“Smart” Mixed Methods:
The Interaction of Philosophy and Research Design in Higher Education Inquiry

DISSERTATION

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Abstract

The following dissertation uses existing data from the National Study of Student Engagement (NSSE), collected at a large Midwestern university, and combines this data with a component of using journals and interviews to explore the meaning of “student engagement” in depth. 4,870 students took the NSSE in 2010, with a response rate of 22% (Phase I). From this sample, 50 first year and senior students were chosen for qualitative follow-up, with five agreeing to participate in a three-phase qualitative study. Students were interviewed while taking the NSSE instrument (Phase II), and then were asked to journal, for one week, the activities that they engaged in during a week in their college experience, both outside and inside the classroom (Phase III). Students were also interviewed one-on-one to further explore the meaning of student engagement in their own lives (Phase IV). While the empirical portion of this study is important, the main focus of the dissertation is on the “how” of the way in which the research is conducted. Data analysis showed that often, a deeper understanding of how students were thinking about their college experience could add to the extant student engagement theory and interpretation of NSSE results. In this study, the interaction of philosophy and research design is highlighted as an exemplar of a “nomad science” in a higher education context.
Dedication

Dedicated to those on the margins in the construction of knowledge, those daring to do otherwise, and those who dare to resist hegemonic ways of unearthing new information.
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I must start by thanking my advisor. There is no other option. Her dedication to my work and her students is simply magnificent, and she has been described by more than one person as “the true gem of our college.” It is true. Dr. Lather, thank you so much for being there for me through this arduous process, and thank you for all the time you have taken to read draft after draft or panicked email after panicked email. You have been an absolutely wonderful teacher, advisor, and confidant, and I appreciate what you have done for me more than you may ever know. I am proud to say I studied with you, and I am so fortunate to have had some of the most intelligent conversations of my entire life with you. Thank you for helping me focus for so long on this project, and thank you for allowing me to explore this topic with the skillful mix of autonomy and guidance you have granted me. Dr. Lather, what you do is art and science all in one, and it is our times together which make me want to be the best person I can for future students. You are the reason that I have extended my knowledge beyond quantitative methods alone. The relationship we have had throughout this process is truly the best exemplar of graduate studies conceivable. I will forever think fondly of this time spent with you.

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male initiative. Available online at http://kirwaninstitute.org/research/the-african-
american-male-initiative/.


Fields of Study

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Chapter 1: Introduction – From Merely Methods to Philosophically Informed

In educational research, specifically in the realm of higher education, mixed methods research has been conducted and used in many ways, from surveys with open-ended questions to what might be termed “smart mixed methods” (Lather & Newhart, 2009), that is, mixed methods which explores the intersection of philosophy and research design. Bringing a Deleuzian understanding to bear here, one might consider the intersection as what he and Guattari term “nomad science” (Deleuze & Guattari, 1987), or open science, one which genuinely grapples with philosophical issues rather than simply using mixed methods as a stand-in to any debate or problems which might result through conflicting philosophies or research methods. Therefore, this inquiry seeks to address the following question: how can a mixed methods framework bring philosophy to bear in productive ways? Specifically, within this question, this project will explore the following: how can allowing for disjunction add to analysis within research studies? What lines of flight (Deleuze & Guatarri, 1987), research directions, and retooling of theories can be brought to the fore when combining philosophy with mixed methods research design? Finally, what new ways of understanding the layering of multiple types of data can be seen through this intersection?

The term “mixed methods” is at an interesting moment in education, one with a great amount of attention dedicated to it. Mixed methods is the idea that both qualitative
and quantitative methods are somehow combined in productive ways, and that generally, we would learn more by combining these methods than by using one alone for a certain subject of inquiry (Tashakkori & Teddlie, 2003). However, most studies and literature which utilize mixed methods seem to reduce this type of inquiry to merely methods, or if philosophical issues are grappled with, pragmatism is the type of foundation used to proceed. A “field” so “in the spotlight,” so attended to, and yet so fragmentated, offers researchers both intriguing opportunities and dangers. Is mixed methods merely about methods, and how is pragmatism being used to guide the use of mixed methods? I will argue that a somewhat reductionist view of “methods only” may miss some ways in which philosophy can inform research design. Furthermore, I will propose alternatives to pragmatism, namely Greene’s (2007) dialectic stance.

Importantly, there is a difference between “mixed” and “multiple” methods. According to The Handbook of Mixed Methods in Social and Behavioral Research (Tashakkori & Teddlie, 2003, 2010), multiple methods is the idea that there is more than one method, but that these are being applied within the context of one methodology/paradigm (e.g. positivist, interpretivist, etc.), while mixed methods is the idea that both quantitative and qualitative methods are used in data collection procedures. Recently, Teddlie and Tashakkori (2009) have called this “monomethod multi-strand research” (g. 146).

Mixed methods has been called by some the “third methodological movement” (Tashakkori & Teddlie, 2003) in research. Articles about mixed methods with such titles as “Positivists, post-positivists, post-structuralists, and post-modernists: Why can’t we all
get along? Towards a framework for unifying research paradigm” (Onwuegbuzie, 2000), seem to suggest that mixed methods is even seen as a place for long-standing “paradigm wars” between qualitative and quantitative camps to be resolved in a harmonious and productive manner. Onwuegbuzie forwards mixed methods as the way in which researchers using qualitative and quantitative methods can strive towards “epistemological ecumenicalism” (p. 3), thereby avoiding the pitfalls of the “debate” (p. 3). Most mixed methods researchers would forward the philosophical framework of pragmatism as a conceptual framework (and perhaps methodology) (Tashakkori & Teddlie, 2003, 2010), but whether this framework is being engaged or being used as a catch-all is still a matter of debate (Greene, 2007). However, opportunities exist in creating new understandings and insight from mixed methods specifically with the interaction of philosophy and research design, at moments of both method and methodology.

**A short overview of mixed methods**

The recent focus of combining qualitative and quantitative methods can be traced back to the late 1980s when Greene, Caracelli, and Graham (1989) mapped 57 studies that employed what they called “mixed methods.” Though it has this historical reference point, mixed methods has not solidified as a “paradigm” of research until relatively recently, with Greene and Caracelli’s (1997) edited volume *Advances in Mixed Methods Evaluation: The Challenges and Benefits of Integrating Diverse Paradigms* and Tashakkori and Teddle’s (2003) *Handbook of Mixed Methods in Social and Behavioral Research*. The *Handbook* has been updated with a second edition, published in
2010. Many studies in the Handbook are labeled “mixed methods” and the handbook’s very existence is testament to mixed methods as an emerging methodology in research, showcasing emerging research applications for mixed methods in a number of diverse fields and disciplines, including educational research. The ability to combine both “numbers,” a rather reductionist quantitative view, and “voice,” an equally reductionist qualitative view, is seen as an attractive “third methodological movement” (Tashakkori & Teddlie, 2003, p. 5), which allows for the integration of both of these long established approaches in allegedly new and exciting ways.

Given this historical/genealogical placement of mixed methods, a useful entry point to mixed methods literature might be how the Handbook distinguishes between mixed and multiple methods. Some literature, specifically in education, seems to suggest that the idea of combining methods and paradigms is a “good” thing (Onwuegbuzie, 2000). Some mixed methods researchers propose the idea of leading with qualitative procedures and following with quantitative procedures (Mason, 2006), and some attempt to use statistical procedures in the treatment of qualitative data (Shaffer & Serlin, 2004). While this combination of methods may seem initially like something desirable and useful in research, there are a number of issues that are still outstanding in the mixed methods conversation.

The quest for harmony

In papers like “Misconceived relationships between logical positivism and quantitative research” (Yu, 2005), a narrative is created that uses the languages of quantitative and qualitative research in a way that allows mixed methods to fit together
“naturally” and easily from the perspective of those invested in qualitative research. In this case, the author attempts to take some of the “teeth” from positivism, in the hopes of creating a more palatable form of positivism that allows a transition to mixed methods research via a form of triangulation. As will be explored, a number of studies in higher education seek to use mixed methods to harmonize data and construct an understanding of the data and analysis that makes data from different sources harmonious (e.g. Tones, Fraser, Elder, & White, 2009; Klassen, Krawchuk, Lynch, & Rajani, 2008).

**The incompatibility thesis**

The idea of what Howe (1988) calls the incompatibility thesis is also prevalent in the literature around mixed methods; that is, the question of whether the differing paradigms can or cannot “talk” to each other. In this case, mixed methods research seems to be making the argument that qualitative and quantitative research can exist in commensurable and productive ways, pushing the incompatibility thesis to the side and, if present, leaving it at the margins of research rather than a central concern of the research process. In fact, Tashakkori and Teddlie (2003), in the *Handbook of Mixed Methods*, say that the thesis has been “largely discredited” (p. 19).

**The pragmatic solution**

Finally, the idea of pragmatism, or “what works,” seems to be a major impetus and goal advanced in the mixed methods research literature. Mixed methods aims to say that what works should guide the research being conducted, rather than either entering in with a hypothesis, such as in traditional quantitative research, or letting themes emerge, such as in traditional qualitative research. Mixed methods seeks to forego
epistemological difficulties by focusing on the practical end product, which the literature would say begins with the question and ends with the most benefit. This is evident in Maxcy’s (2003) chapter in the *Handbook of Mixed Methods*. However, Biesta (2010) addresses the philosophical issues with using pragmatism in mixed methods in the second edition of the *Handbook* in such a way that shows an evolution in thought development. One could say that mixed methods is getting “smarter” as mixed methods research inquiry develops. However, a future concern that could be raised with mixed methods is whether people engage the same philosophical issues that Biesta does, or if his version of pragmatism just becomes a citation people go to when hoping to show they conducted the work of philosophy.

**Troubling mixed methods**

But there are problems with all of these ideas, including the drive to harmony, the disregard of the incompatibility thesis, and an unyielding push towards pragmatism in research. As Foucault (1980) stated, “nothing is innocent” (p. 93). For example, regarding the push towards pragmatism in mixed methods research, the idea of aiming for what works has a number of inherent presumptions, some of which might be “trouble spots.” To begin with, the idea that something works, but perhaps more interestingly for those using a critical frame, what works and “for whom” (House & Howe, 1999) is something that ought to be asked in mixed methods research, especially that research which aims to be socially just.

However, some researchers, such as Johnson and Onwuegbuzie (2004), state “taking a pragmatic or balanced or pluralist position will help improve communication
among researchers as they attempt to advance knowledge” (p. 16). What of Kuhn’s (1996) argument that paradigms and their languages are incommensurable? One might argue that in its current limelight stage, mixed methods does not do a sufficient job of combating what Howe (1988) calls the incompatibility thesis. To repeat from earlier, a quote from The Handbook of Mixed Methods states that the incompatibility thesis, for the most part, “has now been largely discredited” (Tashakkori & Teddlie, 2003, p. 19). The authors of the Handbook, in support of this argument, cite John K. Smith (1996) when he stated: “I remember the editor of a major journal saying that most researchers had been bored with philosophical discussions and were more interested in getting on with the task of doing their research” (p. 19).

