything as its own project of how do I manage this? How do I get it done? What's the timeline? What are the critical tasks? – Ethan

I also learned the lesson that you have to value peoples' life experiences beyond just what their degree, or what their ... credentialed criteria might be. – Emma

I've also learned some of the flags for what, when interviewing for people where you kind of go ... I should probably look into that a little more or should ask more about it or, beginning to understand where that line is on people who volunteer too much information and, when have they really... okay, this is beginning to show a personality issue that's going to be beyond where I want to be or that isn't going to be a match with the organization. – Chloe

I think when I started I brought in some very significant technical experience. I brought in actually some pretty significant experience being in academia ... Certainly a lot of positional leadership experience. And because of my age, a lot of life experiences. – Abigail

The quote from Abigail is especially poignant as it identifies human capital accumulation, technical and leadership experience, symbolic capital establishment – multiple leadership roles, and a recognition of transposable dispositions because of the amount of experiences in work and life.

In addition to the accumulation of capital, all of the professional non-traditional students talked about established ways of engaging work. The most common attribute was one of confidence, as portrayed below by Alex.

Looking back on it I may have been overconfident maybe to the point of appearing almost cocky about it. But, I was that confident. – Alex

Beyond simple confidence, individuals talked about their own unique approaches to working which is a clear indication of an established disposition.

I assume everyone 's smarter than me, but they can 't outwork me. Even if I'm producing, let's call it marginally technical output. You know... less than optimal, I'll use those words... I'm going to produce it so fast that once an error's detected I'm going to be able to rework it and have it to you in better order than the person who's going to produce it absolutely right the first time. – Emily

Definitely coming in with a more proactive mentality... I was always thinking in terms of, is this activity that I'm taking on, especially if it went above and beyond the requirements of a class, it was always with the idea of, hey, how is this going to help me reach my goal? And it was the immediate goal of graduation and the long-term goal of academic employment. – Ethan

It is clear that professional non-traditional students returning to a doctoral program brought with them clear technical domain knowledge, communication skills, leadership experience, and dispositions towards work and life that have been iteratively constructed from professional experiences.

Assertion 2

These professionally-experienced non-traditional graduate students stated that their prior work experiences prepared them well for the engineering education PhD program. Their more developed habitus, which consists of their capitals, transposable dispositions, and internalized principles, was evident in their planning skills, their confidence in their success, and their focus and clarity of their research interests.

The skill of planning developed and perfected in prior work experiences enabled these professional non-traditional students to excel in making schedules, completing assignments, and leveraging projects. This established capital, the ability to plan well, is evident in several of our participants' statements. Chloe describes that her skills of planning and scheduling are rooted in her habitus as transposable dispositions. She states,

I have just, by virtue of who I am and how I work, a tendency to want to schedule things out, and lay them out and just sort of know when things are going to happen and how it needs to happen... and sort of have that ability and that skill to just schedule it and do it and, and move on. And knowing what that's going to take from me. – Chloe

Ethan's habitus, his mentality and internalized view of planning, informs his actions. He affirms,

[I'm] coming in with a more proactive mentality. Sitting down the first day of running through the syllabus, these are the reports you're gonna' write; these are the books you're gonna' read; this is how much everything is worth. And immediately process in my mind what was my plan of attack. How was I gonna' get these things done? What time did I need to set aside? That was day one activity for me because that's how I approached a project. – Ethan

The knowledge that Ethan gained from his prior work experiences acted as a metric in his planning and also in leveraging project work. Ethan explains,

I found myself always using that [prior work experience] as my metric. Did I really want to take on - did I want to do this? Did I want to do that? And if there was flexibility within a class project, you betcha' I was doing everything I can to make sure I was killing two birds with one stone. If I could satisfy a class project, or a class requirement, and also in some way inform the research that I wanted to do, or was undertaking, you bet that just made sense to me. – Ethan

The attribute of confidence, often gained from prior successes in work and life experiences, conveys a 'can do' attitude. Drawing on their prior experiences, these professionally-experienced non-traditional students exuded confidence in their descriptions of their ability to successfully complete coursework, establish relevant collaborations, and defend research ideas. Emma compares the challenges of the program to her prior experiences when she states,

It made the program easier..., I knew no dissertation defense could be harder than what I'd already done in life. I knew I could not possibly get harder questions than I had gotten then. – Emma

Ethan associates his 'no surrender' attitude to his confidential approach to his class and peers. He says,