Another challenge to all of this: why can’t one be interested in both? Or interested in the project of troubling? Bertrand Russell had some words of wisdom when he stated:

Pragmatism, in some of its forms, is a power-philosophy. For pragmatism, a belief is “true” if its consequences are pleasant. Now human beings can make the consequences of a belief pleasant or unpleasant. Belief in the moral superiority of a dictator has pleasanter consequences than disbelief, if you live under his government. Wherever there is official persecution, the official creed is “true” in the pragmatist sense. The pragmatic philosophy, therefore, gives to those in power a metaphysical omnipotence which a more pedestrian philosophy would deny to them. I do not suggest that most pragmatists admit the consequences of their philosophy; I say only that they
are consequences, and that the pragmatist’s attack on the common view of truth is an outcome of love of power, though perhaps more of power over inanimate nature than of power over human beings. (Russell, 2004, p. 210)

It is not my purpose here to attack pragmatism, per se, but rather to suggest that in its mixed methods iteration it may not be the end (or endpoint) of research. We might ask questions such as how what “works” affects others. This is especially important as we consider social justice as a factor in research design and goals; for example, when we work with vulnerable populations such as children or historically marginalized populations.

One might also consider that the “instrumental” (or even reductionist) idea of pragmatism that mixed methods uses is perhaps not representative of pragmatism as it is historically construed in educational theory. As Biesta and Phillips (2003) argued, “from a pragmatist point of view it is not that research is theoretical and practice practical and that educational practice is the field of applying the findings of educational research. Both are practices in their own right, with different possibilities and different limitations, and each must inform the other” (p. 108). Therefore, it would serve those using pragmatism as a foundation for mixed methods to engage in both theory and practice, in the hopes of making what “works” work better.

The incompatibility thesis is the next fight that mixed methods often engages in, as mixed methods must defend itself against those who say qualitative and quantitative cannot be “mixed.” The idea that quantitative and qualitative paradigms can mesh with
each other is key to the mixed methods argument. Pragmatism seems to be the stand-in solution, but, for the reasons mentioned above, pragmatism should be troubled rather than allowed to stand as an unquestioned cornerstone in mixed methods thought. However, in the *Handbook of Mixed Methods* (2003), there is one chapter by Maxcy that seems to offer pragmatism as this “magic bullet” solution. My contention here is that this type of pragmatism, what some have called “vulgar pragmatism” (Pennycook, 1997) is not a solution to the incompatibility thesis in its current reductionist moment. In the updated *Handbook* (2010), Biesta argues “although pragmatism is unable to provide the (author emphasis) philosophical foundation for mixed methods research, it has some important things to offer particularly in helping mixed methods researchers to ask better and more precise questions about the philosophical implications and justifications of their designs” (p. 114).

Finally, a bigger trouble than the critique of pragmatism is the lack of attention to philosophical issues in the mixed methods literature. Both qualitative and quantitative research have much to add in this area, but when the authors say things such as “pragmatism avoids the use of metaphysical concepts (e.g. “truth,” “reality”) that have caused much endless (and often useless) discussion and debate” (Tashakkori & Teddlie, 2003, p. 21), those invested in quantitative and qualitative paradigms might not see mixed methods as welcoming as it purports to be. The “often useless” discussion and debate might have much to add instead of bypassing the incompatibility thesis, but as long as those not necessarily invested in mixed methods are cast aside, the premises of the incompatibility thesis remain, at least to some. Furthermore, it is quite likely that
silencing occurs for those who do not “fit” the pragmatic aims of mixed methods research. As qualitative researchers know, much can be gained by speaking to a broader audience than merely those who “fit.” In fairness, the updated version of the Handbook has at least three chapters dedicated to the exploration of philosophical issues, but as the literature review will show, philosophical issues are rarely grappled with in the extant research literature in mixed methods in higher education, specifically.

**Beyond harmonious mixed methods**

In “*A Thousand Plateaus*,” Deleuze and Guattari write a plateau titled “treatise on nomadology – the war machine.” In this chapter, they make an important distinction for this project: the distinction between royal and nomad science. To them, royal science is “official” and is a striated space, meaning it is rigid and defined. Deleuze and Guattari (1987) state “Only royal science…has at its disposal a metric power that can define a conceptual apparatus or an autonomy of science” (p. 374). Deleuze and Guattari argue that royal science has its origins in the state apparatus and religion, yet claims it separates itself from these things. They argue, however, that there is still a state that is maintained by this form of science, one “which deprives them of their [potentially autonomous science’s] model, submits them to its own model, and allows them to exist only in the capacity of ‘technologies’ or ‘applied science’” (p. 373). For mixed methods, then, this means that those findings that are clean and harmonious are more likely to count as knowledge, while those areas that diverge do not. An example of this would be Pluye, Grad, Levine and Nicolau’s (2009) finding that there were no studies that highlighted “exclusion” due to what they hypothesized might be publication bias. Deleuze and
Guattari (1987) might argue that this is a manifestation of state power through something like peer review. In the age of peer review, this may mean divergent results are excluded. Rigid funding schemes that direct research may also be accountable for this.

Nomad (or ambulant) science is described as science that draws and links up “smooth space,” “pose(s) more problems than it solves” (Deleuze and Guattari, 1987, p. 373), in sum, that science which allows itself to follow the various emergent “lines of flight.” Nomad science does not seek to totalize knowledge as royal science does, but rather seeks to follow various lines of flight as they emerge. This could relate directly to mixed methods research in the sense of “following” divergent data and highlighting it in mixed methods studies. Divergent data might not be replicable, but in nomad science, this is not nearly as important as in royal science. It might also produce moments in which one can learn from difference, if one is willing to follow the lines of flight created.

Deleuze and Guattari (1987) also note that royal science “surrounds itself with much priestliness and magic” (p. 373), and this is possible in nomad science if “they fall into abeyance” (p. 373). Nomad science must resist these impulses or it risks becoming royal science. In mixed methods, evidence of falling into abeyance is the resistance to the philosophical and the push to harmonize data and ignore divergence. Importantly, Deleuze and Guattari state that “the way in which a science, or a conception of science, participates in the organization of the social field, and in particular induces a division of labor, is part of that science itself” (p. 369). In royal science, this participation leads to homogeneity of thought and the institution of a state apparatus and potential “group-think.” It avoids “taking the side of the messy” (Lather, 2009), which may be the greatest
contribution of mixed methods to research. Moving to a mixed methods framework that can bear multiple coherencies could teach those invested in qualitative and quantitative a great deal and avoid the consolidation of a paradigm in the process, allowing mixed methods to become rhizomatic.

**Recognition, embracing of disjunction, and possibilities**

Why not be satisfied with the incompatibility thesis in mixed methods as a way of knowing and learning? For instance, rather than merely capitalizing on the strengths of both quantitative and qualitative research methods, might it be helpful to capitalize on the interruptions and fractures mixed methods can create? Giles Deleuze may be helpful here, in that he was “interested in the production of distress as a strategy to think difference differently” (Lather, 2006, p. 47). Deleuze (1990) has called “disjunctive affirmation” (p. 174) the “multiple ways of going about educational research in terms of finding our way into a less comfortable social science full of stuck places and difficult philosophical issues of truth, interpretation, and responsibility” (Lather, 2006, p. 52). Moments in which quantitative and qualitative paradigms collide can be highlighted, and we can learn from these interactions. Perhaps mixed methods would even begin to create a fuller view of itself by embracing its discordant underlying nature, rather than hiding behind the hope that harmony will be achieved in all times during research. What would such a project look like?

One example is Laughlin and Creamer’s (2007) article, “Engaging differences: Self-Authorship and the decision making process.” Though initially this project was just a combination of a series of qualitative interviews of high school and
college women, as well as some of their parents, coupled with 1,300 responses to a survey questionnaire designed by the authors, unexpected directions emerged. Namely, the authors found specific moments in which the qualitative and the quantitative data from the same participant did not “match.” As such, the authors became interested in a way of viewing mixed methods that did not disallow difference, but rather would “consider each inquiry tradition as revealing some different aspect of empirical reality” (Laughlin & Creamer, 2007, p. 45). They cite Patton (2002), saying “Areas of divergence open windows to better understanding of the multifaceted, complex nature of phenomenon” (Patton, 2002, p. 559). In short, what is important in this study is that these moments of discord created opportunities for the authors to revise their understanding of the theoretical lens they were using toward very interesting conclusions. Using their words: “In our study, the deliberate attempt to integrate quantitative and qualitative data created the opportunity for more nuanced thinking about self authorship and self-authored decision making” (Laughlin & Creamer, 2007, p. 49). The ability to see difference and embrace it allowed for new insights into a theoretical construct that had been studied for many years in higher education research, and allowed for new possibilities in the construction of knowledge. By not merely seeking harmony in the data, the researchers bring to light multiple and new ways of understanding that may lead to greater insight about the subject at hand. Through affirming the disjunctions in the data through paradigm collision, a novel and unique production is created that is not found often in research.
Another example exists in the form of a “call for cultural negotiation” put forth by MacCleave (2006). In this article, MacCleave creates an imaginary scenario in which a “clinical psychologist, a grounded theorist, an ethnographer, and a phenomenologist meet to collaborate on an interdisciplinary grant proposal on childhood loneliness” (p. 40). MacCleave makes the analogy that the different paradigms inherent in each of these people’s views on the project can be thought of as different “cultures, because each has its own way of doing things, deeply embedded assumptions about knowledge and the construction/representation of reality, and different specialized languages” (p. 40). Though the situation is theoretical, it is not too far out of the realm of possibility, and the important part of her argument is that even in the moments where the worldviews are incommensurable, a form of negotiation can occur in which the differences are highlighted in order to make the inaccessible accessible and what seems obfuscated understandable. MacCleave argues that this form of cultural negotiation allows people to think about researching in such a way as to avoid retreat into “inflexible or polarized ideological camps” (p. 40). As cross-disciplinary research is being espoused more and more in today’s research landscape, these moments of difference create multiple points of learning. Moments of disjunction could allow people not only to make advances in research, but challenge their own paradigmatic thinking and the limitations thereof. In fact, to echo Lather’s (1988) words, contemporary research is characterized by a “unprecedented cross-disciplinary fertilization of ideas” (p. 40). MacCleave (2006) also calls upon researchers to be “cultural negotiators;” some might contend those coming from qualitative arenas have a lot to add in this area, indeed.
Bredo (2009) warns us that a positivistic mixture of methods can sometimes “reproduce the idea that [students] are working with radically different things that must be handled very carefully lest they explode on contact” (p. 443). Dewey also warned us that we should not become merely “educational technicians,” not simply to talk about means while ignoring the ends of educational research (Biesta & Phillips, 2003). Of course, mixed methods should still grapple with the issues that qualitative and quantitative methods have had to deal with over the years, and should by no means get a free ride to knowledge production without critical analysis in this, its new moment in the limelight. Those using mixed methods need to be able to bear to learn from both quantitative and qualitative modes of inquiry and not merely use pragmatism as something that allows them to ignore the issues that these traditions have struggled with.

Mixed methods, NSSE, and space for philosophy

This study used the National Study of Student Engagement (NSSE) as its empirical focus\(^1\). The NSSE (sample survey available at the NSSE website - [http://nsse.iub.edu/html/survey_instruments.cfm](http://nsse.iub.edu/html/survey_instruments.cfm), 2010 version), a quantitative instrument with some qualitative work behind it in the form of focus groups and cognitive interviews, has been used in higher education settings now since 2000, where it has been used at 1,400 different universities in the U.S. and Canada (NSSE, 2011). This survey purports to measure the ways in which students are engaged during their college experience, and generally measures the first year class and the fourth year undergraduate experience.

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\(^1\) I was granted permission to use the NSSE as part of a qualitative section of this dissertation by the NSSE office at Indiana University. Also, since Midwestern University participated in NSSE in 2010, they were especially open. I was also granted permission to use the data set given my IRB clearance and interest from various administrators around the university who use NSSE results in their daily work.
class at the same time. The hope is that this data is able to show if engagement changes as class rank changes, and if there is something about a first year undergraduate that makes an engagement experience different or the same as a fourth year undergraduate in college. NSSE data is used in this dissertation given that it has a huge impact on higher education administrator’s perceptions of undergraduate “engagement” and therefore affects things like programming initiatives, resources, and even policy decisions. It also provides fertile ground for mixed methods research, as even some of those who work directly for the NSSE administration call surveys a “blunt instrument” (Schmidt, 2009).

Importantly, NSSE defines “engagement” in a very specific way. As the administrators write, there are two elements to engagement:

The first is the amount of time and effort students put into their studies and other educationally purposeful activities. The second is how the institution deploys its resources and organizes the curriculum and other learning opportunities to get students to participate in activities that decades of research studies show are linked to student learning. (NSSE, 2010)

“Learning” in the NSSE draws upon a great deal of higher education literature to make the link between engagement and learning, arguing essentially that the more a student is engaged, the more (or perhaps better) a student is able to learn (Astin, 1993; NSSE, 2008; Chickering & Gamson, 1987; Kuh, 2000; Kuh et. al., 1994; Pascarella, et. al, 2009).
Five institutional qualities help to foster engagement, according to NSSE (2009):

1) Level of academic challenge (LAC)
2) Active and collaborative learning (ACL)
3) Enriching educational experiences (EEE)
4) Student-faculty interaction (SFI)
5) Supportive campus environment (SCE)

NSSE is generally used by institutions of higher education to assess “how much” they are fostering engagement of students. Sometimes these results are used to benchmark institutions against each other, and in recent years, 443 out of 1,400 higher education institutions have agreed to post their NSSE results in the popular paper USA Today. These results are also used to effect policy changes and reflection at the institutional level in order to, hopefully, provide a better place for students to learn.

NSSE under fire

Stephen Porter (in press)\(^2\) forwarded a major critique of NSSE (and other surveys given in higher education generally) in a paper at the Association for the Study of Higher Education. In this paper, Porter critiques the NSSE on five major validity fronts; he uses a series of arguments to form the five pillars of validity for the NSSE survey. These arguments, as he states, are background, content, response process, internal structure, and relation to other variables. He draws upon Cronbach’s idea (Kane, 2001) of a validity argument, that is, validity is a construction of multiple premises that, evaluated together,

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\(^2\) I emailed Stephen Porter asking him for permission to cite this paper from the Association for the Study of Higher Education, which he granted (and let me know that there was a forthcoming issue of the *Review of Higher Education* specifically about NSSE). He also took an interest in this dissertation given that it was building upon some of the points he made. He also gave me the correct citation (see bibliography).
form validity specific to the context of the instrument. Briefly, the material which forms
the background argument for validity would be akin to existing literature on the topic, in
this case, the literature cited above which links student engagement to learning. The
content part of the validity argument in this case, according to Porter (in press), would be
the idea that items on the NSSE relate directly to institutional effectiveness. Kuh (2003)
makes this argument in one of his founding documents of NSSE. Response process is
simply the idea that people taking the survey will understand the items and as a result,
yield accurately answer the survey. Internal structure refers to the idea that the five
constructs listed above (LAC, ACL, EEE, SFI, and SCE) are distinct “constructs” and as
such, can be used for goals like inter-and intra-institutional benchmarking. Finally, the
fifth argument for validity is the relation to other variables, which Porter (in press)
describes as NSSE items being linked and correlated to items like achievement tests. For
the purposes of this project, however, the main focus shall revolve around the argument
regarding response process.

The tenuous nature of response process

Porter (in press), perhaps rightly, seems to make one of his more concerted efforts
against the pillar of response process as a validity argument in the NSSE. To launch his
competing hypothesis to the thinking of the NSSE administrators, he uses the thinking of
Tourangeau et. al. (2000) when they divide the response process into four distinct items:
“comprehension, retrieval of information, judgment and/or estimation, and reporting of
answer” (Porter, in press, p. 12). Briefly, comprehension is the idea that those taking a
survey will understand the way in which the items are asked. Porter identifies a number
of the NSSE items as potentially confusing, particularly those around academic support, the use of the word “instructor,” engagement in serious conversations, and thinking critically and analytically. His argument is basically centered around the idea that these are quite ambiguous and perhaps unoperationalized or under-operationalized terms. He argues that “instructor” could be construed as a professor or a graduate student, with distinctly different implications depending on the survey participant’s thoughts while taking the survey. He states, importantly, “in trying to reduce nonresponse bias (by reducing the number of survey items and the length of these questions – this author’s addition) NSSE and other researchers have inadvertently introduced substantial error into their survey data” (p. 14). Practitioners have been known to make surveys as short as possible, which may be hurting their data. Using evidence from multiple studies on surveys, Porter makes the case that often mundane word changes can have radical effects on the survey taker’s construal and subsequent answer to the survey item. He highlights a study by Pace and Friedlander (1982) in which they found that students’ perceptions of frequency items on surveys depended highly upon the individual. The results of this study showed that “very often” meant anywhere from 60 times a year all the way to one to six times per year for the study participants, which greatly calls into question these types of scales when used on these highly visible surveys. He identifies this as a potentially fruitful area of research in higher education. Higher education practitioners may not even think about this issue as they are constructing a survey, rather, they may be looking only at the frequency of various responses, and not questioning the nature of the response.
Secondly, Porter (in press) highlights the difficulty those taking surveys may have with the retrieval of accurate information. Often, students who take surveys are asked to recall a great deal of information with a high degree of specificity, and this has been shown, according to Porter’s review, to be quite a flawed process. He highlights multiple ways to challenge this, but specific to NSSE is the difficulty that seniors, for example, will have more experience in college and therefore might report more frequent behaviors related to the NSSE survey items. He also argues that his review of research shows that the longer people have to recall information the more accurately they will report it, but most college surveys are meant to be short, which may negatively affect the accuracy of the reported information. This is important for practitioners to understand, specifically when interpreting the results of seniors. Importantly, he identifies the use of time-diaries as a method to help with retrievals of more accurate information from students.

Thirdly, Porter (in press) calls the idea of the judgment of the survey respondents into question. He states that students are very unlikely to be able to recall the frequency of the types of behaviors which might be something they do day-to-day, yet surveys like NSSE ask for a high degree of specificity on items around behaviors. He concludes that because these items will be answered very differently by each student, this type of argument linked to a validity argument within NSSE is quite suspect. He highlights an example in which students are asked about their study habits (i.e. how often they study) and they tended to use the mean of the scale for context (e.g., the middle of the scale was construed to be “normal,” even when the scale changed in its setup). He identifies this is an area ripe for research, as he states “while context effects on surveys are quite well
known, less is known about how student’s theories of causality and self-image affect survey response” (p. 23). Finally, Porter calls upon the research around social desirability bias to make an argument against the actual accuracy of responses by survey participants. He identifies this as another area that is a potentially fruitful area of research, stating that in the context of college surveys, there are not many studies about the effect social desirability has on survey response. Given that surveys are often so short in higher education, procedures like asking the same question in a different way as a “check” to the social desirability bias might be overlooked for the sake of saving time for the student.

**Significance of the project**

With these arguments in mind, I propose to explore in depth Porter’s (in press) first and third arguments, that is, the idea of comprehension and judgment. As will be explored below, I believe these are areas in which the intersection of philosophy and research design can lead to fruitful findings, with immediate practical application of the research findings. Though Porter’s (in press) paper seems to be leaning towards a standardization of process and using experimental studies as its ideal findings and guide to judge NSSE, there is a great deal of room here for a mixed methods application. Importantly, this mixed methods application, when wrapped up in something like a person’s comprehension and judgment on a heavily used survey instrument, will be “messy” and potentially confusing for both the researcher and the researched. But, as will be explored, this may be instructive and not a bad thing.
A project of this nature contributes to educational research in three ways. First, this type of project seeks to “trouble” the givens in mixed methods research, that is, the use of pragmatism as a stand-in or solution to difficulties encountered when combining qualitative and quantitative research. Second, this inquiry will show how the engagement of the philosophical will help shape research throughout the process in ways that allow for various lines of flight in research, which are sometimes ignored or neglected due to the data not “fitting” the harmonious narrative of the research project (or findings). Third, I hope to create a more coherent narrative of what “smart” mixed methods might look like through the use of exemplars and a processing of the intersection of philosophy and mixed methods research design. While this narrative is subject to flux and change, the design and construction of the understanding of “smart” mixed methods should allow for change, in order to truly be a “nomad science.”

This dissertation is divided into five chapters. The first chapter sought to introduce the idea of mixed methods as it is conceived in this project, and position the dissertation within a specific framework of understanding with regards to the interaction of philosophy and research design in mixed methods. The NSSE as a fertile ground for empirical research using mixed methods was introduced. Various critiques of NSSE lay the groundwork in which this study will use the NSSE in both quantitative and qualitative inquiries. The idea of mixed methods as a “nomad science” was introduced, and is the primary position of this dissertation in regards to mixed methods inquiry in higher education.
The second chapter reviews the literature addressing mixed methods, and then explores mixed methods use in higher education through the lens of “vulgar,” “smart,” and “smarter” mixed methods. The third chapter explores the research methods which show an interaction between research design and philosophy, and elucidate the emergent design nature of this project. The fourth chapter is the data analysis chapter, but also acts as an exemplar of highlighting the interaction of philosophy and research design. The intent here is to demonstrate mixed methods as a “nomad science,” and also act as a space to theorize the practice of allowing philosophy and mixed methods to interact. Finally, the fifth chapter explicates how merely “what works” can move towards allowing “lines of flight.” The effort here is to argue that the idea of a “nomad science” can add to the mixed methods literature in such a way as to address the question: what might mixed methods researchers learn from allowing their practice to strive towards a “nomad science”? 
Chapter 2: Literature Review – Vulgar, Smart, and Smarter Mixed Methods

This study will use a mixed methods research design, but one which highlights the intersection of philosophy and research design. Recall the distinction: there is a difference between “mixed” and “multiple” methods. According to *The Handbook of Mixed Methods in Social and Behavioral Research* (Tashakkori & Teddlie, 2003, 2010), multiple methods is the idea that there is more than one method, but that these are being applied within the context of one methodology/paradigm (e.g. positivist, interpretivist), while mixed methods is the idea that *both* quantitative and qualitative methods are used in data collection procedures.