Walking into the first day of class with some level of confidence in who I was and where I was headed helps. If you don't have that initial shyness in a class, you're gonna' feel things out, see who everybody is, [ask] what's this class about? I walked into the class with the mentality of I'm gonna' figure this out. I'm gonna' get things done in the most efficient manner. I'm gonna' identify who in this classroom it's in the best of my interest to collaborate with. And, I'm gonna' utilize that to my benefit. And, you know, 'no surrender until the end' type of approach. – Ethan

Alex feels that his prior experiences provided him with a foundation of confidence as he shares,

My experiences before in publishing, ... I'd even published a couple of journal articles by that time, ... still not really understanding what research is, but at the beginning that gave me a lot of confidence that I could come in here and just kinda' whip through this degree 'cause I already know this stuff. – Alex

William offers a similar example of how he drew on his prior professional experiences to support him as he became a student again. He says,

It's just that the experience reassured me that I could do it. So during my Ph.D. program, I never had any kinds of fears or insecurities about whether I could make it just because I could draw on that previous experience of having been

successful as a student after having not been a student for several years. – William

The ability to establish a clear research focus and direction stems from years of professional and practical experiences of focusing on setting objectives and accomplishing goals. This habitus-based focus that the professionally-experienced non-traditional students described was transferred and utilized in their graduate school experience. Abigail feels strongly about her focus and compares her level of focus to her peers when she claims,

I have a focus probably that a lot of students don't have. I know why I'm here. – Abigail

Ethan specifically discusses his direction of his research, and from his prior experience, knew that it involved ethics. He states,

I didn't have it necessarily formed to the level it was when it got bound into a document as a dissertation, but I had an idea of what I wanted to do for my research and how I could structure my classes to help support that research process. I knew I wanted to study something in the area of engineering ethics. I wanted to better understand how we prepare students to practice as ethical engineers. – Ethan

Chloe felt sure of the direction of her research when she explained,

I had a pretty good sense of what I was intending to get out of it. I knew what I intended to study and where my dissertation was going to be. – Chloe

These professional non-traditional students are better prepared for their PhD program with good planning skills, confidence, and focused research interests, because of their developed habitus due to their accumulated capital based on their prior work and life experiences.

Assertion 3

Based on their developed habitus from their previous work and life experiences, the professional non-traditional participants encountered four significant effects from engaging in their engineering education PhD program:

1. dissonance between their habitus and the habitus of the PhD faculty and program administrators;
2. dissonance between their habitus and the habitus of their peers during class discussions and activities, and in informal settings;
3. gained new skills and knowledge which enhanced their habitus; and
4. contributed new skills and knowledge to their PhD graduate studies program.

The dissonance encountered between our research participants and faculty and administrators is shown in Emma's comments in response to the interviewer's question of 'Why do you feel that your previous experience was not valued?'

In one way that was extremely discouraging to me, and it was almost a negative to have that experience, I don't believe that [my] experience was at all valued in the academic community. I believe that I was looked at as if I had just come out of my undergraduate. That no credit was given for having had any of these kind of life experiences both in the sense that I believe that many faculty members thought I didn't know anything and they had to teach me everything.

Or, that I didn't know how to go do some learning on my own. And just, this is silly but, basic office permissions. I had gone from having my own office and access to whatever I needed to being unable to use a copy machine, or to register for a conference... that was being supported by an education program but I didn't have permission to use the fax machine. – Emma

Emily's comments on the PhD competency requirements echo Emma's comments that her previous work experience was not valued:

The perspective of competency in our program does not align with my view of competency in the program. I'm taking 9 hours of industrial engineering because that's ... my domain area, after 25 years in doing applied industrial engineering... I'm not sure I see the value in that as a program requirement across the board for all types of learners.

What I think I'm told is 'Oh, it's a graduate school requirement.' Yea... okay... and I understand that that... let's be real, right... it fits the prototypical student... I'm not that kind of person. The very rigid definition of demonstrated competency does not align with my way of thinking. And, you know, I tried to plead my case and bring in a binder of when I ran over 130 projects at one time during a post-acquisition integration. – Emily

William's comments on his participation in class highlight and summarize the habitus dissonance experienced by non-traditional PhD students with faculty and program administrators:

In industry I was always balancing multiple projects but it never seemed to be an issue. It was always easy to prior... there's always a prioritization that's easy to figure out for some reason.

Whereas, in an academic setting all of your classes somehow think that they take equal priority. And it makes it really hard to balance between classes and then your research work and all these other demands.

So I think it's much harder to balance all of the demands for some reason in the academic world whereas in industry I never seemed to struggle so much with that.

I always had lots on my plate, multiple projects on my plate, but I always knew how to balance them.

And in particular in the Ph.D. program balancing was much, much more of a struggle. I'm still not sure quite how my past experience fits in with my experience as a Ph.D. student. I was always trying to situate what I was learning with my industry experience. I think over time that kind of slowly started to disappear. Initially I was bringing those things up all the time in class and probably speaking too much ... I know some people probably got a little annoyed with me. It's like, 'There goes William again with another industry experience.'

Really after my first semester [I] started[to] not go there anymore. Maybe that was a bad thing. Maybe being there was a negative thing about the program. I think now there are more students in the program who have had industry experience. But when I was a student, I felt like there were like none. And none of my professors seemed to have any industry experience. I just felt like there really wasn't much understanding or empathy. And I realized that I'm here to learn from what they have to offer too. And it's not just about like me. And it is - we're talking about education which is again not a field that should be self-absorbing.

So I tried to just then be more open to the experiences and ideas of others. I started to be a little quieter in class too and tried to be a better listener. – William

Finally, Ethan's frustrations with the expectations of faculty add a different dimension to the dissonance experienced by our research participants:

There was a little frustration at times with that as being the person that various profs would turn to and say, 'Well, how does an engineer think?'

I don't know, I just worked as an engineer. It didn't mean I sat back and thought about how I was - there was no meta cognition going on there. It's just I was doing it, likewise, just because you've practiced as an engineer doesn't mean you've decoded the mind of an engineer. – Ethan

The dissonance experienced by our research participants with their peers and during classes and other peer contacts are shown in Abigail's comments:

None of the students have ever said anything to me, but I do feel like there are times when they don't necessarily feel completely comfortable with me. I do think that they see me differently than themselves. They see themselves as a cohort and I'm another.

I think there's a perception... I know things [they don't know]... [and] they don't know what to do with that.

There are people that I connect with better than others. I have trouble relating to the lives that they have 'cause it's way different than my life. And I think they have trouble relating to mine to be honest. – Abigail

Ethan's comments add substance to Abigail's perceptions as he talks about frustrations that he experienced while in his PhD program:

There was a little frustration with the reputation as the guy that had been ... an engineer knowing that we were always focused on what did it mean to educate engineers, what did it mean to teach engineering? And somehow because I had practiced as an engineer I had more insight to that. Certainly, I was able to bring some of those experiences to a discussion but it didn't mean that I had them at all figured out.

The fact that I had taught for a while somehow made me in the eyes of folks, perhaps inappropriately that I was somehow more knowledgeable in all of this. And I don't think the average person that does teach and has experience teaching, unless they've taken courses in education, they don't have that knowledge. They're just out there doing it. – Ethan

Finally William adds these comments about using his prior experience in his interactions with his peers:

The program could do a better job of helping graduate students who bring that experience to the program to work with it a little bit more. But I don't know how that could be.

The environment wasn't totally receptive to that. But I was okay with that because I realized I wasn't there just to always be talking about my experience. I was there also to hear the experiences of others and learn about the experiences of others. I was okay with that but I don't feel like I ever spent much time thinking about my industry experience too much, or even sharing it a whole lot other than maybe through that first semester. – William

Our research participants gained new skills and knowledge, enhancement of their habitus, capital not previously attained in their prior domains or resident in their accumulated capitals. Emma describes these gains as:

I didn't really know anything about education-based research when I started. And, I probably would say that my mission had been more of a teaching mission until I started taking research classes. And then just absolutely fell in love with the research - the education-based research process.

And I talked about my work ... in terms of respecting stakeholders' opinions, but ... trying to understand extremely diverse opinions became even more obvious to me, in the sense of going to a qualitative research class and learning about world views and not knowing that I had been coming from a post-positive perspective.

And having somebody across the room that was from a very different world view sort of pointing the finger at me and another person from engineering education and saying, “You post-positivists over there, you just ruin things.”

I think a lot of engineering type folks tend to think about things in similar ways. I don't mean to completely lump everybody in one bucket, but we've been trained as undergraduates [on] algorithms, and formulas, and black and white, and to think in that way. Then to be exposed to people that continually ask the question like, 'Is that the only truth? Is that the only answer? Aren't there other ways?' was really, really eye-opening for me. And really, really broadened my perspective.

I went from being an extremely black and white kind of thinker to being a very grey fuzzy thinker.