**The mixed methods landscape**

Some authors (Greene, 2007; Maxwell, 2009) cite Campbell and Fiske’s (1959) model of the multitrait-multimethod matrix (MTMM) as a start to mixed methods research, or at least the “earliest systematic exposition of combining different methods” (Maxwell, 2009, p. 1; Greene, 2007). Importantly, and this idea is explored later, some (Figueredo, Ferketich, & Knapp, 1991) have stated that confirmatory factor analysis, when coupled with advanced statistical techniques, has mostly taken the place of MTMM and its intended purposes. One might also notice the use of the words “multiple methods” and not “mixed methods,” making the previous distinction in the *Handbook of Mixed Methods* much more important, as the MTMM does not seem to allow for both
qualitative and quantitative methods in the same study. Maxwell (2009) does not make this distinction, though Greene (2007) does.

Campbell and Fiske’s (1959) idea of the MTMM might not have been the first exploration into combining different methods; using a conversation with Leonard Baird (personal communication, 2009) as inspiration, the work that Jane Addams did at Hull House provides an interesting combination of quantitative and qualitative methods. In 1895, the Hull House Association published something called the Hull House Maps and Papers, which were comparable to modern day GIS (Geographical Information Systems) work; her work mapped the population distributions of immigrants in the area around the Hull House, and perhaps developed mapping as a statistical technique (Hassenchal, 1993). Using these maps, those working with Addams could use the quantitative data from the maps to guide the problem solving interventions needed in the surrounding area, potentially using qualitative methods such as interviewing to help those in need to best meet their needs (Deegan, 1988). Though the Handbook of Mixed Methods describes Addams as a pragmatist in relation to her work with Dewey (Maxcy, 2003), it does not seem to describe her as someone who may have used mixed methods to great effect in her own work at Hull House.

Jennifer Greene (2007) describes the foundations of mixed methods as arising from the historical background of a long debate between the natural and social sciences. Smith and Heshusius, (1986, as cited in Greene, 2007), paraphrase Dilthey, a philosopher engaged in this debate quite visibly, saying:
Whereas physical sciences dealt with a series of inanimate objects that could be seen existing outside of us (a world of external, objectively knowable facts), [social] science focused on the products of the human mind with all its subjectivity, emotions, and values. From this Dilthey concluded that since social reality was the result of conscious human intention, it was impossible to separate the interrelationships of what was being investigated and the investigator. There was no objective social reality as such divorced from the people, including investigators, who participated in and interpreted that reality…the investigator of the social world could only attain an understanding of that world through a process of interpretation – one that inevitably involved a hermeneutical method. [Further] the meaning of human expression was context-bound and could not be divorced from context. (p. 5)

This line of thinking evolved into a debate (or dichotomy) between positivism (and postpositivism) and interpretivism (Greene, 2007). Greene also states that while most were willing to admit the limited nature of certain methods (e.g., a survey) based on this positivist/interpretivist divide, most methodologists were not comfortable engaging in discussions on the philosophical foundations of those methods. She states that, “one learned to be a social scientific inquirer at that time by mastering method, not by pondering paradigms” (p. 35).
Enter the paradigm wars

However, there was a limit with methods. In the positivist pursuit of experimental design and randomized controlled trials during the time of the “War on Poverty” in the 1960s and 1970s, there were issues with the practice on the ground in social inquiry and praxis. The tension here was that these controlled trials could not adapt or sometimes had unethical ramifications for the control or experimental group (Greene, 2007). Some practitioners lamented this, saying, “defensible experimental research required standardized strategies in tightly controlled contexts, but good practice required constantly adjusting strategies to changing circumstances” (p. 35). Some researchers/practitioners, such as Marris and Rein (1982, as cited in Greene, 2007) found in a program called Community Action Agencies that, “it was impossible to be inventive, flexible and expedient on the one hand and at the same time do careful, scientific, controlled research on the other” (p. 198, cited in Greene, 2007). Importantly, Greene (2007) points out that some critics of the approach of finding “observable phenomenon…privileged the assessment of program inputs and outcomes, with but scant attention to program processes or experiences” (p. 36). With all of these critiques, it was generally considered that these types of experimental approaches were unable to provide sound empirical data to show that “War on Poverty” programs were working (Greene, 2007). Greene states that as a result of this conclusion, in the realm of evaluation studies there was an “explosion” (p. 36) of new ideas and theories, “some of which embraced the qualitative methodologies or the newly understood interpretive and constructivist
paradigms and, some a bit later, more ideologically oriented paradigms of participation, social action, and social justice” (p. 36).

**Mixed methods ideas and studies during and after the paradigm wars**

Research in fields outside of evaluation studies also employed early forms of mixed methods research. This research emerged as a result of what Greene (2007) calls “rapprochement” between the two paradigms of quantitative and qualitative research and their proponents. Gage (1989, as cited in Greene, 2007) said, “it was finally understood that nothing about objective-quantitative research precluded the description and analysis of classroom processes with interpretive-qualitative methods. Classroom processes need not be described in terms of the meaning perspectives” (p. 7). Greene (2007) observes that, “typical of this truce was the idea that qualitative methods were good at gathering data on some aspects of human behavior, and quantitative methods were good for gathering data on other aspects of human behavior” (p. 42). Greene states that this idea of what she terms “complementarity” was an outcome of the paradigm wars debate; that is, each methodological tradition and their associated methods could “contribute uniquely to the results” (p. 42) of a study. Greene begins with the idea of triangulation to explain how these methods were used together to make a study more whole due to limitations of method (be they qualitative or quantitative). She cites Campbell and Fiske’s (1959) model of the MTMM as an origin of triangulation for quantitative traditions, and Denzin’s (1978) text on four forms of triangulation for qualitative traditions. According to Greene and McClintock (1985), triangulation “requires that the two or more methods be 1) intentionally used to assess the same phenomenon, conceptualized the same way; 2)
therefore implemented simultaneously; and 3) also implemented independently, to preserve their counteracting biases” (cited in Greene, 2007, p. 43). Importantly, Greene identifies the point of triangulation in mixed methods research as not only convergence and corroboration, but also as a moment to take advantage of “divergence and dissonance” (p. 44). She states that most of the studies using triangulation which she had reviewed had not realized the potential for triangulation to unveil these moments of disjunction, but rather had moved towards convergence.

Much like the Greene, Caracelli, and Graham (1989) study today, there were a few early empirical mixed methods studies which were often cited during this formative time (Phelan, 1987, Trend, 1979); these studies were cited because of their “clear, unequivocal demonstration of insights and inferences that were attained from the mix of methods and that would not have been attained with only one type of method” (Greene, 2007, p. 45). According to Greene (2007), Sieber (1973) and Madey (1982) were also cited early on, Sieber for his use of both survey and field work in sociology, and Madey extended these ideas into the field of program evaluation. Greene states that the key contribution of these two people was the idea that one method could develop the other. For example, Madey (1982) proposed using qualitative observations to construct survey items on a quantitative instrument. Greene (2007) summarizes, “in sum, the work of Sieber and Madey highlighted the contributions possible with a sequential and balanced use both qualitative and quantitative methods in social inquiry” (p. 45). Brewer and Hunter (1989) also stressed integration of the different methods being mixed in the study, and their work was updated in 2005 (Greene, 2007).
There were also some foundational ideas that carry into the more recent history of mixed methods, namely, the ideas of corroboration (or convergence,) (Greene, 2007), elaboration (referred to earlier as complementarity by Maxwell, 2009; Greene, 2007) through methods by providing “richness and detail” (Greene, 2007, p. 46), and initiation, which not only suggests areas for further research due to the mixing of methods, but also may call the entire research inquiry into question (Rossman & Wilson, 1985). According to Rossman and Wilson, “‘initiation brings with it a fresh insight and a feeling of the creative leap…rather than seeking confirmatory evidence, this [initiation] design searches for the provocative’” (as cited in Greene, 2007, p 46). Finally, and perhaps most salient to this project, Rossman and Wilson offered three views of the way in which mixed methods was framed in terms of the paradigm war: “‘1) the purists who say ‘Absolutely not,’ 2) the pragmatists who say ‘Of course, what’s the problem here?’ and 3) the middle-ground situationalists who say ‘Maybe especially if we reframe the notion of philosophical paradigm’” (Greene, 2007, p. 46). The idea of what Howe (1988) calls the incompatibility thesis (matching up with the idea of 1) above) is also prevalent in the literature around mixed methods even today, that is, the question of whether the differing paradigms of qualitative and quantitative inquiry can or cannot “talk” to each other. Mixed methods, in its quest to achieve “what works,” is pushing critiques such as the incompatibility thesis to the margins of the research process, rather than allowing philosophy and research design to interact in productive ways. These themes continue in mixed methods inquiry and critiques today, as we shall see in the next section.
Mixed methods – 1990s to today

Though it has some historical reference point, mixed methods has just recently been focused upon again with Greene and Caracelli’s (1997) edited volume, *Advances in mixed methods evaluation: The challenges and benefits of integrating diverse paradigms* and Tashakkori and Teddlie’s (2003) *Handbook of mixed methods in social and behavioral research* emerging as major works and contributions in the field of mixed methods inquiry. Many studies in the *Handbook* are labeled “mixed methods” and the *Handbook*’s very existence is testament to mixed methods as an emerging methodology in educational research, showcasing emerging research applications for mixed methods in a number of diverse fields and disciplines. It bears repeating that mixed methods sees itself as having the ability to combine both “numbers,” a rather reductionist quantitative view, and “voice,” an equally reductionist qualitative view, and, as such, is seen as an attractive “third methodological movement” (Tashakkori & Teddlie, 2003, p. 5). More recently, Creswell (1994), Morgan (1998), Newman and Benz (1998), and Tashakkori and Teddlie (1998) have made major contributions to the formation of mixed methods inquiry, tackling such issues as study identification under categories (Creswell), issues such as validity and inferences from mixed methods studies and data (Newman & Benz, Tashakkori & Teddlie), and even decision matrices (Morgan) for the types of mixed methods designs to use in certain research situations (as cited in Creswell & Plano-Clark 2007).

Mixed methods was brought to education by way of Johnson and Onwuegbuzie’s (2004) article in which they suggested mixed methods research was a natural complement
to both quantitative and qualitative research conducted traditionally. Other articles, specifically in education, seem to say that the idea of combining methods and paradigms is a “good thing,” shown in titles such as “Positivists, post-positivists, post-structuralists, and post-modernists: Why can’t we all get along? Towards a framework for unifying research paradigms” (Onwuegbuzie, 2000). Some mixed methods researchers propose the idea of leading with qualitative procedures and following with quantitative procedures (Mason, 2006), and some attempt to use statistical procedures in the treatment of qualitative data (Shaffer & Serlin, 2004).

In a section titled “recent indicators of interest,” Creswell and Plano-Clark (2007) elaborate on a number of mixed method events occurring recently that might indicate a more recent “turn” to mixed methods as an alternate mode of inquiry. One of the items on the list includes the National Research Council’s (SRE) document (2002), and Creswell and Plano-Clark think that this document lends itself to mixed methods inquiry. Other items include such facts as finding more than 60 journal articles in the social and human sciences between 1995 and 2005 which are employing mixed methods (though Creswell and Plano-Clark do not reveal the theoretical lens they are using to determine whether a study is mixed methods, which, importantly, differs from Greene, Caracelli and Graham’s, 1989 article), the formation of a special interest group on mixed methods in the American Educational Research Association, and finally the formation of the Journal of Mixed Methods in 2005, in which the call for papers states, “the definition of mixed methods research is research in which the investigator collects, analyzes, mixes
and draws inferences from both quantitative and qualitative data in a single program or study of inquiry” (Creswell & Plano-Clark, 2007, p. 17).

Understanding the mixed methods landscape in education

The resurgence of mixed methods studies purports to be beneficial for educational researchers and has the potential for producing potentially useful research for the field. However, there has not been a study of the manifestations in mixed methods in higher education research to date. This review of the higher education literature analyzes studies that purport to be mixed methods and, through the lens of “smart” and “vulgar” uses of mixed methods, organizes the extant literature into major themes and trends. This review will set the stage for the current research project of the dissertation, which uses a major data collection tool in higher education today (The National Study of Student Engagement or NSSE), combined with a mixed methods research design.

“Smart” versus “vulgar” uses of mixed methods

In order to create a narrative of what “smart” mixed methods is, this analysis relies heavily on Creswell and Plano-Clark’s (2007) work titled Designing and conducting mixed methods research. For them, the definition of mixed methods research is as follows:

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of the data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it
focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. (p. 5)

Though some of this is explored elsewhere as potentially problematic, this is a definition that is seen as a “middle ground [that] seems to provide the broadest definition possible…” (p. 5). Creswell and Plano-Clark’s definition includes room for both underlying assumptions and elucidation of methods, and seems to be the most inclusive to move forward with in this analysis in terms of “smart” mixed methods.

By implication, then, “vulgar” uses of mixed methods would be those uses that leave out some elements of Creswell and Plano-Clark’s (2007) definition. For example, those mixed methods studies that the authors call “studies in the gray area” (p. 11) might be labeled, for the purposes of this analysis, as “vulgar.” For Creswell and Plano-Clark, these studies are characterized in four major categories: “a study employing minimum qualitative research, a content analysis study, multimethod research, and mixed worldviews” (p. 12). A study that employs minimum qualitative research, for example, might be something like a survey-based study, in which the survey contains open-ended questions. Creswell and Plano-Clark argue that the qualitative data on the open-ended questions does not allow for rich context and very detailed information from those taking the survey. Content analysis studies would be a study in which one type of data is
collected (quantitative or qualitative), but is then analyzed using both types of methods. An example of this might be a study in which interviews are conducted and emergent themes are analyzed (qualitative data with qualitative analysis) but quantitative analyses are also applied (a researcher might count certain words and then run descriptive statistics on instances of those words). Multimethod research, according to Creswell and Plano-Clark, is a study in which the inquirer collects multiple forms of one type of data. An example of this might be a quantitative study in which the researcher conducts a survey and observes behavior in a structured manner. This resonates with the distinction made earlier that Tashakkori and Teddlie (2003) make between mixed methods and multiple methods. Finally, a mixed worldviews study, as described by Creswell and Plano-Clark, would be a study in which a researcher uses two types of worldviews in one study. In their example, Creswell and Plano-Clark describe the following situation:

Assume that a researcher uses both a worldview associated with qualitative research, such as social constructivism, in which the meaning of lived experiences is explored for the participants, and a worldview associated with quantitative research, such as postpositivism. Also assume the methods of data collection consist of standardized instruments. Here multiple worldviews are employed that are typically associated with both quantitative and qualitative research, but the actual data collection consists of quantitative data. (p. 12)
They conclude that this is a mixed methods example, at least in the methodological sense, but not in the methods sense because only one type of data is collected.

“Smart” mixed methods, but not necessarily smart methodology

The articles gathered here represent what has been described above as “smart” mixed methods, that is, having the following elements: “the collection, mixing, and analyzing of both qualitative and quantitative data in a single study or series of studies” (Creswell & Plano-Clark, 2007, p. 5). However, methodology in the sense of engaging philosophical issues was rarely discussed in these articles. Though there may be some debate as to whether the philosophical assumptions of mixing should be discussed in methodological terms, these articles did not have discussions in the methodological realm. The author takes the stance that “smart” mixed methods studies should include this, but for the purposes of this review, most articles that seem to have thoughtfully “mixed” the methods shall be included. There are a few exceptions that did engage methodological discussion, which shall be covered below in the next section (namely, Torres, 2006). These articles were rare in the literature, though their existence is a testament to the idea that there are mixed methods studies in higher education that fit Creswell and Plano-Clark’s (2007) definition, and, for the purposes of this paper, are labeled “smarter.”

Qualitative research as exploratory only

Though there are many studies included here which do an adequate job of incorporating qualitative and quantitative modes of data collection, there are some studies in particular that seem to relegate qualitative research only in the realm of the
exploratory. Howe (2009) cautions against this, saying, “as in the positivist conception, quantitative/experimental methods do the real work of science in the context of justification; qualitative/interpretive methods are subservient, relegated to the context of discovery” (p. 439). There are two studies in the literature that represent this relegation, Tones, Fraser, Elder, and White’s (2009) study, and the research article by Igo, Kiewra, and Bruning (2008). Tones et al. (2009) examined mature aged students to discover what these students thought about university services designed for support, as well as various barriers to academics these students might identify. This study led with interviews and focus groups; from this data, a survey instrument was formed and quantitative data was analyzed as if it was detached from the original data source for the survey (the qualitative data). Though Fowler (2001) recommends the use of qualitative data procedures such as focus groups for the formation of a survey, his recommendation occurs outside of a mixed methods context. The authors of this study (Tones, et al., 2009) choose to analyze the quantitative data source in much more depth, though they themselves identify the need for in-depth research on this college population. Igo et al. (2008) also use qualitative and quantitative data from previous research to guide their “mixed-methods” design, but in this study, they set up four experimental conditions to measure note-taking behavior of students from text online. Interestingly, because their findings did not synch well, they decided to implement another qualitative sequence into the study, only to have the quantitative data they collected from the experimental condition explain most of the study findings. This type of mixed methods design seems
to use qualitative merely for exploratory purposes, but like Howe (2009) states, quantitative data collection seems to be doing the “real work.”

**Quantitative as exploratory only**

In contrast, there are some studies that use quantitative procedures as exploratory and follow up with qualitative data procedures. An example of this would be Shammas’ (2009) study in which 753 Arab Christian, Arab Muslim, and non-Arab Muslims from 21 different community colleges were asked about the levels of discrimination they faced after the 9/11 attacks on the World Trade Center in New York. The survey data stated that there were lower levels of reported perceived discrimination among the students than expected, and the focus groups found that the way in which the questions were being asked did not resonate with the students’ experience of discrimination.

**Studies on marginalized or overlooked populations**

Similar to this type of research on students’ experience with discrimination (in this case, racism), in Howard, Zoeller, and Pratt’s (2006) study, a series of sociology classes were examined using mixed methods (namely, survey questionnaires, observation, and interview methods) to determine if a student’s race had any bearing on how and why students participated in class discussions. Employing observations of the classroom environments and the questionnaire, the researchers found that certain groups of students were more likely to participate in class discussions (white students) than other students (students of color). However, this study was missing an element of theoretical frame, and could have been enhanced by something like critical race theory to analyze
the findings more deeply. They did find that students of color were more likely to participate in the class discussions around certain topics, specifically racism.

Multiple articles also discuss women as the focus of their mixed methods studies. In Knightley and Whitelock’s (2007) study, they discuss the impact that entering higher education may have on the self-esteem and the sense of self of female undergraduates. In this study, due to the complex nature of the phenomena under study, the researchers suggest using mixed methods to explore self-esteem. The researchers use two instruments and a semi-structured interview with the undergraduates and find what they term “different but complementary aspects of the self” (p. 217). In Fox, Sonnert, and Nikiforova’s (2009) study, programs for women who are in science and engineering majors are also examined using mixed methods. This study allows the methods and data from their collection to both converge and diverge, finding that programs that consider structural and institutional issues are the most successful with getting women through their college careers. However, this analysis does not use any framework of feminism, for example, to make the interpretation of the data more full and robust.

Exter, Korkmaz, Harlin, and Bichelmeyer (2009) conducted a study of an often overlooked student population: distance students. In their mixed methods study, they used a modified instrument, in a pilot fashion, in the interest of measuring the sense of community that an online space for distance students might create. They analyzed the instrument and its associated open-ended items and compared these with the interview transcripts to find moments of match/mismatch, and forward suggestions that they think might help those working with distance students. The comparison of the interview data
with the survey data is very important for this under-studied population given the dearth of research about them. Kinser and Deitchman (2008) identify another often ignored population, the “tenacious persister,” those students who come to college at least three years out of high school or have stopped going to college but start again. Their mixed methods study found that those who were labeled “tenacious persisters” were more likely to attribute the reasons they were no longer in college to significant “barriers and personal deficiencies” (p. 137). Using mixed methods, they were able to look in-depth at these students and give much insight to educational practice with them in higher education spheres, particularly at community colleges. Finally, Schuetz (2008) discusses a new model of community college student engagement. In this study, participant observations and semi-structured interviews are used to guide which type of model the researcher uses as a conceptual frame to guide her research. The researcher then uses structural equation modeling on the data to compare with the Community College Survey of Student Engagement. In some sense, this study is what Creswell and Plano-Clark (2007) refer to as a mixed worldviews study, because the participant observation portion of this study contains both quantitative and qualitative elements.

**Smart mixed methods and service-learning**

There are also a few studies that use mixed methods in a “smart” way that focus on service-learning. In Simons and Cleary’s (2005) study, a pre/post-test is coupled with a semi-structured interview to evaluate the usefulness of a service-learning model. Interestingly, these researchers posit a hypothesis that raises a question of how much they let their qualitative data “emerge.” One might wonder if the hypotheses should
apply to something like finding out if students benefit from service-learning when a study contains a qualitative element. Cone (2009) uses a mixed methods design to examine what, if any, effects community-based service-learning (CBSL) had on pre-service elementary teachers regarding teaching science for diverse populations. A pre-test/post-test design was used and coupled with semi-structured interviews. Using mixed methods in data analysis, the author concluded that using CBSL experiences, “when supplemented with discussions and activities about diversity, [is a way] to improve their self-efficacy beliefs regarding equitable science teaching and learning of ‘all’ students” (p. 356).

**Student behavior in higher education settings**

There are a large number of “smart” mixed methods studies that explore student behavior in higher education settings. These studies, for the most part, use survey methods and qualitative data (through interviews or focus groups) and do a good job of integrating and treating the qualitative and quantitative data (unlike the section titled “underutilization of qualitative data” below). In summary, these articles cover the following topics: the relationship between academic motivation and procrastination in undergraduates (Klassen, Krawchuk, Lynch, & Rajani, 2008), deliberate student self-harm (Best, 2009), the illegal use of ADHD stimulants (DeSantis, Webb, & Noar, 2008), student drinking behavior (Orford, Krishnan, Balaam, Everitt, & Van der Graff, 2004), and student critical thinking skills in online and face-to-face class discussions (Guiller, Durndell, & Ross, 2008). The studies, through their use of mixed methods, illuminate the nuance of student behavior in higher education settings, though all of these studies do lack a coherent theoretical framework, with the exception of Best’s (2009) study. For
these studies, researchers are much more invested in method than methodology, and though they have useful findings, these findings could be bolstered through the elucidation of a clear theoretical frame.