It was hard for me to imagine that I could ever be smart enough to come up with my own idea that no one else had studied before. The way that we're guided through the program ... at first I had to learn the lesson that anecdotal experiences aren't the be-all, end-all that you have to find it in research somewhere. But then as I just start looking at research I would find, hey you know some of my ideas are unique. Nobody's actually studied some of these things yet. I mean some of them sure they'd already been studied. But then you read it and I had built enough content knowledge that I could read what other people were studying and start to find the next gap. And that is something that I never imagined, from my undergraduate years, I never imagined that I would be smart enough to do that, or, I would have enough expertise to do that.

One of the big things that I got out of my experiences [at my University] is understanding the importance of reflection, and understanding, thinking back over my life, and about choices I've made, and what's meaningful, and what I learned. – Emma

Alex adds to Emma's comments what he learned from the PhD experience:

The appreciation for what makes good research. So it took me a while to realize that, you didn't just have to find a reference, you really had to find all the references. And you had to look at all the work that's been done not just here's something somebody did, I'm building on it. End of story. Really gave me an appreciation for the value of research. Not just what research is, but that it's necessary, and why it's necessary. – Emma

Finally Ethan comments on why he values his PhD experience:

It provided me the opportunity to understand what it means to think critically about academic issues, about teaching, about learning about engineering. It

certainly gave me an appreciation for what educational research is, what it takes to do it, how to do it well, how to do it poorly.

I think the critical thinking is probably the most important part of that too. To not just take something at face value. To constantly consider the how and the why of a scenario, and work towards a solution on my own on those. – Ethan

These research participants also have creatively contributed new skills and knowledge, capital, to the culture and domain of their PhD graduate studies program. Emma describes one contribution to her PhD program:

Then also taking a teamwork approach to the whole undergraduate - or the whole doctoral program. I encourage my own students to do this sort of having what I call loosely a study-buddy. Somebody that's at the same place in the process at the same time, and you don't have to be doing the same research topic, you just have to stay connected to each other's research all along the way such that you can be a meaningful sounding board at times. Or, just a support system when something is particularly troubling or when something's extra confusing.

I mean a dissertation is in a way something you do yourself, but it's also something you have to collaborate with. You need [help] from your committee; but also help and guidance from peers. And knowing how to be a team member that gives as much as I take. So not always asking other people for things, but knowing how to help them too; help and support them. – Emma

Professional non-traditional students encountered significant dissonance in the interaction between their habitus and capitals and the habitus and capitals of their doctoral program. This dissonance is due both to their own adjustment requirements to their new domain but also a lack of understanding and respect for their experiences, knowledge, and skills by their doctoral program. Professional non-traditional students gain considerable personal skills and knowledge from their doctoral program but also contribute new knowledge and skills to their program.

Summary of Assertions

Professional non-traditional students come with a more developed habitus due to increased capital, make significant use of habitus and capitals accumulated from many years of work and life experiences. The conflicts they encounter with the habitus and capitals of their doctoral program may affect their learning process and their progress through the program. Recognizing experience capital would create growth and improvement opportunities for everyone in the program – the professional non-traditional students, their peers, faculty, and administrators.

Limitations of the Paper

This initial paper is limited in scope due to a focus solely on the portions of seven interviews that dealt with the participants' interaction with the PhD program. A further limitation is that we used a convenient sample taken from a single doctoral program in a major Midwest research

university. The sample may not be representative of the larger U.S. doctoral program population of professional non-traditional students. No subgroup analysis was performed nor were there any comparator interviews with traditional doctoral students.

Conclusion

Experience capital is prior work and life experiences which significantly affects how professional non-traditional students engage in their PhD program.

An individual's habitus consists of capital, transposable dispositions, and internalized principles^{2,3}. A more developed habitus determines an individual's views and informs his/her actions. This is evidenced as these students enter their PhD program often prepared with planning skills, confidence, and a clear research focus. Additionally, one's prior experiences can cause dissonance between the professional non-traditional student and their student peers, faculty, and program administration. These interactions cannot be attributed solely to Bourdieu's definition of human, social, or symbolic capitals.

We posit that the sum of these prior work and life experiences that significantly developed our participants' habitus constitute a distinct capital that we define as 'experience capital'.

Future Research

Future research will build the case for experience capital. Additional interviews will be conducted with traditional doctoral students as well as with professional non-traditional doctoral students in similar and other academic disciplines, and work disciplines. These additional interviews will develop comparator data across types - less developed, more developed, and different - habitus and capitals. This additional data will strengthen the case for the existence of experience capital.

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