**Mixed methods and specific disciplines**

The literature review also produced multiple studies that focused around a specific discipline using mixed methods. Kormos, Csizer, Menyhart, and Torok (2008) used interviews and questionnaire data to study Hungarian students who were learning English. They discovered that students had little investment in maintaining their language competency, and, by using the qualitative and quantitative data, concluded that one cause may have been the “teacher-centered” nature of the classroom. Bishop-Clark, Courte, Evans, and Howard (2007) studied the use of a programming language called “Alice” in an introductory computing class. Students were given a questionnaire before and after they were exposed to the “Alice” language. Qualitative focus groups were held in order to provide an outlet for students to talk about their experience, as well as the instructors asking students to complete reflection papers. From the quantitative and qualitative data sets, the researchers found that students enjoyed the program, but it also increased their enjoyment of computer programming. Lopez-Fernandez and Rodriguez-Illera (2009) studied the relationship between student learning and student perceptions, and attitudes and behaviors of students at two Spanish universities through the use of an e-portfolio. Multiple forms of quantitative and qualitative data were analyzed (including the students’ e-portfolios), and the findings indicated that although students enjoyed using the eportfolio system, they did not report or display an impact of this tool on
learning. Parke (2008) studied how graduate students communicated the “language” of statistics. Quantitative and qualitative data helped the researchers unravel how students were discussing statistics, and an in-depth qualitative analysis (paired with an in-depth quantitative analysis) helped the researcher see that learning about statistics was taking place. Harms, King, and Francis (2009) examined agroecology students using mixed methods (a survey with open-ended items, coupled with participant observation), and used statistical procedures for the quantitative data combined with grounded theory for the qualitative data. The researchers end by producing a “comprehensive grounded theory model” (p. 183). Finally, Matthews, Adams, and Goos (2009) examined the perceptions that students in science majors had of their experiences. Through surveys and focus groups, they found that students who come in to college with a strong foundation in mathematics will benefit from an interdisciplinary course (which, at their place of study, was an intervention), but students who do not have this foundation will not benefit as much. They also found from the focus groups that students bring many perceptions about math and science from their experiences in high school.

**Faculty in higher education**

Surprisingly, there were very few studies in this “smart” mixed methods category that focused on faculty in higher education settings. Light, Calkins, Luna, and Drane’s (2009) study used mixed methods to study the impact of a program designed to develop faculty who had not yet received tenure. Through their data collection and analysis of their quantitative instrument and interviews, they found (in each data set) that there was some evidence that the program had moved the faculty towards student-centered
teaching. Nicolle and Lou (2008) studied those things that motivate faculty to use technology in their teaching. Surveys and interviews were conducted, and from this data, the researchers found that “peer interactions and collegiality are significant direct effects in helping faculty members learn new innovations and strategies” (p. 235). However, this is a study that uses mixed methods and mixed methodology interchangeably, and one should use caution not to conflate the terms. Fillion, Limayem, Laferriere and Mantha (2009) examine the way in which onsite and offsite professors teach students through courses offered. They also use a mixed methods approach to study the students’ perceptions of these modes of teaching. They find that the quantitative and qualitative data (from surveys and interviews, respectively) offer a good comparison to perceptions of both parties. However, they do use the term multi-method when it could be argued they mean mixed methods.

**Student recruitment, student persistence, and leadership**

Also present in this literature are issues that have been prevalent in higher education throughout its history, namely, student recruitment (Frolich, Brandt, Hovdhaugen, and Aamodt, 2009), student persistence (Ivankova & Stick, 2007), and leadership (Muijs, Harris, Lumby, Morrison, & Sood, 2006). Frolich et al. (2009) used interviews and document analysis as well as a quantitative examination of student market positions in various higher education institutions in Norway. They explicate various marketing strategies that attract students in the face of performance-based funding mechanisms, and their mixed methods study is able to compare the micro system (practice of recruiters) to the macro system (Norwegian economics). Ivankova and Stick
(2007) use surveys and interviews to find multiple factors that lead to students’ persistence at an institution of higher education. These factors are then compared to related research. Muijs, et al. (2006) examine, through the use of mixed methods, the relationship between leadership development and behavior. They use a survey, focus groups, and interviews to determine that “transformational” leadership was the most effective according to the data. Like the studies above, these studies lack a major theoretical framework that guides them. The focus is instead upon the “complementarity” (Greene, 2007) or triangulation of the methods, but at the cost of ignoring the philosophical assumptions behind the themes of the research. With these three topics in particular and their research base in higher education, some engagement with a theoretical frame might have been more useful when coupled with the data analysis.

**Learning communities in residence halls**

Schussler and Fierros (2008) studied a learning community in a residence hall at a private, mid-sized university. Using mixed methods in the form of a survey, an open-ended survey, and focus groups, the researchers examined whether the learning community model affected the first year students’ sense of belonging at the university, the perceptions of their academic environment, or relationship with their peers at the university. Due to the combination of data and methods in this study, Schussler and Fierros found an affirmation in “the positive impact of combining residential living with a common course for helping first-year college students establish an academic support network and sense of connection to the institution but suggest that the level of intensity of
the learning community model may have less of an impact on development of social networks and relationships with professors” (p. 71).

**Teacher education**

Finally, teacher education is another area in which the mixed methods literature deemed “smart” focused upon. Lustick (2009) used mixed methods to study student science teacher candidates in the context of a curricular innovation which was “designed to provide an authentic science inquiry learning experience for 15 secondary science teacher candidates” (p. 583). Through his pre/post-test and qualitative data collection, he found that the project failed to achieve the learning goals it was set to achieve. Using both types of data, he talks about the reason for the possible failure of the experience.

**“Smarter” mixed methods?**

Though these studies all did a good job of combining qualitative and quantitative methods, they do have elements that limit them from meeting Creswell and Plano-Clark's (2007) definition of mixed methods. Few, if any, had any engagement or treatment of methodological issues. Rather, they focused almost exclusively on methods. Importantly, however, one can see (and most authors cited in the previous sections confirm this) that using mixed methods allows insights that would not have been possible with the use of just one method or method type (qualitative or quantitative) alone.

The following studies engage in what is being called “smarter” mixed methods. These studies fulfill the parameters of Creswell and Plano-Clark’s (2007) definition of mixed methods, but have a clear use of methodology and methods.
throughout. The topic areas of these studies are quite varied, but each do a good job of thinking through complex problems that emerge through the relationship of methodology and methods.

Five of these studies examine populations that do not have much literature on them in higher education. Kahveci, Southerland, and Gilmer (2008) used a case study approach (with participant observation and interview aspects) as well as a questionnaire (with interviews as well) to examine how a program for women in science, math, and engineering majors influenced their decision-making in terms of entering the field. They use a strong theoretical frame to guide their study, and interweave the qualitative and quantitative data together thoughtfully with this frame in mind. Practically, their research recommendation is that the type of program they studied could be implemented at low cost in other contexts, and the data allows one to see how to do so. Gill, Sharp, Mills, and Franzway (2008) also study women in the underrepresented field of engineering. This mixed methods study utilized surveys and interviews to examine the relationship between women’s self-image and engineering working contexts, and used a theoretical framework which proved useful to the data analysis (Bourdieu’s *habitus* as well as anthropological frames regarding “communities of practice”). Though the authors identified that school success in math and science led to enrollment in engineering, this positive image was not maintained in the workplace.

Torres (2006) studies student retention of Latino/a students at Hispanic Serving Institutions. In this study, a large section is shown that grapples with the methodological issues at play in the data collection and analysis modes in which Torres states that a
constructivist epistemology is used to analyze the data. Torres identifies that leading with qualitative data requires that one must select strategies that are commensurate with the paradigm used for the study (and cites Lincoln & Guba, 1994, as well as Greene & Caracelli, 2003). Torres also identifies the type of mixed methods study that this is, namely, a “concurrent nested strategy” (p. 301, citing Creswell, 2003). Student persistence is analyzed using a model that emerges from the qualitative data, and Torres then utilizes the quantitative approach of structural equation modeling to test the model. Each step of the way, she is clear why she is making the method and methodological decisions that she made. Similar to Torres’s study, Christ (2007) studies disability support services in higher education arenas, and uses a thoughtful approach in doing so. Christ scours the literature on mixed methods design and finds that “no studies were found that combine exploratory quantitative analysis followed by both an exploratory cross-case analysis, and an exploratory longitudinal analysis” (p. 226). This is an extremely complex study, but set out to show that one can use a recursive approach to data to change or adjust a study accordingly. This is the most unique type of design in this literature review, and possibly the most revealing as far as how mixed methods can show something that quantitative and qualitative alone cannot. Christ states:

The sequential design provided the opportunity to determine how leadership characteristics and staff cohesion had a direct effect upon the provision of disability support services. This finding would not have emerged if the study were limited to survey research or concurrent collection of mixed data. (p. 237)
Finally, Lee and Greene (2007) studied graduate students’ placement test scores and their results on three measures of academic performance using a mixed methods design. In their study, which they label a complementarity predictive validity mixed methods study, qualitative and quantitative data are analyzed with the intention of integrating the two types of data into each other. The key element of this study is the intentionality behind the “mixing” of data, both convergent and divergent data are used and treated to explain the complex relationship at play, producing useful insights. They admit that the relationship is more complex than they hoped it would be, but their recommendations provide a number of useful follow-up studies to explore their findings.

There are two studies that use mixed methods in an interesting way to substantiate and explore theories. Woolley (2009) explores a theory of how to integrate qualitative and quantitative data in order to form a theory of how maximum integration of data can occur, which she calls a “genuinely integrated mixed methods approach” (p. 7). Her approach allows and considers both convergent and divergent data. Micari, Light, Calkins, and Streitwieser (2007) forward a way of looking at mixed methods leading with the qualitative method[ology] (my addition) of “phenomenography,” or the study of how people experience or think about something in different ways. For them, this type of thinking allows a more integrated approach to the field of evaluation towards the end of measuring not only performance, but also thinking of students.
A few studies look at faculty and/or graduate students in various programs in higher education. Holbrook and Bourke (2004) study doctoral assessment in PhD examinations, a topic that they state is relatively unstudied in higher education research. Using mixed methods, they examine information for 800 PhD students in Australia, and use quantitative and qualitative methods to analyze, in-depth, the reports examiners gave for the students. Given the dearth of research on this topic, this in-depth study is very revealing for the field. Building upon this work, Holbrook, Bourke, Lovat, and Fairbairn (2008) then examine the consistency of examiner reports for over 800 theses from graduate students in Australia. They find a large amount of consistency between what examiners say and the final recommendation, though they do find (and highlight) divergent recommendations that examiners make from the rest of the thesis committee. Highlighting this divergence raises some interesting questions for the researchers regarding this practice.

There was one mixed methods study in the literature regarding teacher education that should be highlighted for being “smarter.” Cheng, Chan, Tang, and Cheng’s (2009) study on teacher education is a good example of an integration of methods and methodology. Through their study, they highlight the frames they think the students are using to make sense of their conceptions of teaching, but importantly, they highlight when the same teachers are inconsistent in their conceptions across multiple methods. This focus on divergence leads the researchers to make appropriate recommendations for teacher education programs, and shows their theoretical frame of student epistemological beliefs in action.
Using philosophy in mixed methods research design

In what follows, the frame of “nomad science” shall be used to understand the potential mixed methods research may have when combined with philosophy. To repeat, nomad science is different from royal science; to Deleuze and Guattari, royal science is “official” and is a striated space, meaning it is rigid and defined. Deleuze and Guattari (1987) state that, “only royal science…has at its disposal a metric power that can define a conceptual apparatus or an autonomy of science” (p. 374). Deleuze and Guattari argue that royal science has its origins in the state apparatus and religion, yet claims it separates itself from these things. They argue, however, that there is still a state that is maintained by this form of science, one “which deprives them of their [potentially autonomous science’s] model, submits them to its own model, and allows them to exist only in the capacity of ‘technologies’ or ‘applied science’” (p. 373). For mixed methods, and this project, then, this means that those findings that are clean and harmonious are more likely to count as knowledge, while those areas that diverge do not. This could also imply that mixed methods could be easily reducible to methods alone or “what works,” or that there could be the presence of some overarching paradigm that takes the place of engagement of philosophical issues which may need to be addressed. In this case, it could be the manifestation of “vulgar pragmatism.”

Alternatively, nomad (or ambulant) science is described by Deleuze and Guattari (1987) as:

not destin[ing] science to take on autonomous power, or even to have autonomous development. They do not have the means for that because
they subordinate all their operations to the sensible conditions of intuition and construction – following the flow of matter, drawing and linking up smooth space…However refined or rigorous, ‘approximate knowledge’ is still dependent upon sensitive and sensible evaluations that pose more problems than they solve: problematics is still its only mode. (p. 373, original author emphasis)

Nomad science seeks to follow various lines of flight as they emerge. In mixed methods research, nomad science could manifest itself in practice by “following” divergent data and highlighting it, rather than making it fit a harmonious narrative. Though divergent data might not be replicable, this is not nearly as important as in royal science, in fact, replication might stifle lines of flight. Mixed methods as nomad science produces moments in which one can learn new insights from difference, which could lead to new insights and productive conclusions. But one must be bold in following the lines of flight, as there might not be precedent or exemplars to draw from in the research. It might also allow for the research project to change design mid-study and move towards an emergent research design, depending on how the data collected interacts with the study. Divergence becomes an asset, rather than something that may be absent or cast aside in data analysis.

Smooth or nomad science must resist the impulse to harmonize data or it risks becoming royal science, or mixed methods without the interaction of philosophy. To reiterate, Deleuze and Guattari state that, “the way in which a science, or a conception of
science, participates in the organization of the social field, and in particular induces a division of labor, is part of that science itself” (p. 369). In royal science, particularly with mixed methods, this would be evident in studies in which philosophical issues are ignored, or perhaps when (vulgar) pragmatism is used as a stand-in to a philosophical conundrum. Again, royal science, or mixed methods without philosophical interaction, avoids “taking the side of the messy” (Lather, 2009), and as such, may fall into abeyance. Examples of this might be above in the “smart methods” but not necessarily “smart methodology” section, such as Tones, Fraser, Elder and White (2009), Klassen, Krawchuk, Lynch, and Rajani (2008). However, a mixed methods framework that can bear multiple coherencies and follow various lines of flight could be what quantitative and qualitative researchers could “bear to learn” from mixed methods researchers engaging in “smarter” mixed methods, such as Torres (2006), Christ (2007), and Lee and Greene (2007). Also, those engaged in mixed methods research projects which do not engage philosophical issues could learn much from those doing the “smarter” work of allowing philosophy to interact with the research design.

**Implications for this project**

In this project, then, the data will seek to utilize a “smarter” mixed methods frame highlighting moments in which philosophy and research design intersect. Divergence will be highlighted when it appears, and the idea of mixed methods being a “nomad science” will guide how the study is conducted and interpreted. Methodology and methods shall be engaged on the level in which philosophical issues can be highlighted. Importantly, various “lines of flight” shall be explored as they come about, moving
towards a more open view of mixed methods research. The connections between philosophy and research design will be highlighted to show just how important and productive these connections can be when utilizing mixed methods.

**Conclusion: Moving towards mixed methods as nomad science**

This chapter provided an overview of the mixed methods landscape, in the context of higher education inquiry. This overview was divided into two sections: those studies which seemed to use the methods intelligently but did not interact with philosophical issues, and those studies which genuinely seemed to grapple with philosophical issues in such a way to exemplify what is being called “smarter” mixed methods. Finally, Deleuze and Guattari were discussed here, specifically their ideas of “smooth space” and “nomad science” and how these ideas relate to the mixed methods analysis in this literature. The next chapter will address what nomad science in mixed methods looks like through the study of undergraduate “student engagement” (Astin, 1984; NSSE 2010).

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3 Dr. Lather has put together a list of mixed methods exemplars which are “smart” in their use of both research design and philosophical interaction – this is the inspiration for the title of this dissertation, as well.
Chapter 3: Research Methods – Philosophical Interaction and Emergent Design: Towards a Nomad Science

Though there has been a great amount of writing on the “paradigm wars” of the 1980s and 1990s which occurred as a result of the tensions between post-positivism and interpretivism, mixed methods practice was occurring in the fields of educational research and program and evaluation studies. While the issues of the paradigm wars are important in their own right, the focus here will be upon what was happening with mixed methods during these contentious times. Many mixed methods histories will cite Greene, Caracelli’s, and Graham’s (1989) study of 57 educational evaluation studies which they label mixed methods (Tashakkori & Teddlie, 2003, Creswell & Plano-Clark, 2007, Johnson & Onwuegbuzie, 2004 are some examples) as one of the “beginnings” of the mixed methods movement. In this study, the researchers examined 57 evaluation studies and arranged these studies into five “purposes” for mixed methods studies, and found that there was rampant misuse of the “triangulation” purpose. The researchers also found that most studies did not integrate different types of data at the analysis level of the evaluation, calling their “true” mixed methods nature into question. This study (Greene, et. al, 1989) was one of the first studies to comprehensively examine studies in a mixed methods meta-analysis of sorts, but perhaps the most long standing use of this study is the theoretical framework it provided for mixed methods conceptualization. Specifically, their ideas of “triangulation” and “complementarity” are terms still used in the last
decade when talking about mixed methods research (Creswell & Plano-Clark, 2007; Maxwell, 2009).

**Tracing the history of contributions to mixed methods research**

In order to position this study as a mixed methods study taking place in a larger landscape, this section will cover briefly the history of contributions made by various thinkers to the practice of mixed methods inquiry. This section will cover the contributions of various authors to the methodological “toolkit” of mixed methods researchers. Creswell and Plano-Clark (2007) have designed a brief chart in their work dividing mixed methods research into four “stages of development” (p. 14). This overview will provide a helpful tracing of how these various authors contributed to the thinking around mixed methods.

**Formative period and contributions: Stage one**

In this early stage of mixed methods research, the “formative period,” Creswell and Plano-Clark (2007) speak about four authors’ contributions to mixed methods thinking. First, Campbell and Fiske (1959) are given credit for introducing multiple quantitative methods in one study (this is the MTMM as described earlier). Then, Sieber (1973) is described as the first to combine both surveys and interviews in a study. Creswell says that then Jick (1979) discussed the idea of “triangulating” qualitative data and quantitative data with one another. Finally, Cook and Reichardt (1979) discussed ten different ways in which a study could combine both qualitative and quantitative data.
Paradigm debate period and contributions: Stage two

Creswell and Plano-Clark (2007) then describe the next stage, which they term the “paradigm debate period” (p. 14). Though this period was discussed more in detail in Chapter two, the authors highlights what specific contributions they posit this period had for mixed methods research. First, they cite Rossman and Wilson (1985), who discussed three different ways in which one could think about combining methods: “purists, situationalists, and pragmatists” (p. 14). These stances are discussed earlier; recall that purists are those who “can not mix paradigms,” situationalists are those who adapt their methods to the specific context of a study, and in the words of Creswell and Plano-Clark, the pragmatists are those “who believe that multiple paradigms can be used to address research problems” (p. 15). Bryman (1988) was one of the first who stated that the two traditions of qualitative and quantitative inquiry had connections to each other, while Reichardt and Rallis (1994) “discussed the paradigm debate and reconciled two traditions” (p. 14). Creswell and Plano-Clark (2007) do state that the issue of combining paradigms is still an issue, but they take the side of Tashakkori and Teddlie (2003) in thinking that “what works” is best. Finally, Greene and Caracelli (1997), suggested that we “move past the paradigm debate” (p. 14). Importantly, however, Greene (2007) states in her work that we should be clear about when we use various paradigms, and not ignore them. One might think Creswell and Plano-Clark could be mis-characterizing her work here.
Procedural developmental period: Stage three

In this stage, Creswell and Plano-Clark (2007) list the various contributions to the procedure of mixed methods work which occurred. They start by citing the Greene, Caracelli, and Graham (1989) study in which the authors described a way of classifying into various mixed methods “types,” 57 evaluation studies. Next, Creswell and Plano-Clark cite Brewer and Hunter (1989), who, they say, linked “multimethod research to the steps in the process of research” (p. 16). Morse (1991) developed a notation system for the types of mixed methods studies (this dissertation will use a variation of that notation system in this chapter). Creswell (1994) created what he and his co-author call “three types of mixed methods designs” (p. 14), which were intended to make understanding the mixed methods designs as simple as possible. Morgan (1998) is given credit for developing a way to understand which type of mixed methods design to use in various mixed methods research endeavors. Newman and Benz (1998) and Tashakkori and Teddlie (1998) wrote books which “began to map the contours of mixed methods procedures, paying special attention to such issues as validity and inferences” (p. 16). Finally, Bamberger (2000) is heralded as the researcher who brought an “international policy focus” (p. 14) to the mixed methods research field.

Advocacy as separate design period: Stage four

In this final stage of Creswell and Plano-Clark’s understanding of contributions to mixed methods research, mixed methods is here defended as a viable and productive alternative/complement to the traditions of quantitative and qualitative research. Tashakkori and Teddlie (2003) are given credit here as providing a “comprehensive
treatment of many aspects of mixed methods research” (p. 14) through the *Handbook of Mixed Methods*. Creswell (2003) is highlighted as comparing these three ways of doing research (quantitative, qualitative, and mixed methods), while Johnson and Onwuegbuzie (2004) are credited with “positioning mixed methods as a natural complement to traditional qualitative and quantitative research” (p. 14). This is the moment in which this dissertation finds itself, a moment where mixed methods is still considered skeptically in some circles. Importantly, one should note that this stage, at least as it appears in the description of Creswell and Plano-Clark, does not speak about paradigmatic debate. One might think this is an important piece of trying to convince those rooted in qualitative or quantitative traditions only that mixed methods is a viable way of doing research.

**Mixed methods and this study**

This study used what Greene (2007) refers to as an “integrated mixed methods design” (p. 125) in four research phases. Phase I was the results of the initial NSSE instrument given to students in Fall of 2010, Phase II involved me sitting with the students while they took the NSSE and interviewing them, Phase III consisted of student journals, kept for one week, and finally, Phase IV involved interviews of students around their definition of “student engagement.” For this type of design, the defining type of characteristic is the “intentional interaction among different sets of data during the study, especially during the analysis stage” (p. 144). This means that quantitative and qualitative data must be compared with each other throughout the study, in moments where the data matches as well as when it does not. Greene states that these interactive
moments are precisely where the creativity around mixed methods thinking can occur. Disjunctive points in the data can lead to new directions, and, for this project, this is where the projects purports to follow “lines of flight” as they emerge.

These interactive analyses also, Greene (2007) states, “should include planned stopping points at which the inquirer intentionally looks for ways in which one analysis could inform the other” (p. 144). In this study, the planned stopping points were between each phase of the research study, however, in an effort to pursue the idea of a “nomad science,” unplanned stopping points or moments when the data requires pause shall be highlighted as well. In this way, the dissertation sought to exemplify the idea of “smooth space” in which lines of flight can truly emerge. One runs a risk of stifling creativity with planned stopping points, though at some point one must do the research in some coherent form. Therefore, data analysis in this project divided itself into multiple sections, with each section containing overt steps to dialogue and confront with not only the analysis or analyses on the data sets in question, but also in the moments where both harmonious data and disjunctive data occured in an effort to deepen understanding towards the ends of the major research questions. Importantly, though, as Jones, Torres, and Arminio (2006) say, paradigmatic issues are generally ignored in mixed methods research (instead there is a focus on methods), and as a result, the “focus on methods alone prompts questions about the validity or trustworthiness of the design” (p. 135). As a result, this study will try and show detailed steps to research decisions, engaging both philosophy and method in the research design, rather than method alone.
Sample

The study had four phases: in the first phase, the National Survey of Student Engagement data from 2010 for a large, Research I public institution was analyzed in order to identify and get a picture of the students who are “representative of the phenomena of interest” (Patton, 2002, p. 177), that is, first and fourth year students and their “engagement” (Astin, 1984; NSSE, 2010). Given this dataset, first and fourth year students at the university were solicited for the study. These were the types of students who were drawn for the sample used for NSSE when it was administered in the Fall quarter. Special attention was paid to the demographics of the respondents, to compare this sample to the qualitative sample in the next three phases of the study. Furthermore, the sample drawn for the qualitative study examined first and fourth year students at the university, according to university records. The university used a stratified proportionate random sampling technique to select students to participate in the NSSE in March of 2010. The notation for this section of the study (Phase I) is listed as QUAN, and used the existing, de-identified NSSE 2010 dataset provided to the researcher.

After examining the NSSE 2010 quantitative data set, fifty students who were either first year or fourth year students were selected from a stratified, random sample to participate in interviews (Phase II). This stratified, random sample was provided after the dissertation research was approved by the Institutional Review Board. Each student solicited for participation was told that there were three phases to the study, and that the study would take place over three consecutive weeks. Using Patton’s (2002) idea of “theory-based or operational construct sampling,” (p. 244) first and fourth year students
were chosen to delve more deeply into the sample from which NSSE is traditionally
drawn, in an effort to further understand student engagement.

In this phase (II) of the study, the phenomenon of interest was the conceptual state
students are bringing to the table when they take a survey like NSSE in a higher
education setting, given their experiences in college thus far. This phase of the research
sought to unravel how students comprehend the survey items while engaged in the
process of taking the instrument. The study also sought to explore the types of judgments
they make when responding to the survey items in terms of frequencies of a specific
behavior. As such, the qualitative sample was kept small, as each student was talking
about their thoughts while taking the thirty item NSSE survey, as well as answering some
structured interview questions related to their experience with the survey and their own
personal experience, all within one hour interview sessions. Furthermore, it was hoped
that each participant would take part in all three phases of the study, which occurred over
a three week time period. Realistically, then, since the time commitment was so high
from students, the sample was kept small so each participant could participate fully in
each qualitative phase of the study. Of the 50 students asked to participate in the study,
six (three first year and three fourth year students) accepted the invitation to participate in
the full study. One student dropped out of the study once the confirmation email
mentioned that the study would take place over three weeks, though the invitation had
mentioned this as well. Fifty students were solicited for participation because the
chances of getting a large number of students to participate in a three week study were
potentially slim, so there was some oversampling which took place to help find those
students most likely to participate. Multiple chances for participation were sent, and incentives were also offered for participation in the study in each phase. Participants were given a $10 gift card for participation in Phase II, a $10 gift card for participation in Phase III, and a $30 gift card for participation in Phase IV. The incentive structure was formed this way in the hopes that students would see the study through to the end in order to get the higher value gift card and provide data for all three phases of the study.

**Demographics of the quantitative sample**

The NSSE was administered in the Fall of 2010. This survey was given online to a sample of first year students and a sample of fourth year students at a large, midwestern university. For this administration, the response rate by class rank was 23% for first year students and 21% for seniors. The total number of first year respondents was 2,209 and the total number of fourth year respondents was 2,661, for a grand total of 4,870 participants, with a response rate of 22%. The NSSE drew a sample of 9,645 first year students and 12,651 seniors for the survey. According to the university’s common data set, this was a census-based sampling frame, which, importantly, used students from all campuses, not just the main campus of the university (this particular midwestern university has six campuses). By class, the sampling error was 1.8% and 1.7%, with a sampling error of 1.2% across both classes.

For the responding sample, 60% of the respondents who were first year students were female, compared to 40% of the respondents who were male. For seniors, 59% of the responding sample were female and 41% were male. International students comprised nine percent of the responding first year sample and five percent of the fourth
year sample. The majority of the responding sample was white (73% for first year students and 78% for fourth year students), following by Asian/Asian American/Pacific Islander (11% for first years and seven percent for seniors). Of the first year responding sample, 22% were transfer students, compared to 31% who were transfer students and fourth years. Four percent of the responding first year sample were students of non-traditional (24 years or older) age, while 19% of the fourth year sample were non-traditional. Finally, 73% of the responding first year respondents lived on campus, compared to seven percent of the fourth year respondents.

**Demographics of the qualitative sample**

Of the five students who actually participated in three phases of the study, all were female. The subject who dropped out of the study was a male senior. Three of the subjects identified as first year students, though one student, an international student, had just entered the quarter of the study (Winter quarter 2011). The other two first year students had entered the university during the Fall quarter of 2010 (when the NSSE was administered). One of these first year students was a varsity collegiate athlete. The other first year student was a special education major. The remaining two students were identified in the sample given to the researcher as seniors, however, one had only been at the university for three years.

Importantly, three subjects identified themselves as a double major on the NSSE survey as well as through their interviews. This identification could also affect their year at the university as currently in the student information systems database (the place in which the sample was drawn from), a student who had multiple majors might be
identified as the year in school in the major in which they have the most credit hours.

One student identified themself as a third year history major and a second year comparative studies major, but had only spent three years at the university. This student, though, according to the university system, had enough credit hours to be a “senior” in the system, and therefore would have been identified in the NSSE 2010 quantitative sample. Importantly, one NSSE item asked students what classification they were in college, so there was the space to clear up these types of data misconstruals.

Furthermore, the international student identified herself as entering the university in the Winter quarter. In three years, when the NSSE will be given again, there may be no variable to indicate when a student entered the university. Therefore, her data would be lumped into the general senior sample, which could be problematic, given the information revealed in her interview about her radically different student experience.

This student entered in a non-traditional quarter (WI), and therefore did not have access to orientation or the in-group of international students who mostly formed their friendships during Fall orientation.

**Methods of data collection**

In Phase II of the study, students sat with the researcher individually and talked through the completion of the NSSE instrument. The intent here was to try and unravel how and what students were thinking while taking the survey, and perhaps test the idea that comprehension and judgment were in fact issues (as Porter, in press mentions above) to be considered with these students while they were engaged in the study. The purpose of these interviews also was to unravel what was meant by the idea of “engagement” in
the mind of students as they thought about their college experience. Astin (1984) defines student engagement as “...the amount of physical and psychological energy that the student devotes to the academic experience” (p. 297). The point of this study was to figure out what students meant by engagement, and see if that linked up with the foundations used for understanding engagement in the NSSE. According to the NSSE data, some questions asked how many times a student participated in a particular activity, but the qualitative interviews helped the data become richer than purely counting the number of times an instance occurred. Students defined what they meant by being engaged in the university setting, rather than having to select a box which may or may not have represented the way they were thinking about their connection with the university. As students were interviewed, the researcher sat with them and talked to them as they took the quantitative NSSE instrument, in an effort to document the thought process behind the selection of items. Morse (1991) calls this the quan+ qual method of simultaneous data collection, though in this phase, the qualitative part of the study was the driving force, so therefore the notation that will be used was quan + QUAL. In this case, the qualitative component was the main focus, while the quantitative component took a secondary role. The data analysis procedure for this section of the study used a constructivist epistemology to understand what the students were saying, in an effort to pay heed to the idea that the researcher and the participants must interact in order to further understand how the data collected created meaning (Lincoln & Guba, 1985).

After the preliminary interview data analysis was complete, guidelines from the second phase of data collection were used to construct a journal for students to track their
daily “engagement” experiences for a week during school. This differed from the time-diary which Porter (in press) suggested, as students entered data on a daily basis about their “engagement.” The items and format for the journal template were derived not only from the NSSE quantitative data questions, but also from the qualitative data collected from the interviews in Phase II (see Appendix A for an example of the journal template). Themes that emerged were used to guide the students in their reflection about the activities in which they felt engaged on the college campus via the online journal. This online journal was a form in which students entered their information online by way of a web link. Data was collated at the end of the week and used to help guide the focus group discussion in the next phase of the study. This section of the study used the notation QUAL (results of Phase II) \(\rightarrow\) QUAL(qan), meaning that the data from Phase I as well as the initial findings of Phase II guided the construction of the journal, which ultimately allowed for some open-ended entries, but was primarily frequency-driven based on student engagement behavior.

Next, one-on-one interviews were conducted with the same group of students who participated in the survey taking/interviews (Phase II) and journaling (Phase III). The purpose of conducting this qualitative data collection was to see how the three data sets engaged in dialogue, but it also gave students a way to explain more in depth what they meant by “engagement” after a week of tracking themselves. This data collection mode might also show that students talked differently about their engagement experiences after being involved in a study of this nature. This phase of the study was primarily qualitative, however, it is should be acknowledged that the conversation was mostly centered, in
some sense, around a quantitative measure. As such, this phase used the notation QUAL(quan), as the quantitative method (NSSE) was embedded within the qualitative method of the interview. This section of the study also used a constructivist epistemology (Lincoln & Guba, 1985) to understand the student experiences better and try to keep true to the idea that the research process, through all three phases was a shared experience between the researcher and the researched. Above all else, though, the emergent research design was catalogued and various decision points were explained as they applied to the emergent research design in an effort to move towards what Deleuze and Guatarri (1987) call “nomad science.”

Therefore, the notation for this type of mixed methods study was characterized as such: Phase I = QUAN, Phase II = quan+QUAL, Phase III = QUAL_{PhaseII} \rightarrow QUAL(quan), Phase IV = QUAL_{PhaseIII} = QUAL(quan). The purpose of writing this notation longhand was to trace the interacting effects the data had on each subsequent phase of the study. Importantly, this type of data collection may also affect how each student interpreted and participated in each phase of the data collection procedure in the study. Though Morse and Niehas (cited in Creswell, 2010) identify the use of square brackets as a “self-contained project within a series of interrelated studies” (p. 57), this project did not use these brackets as notation, as this did not seem to capture how the data informed each phase of the project. This type of project was iterative and the data was truly attempting to dialogue with each phase, in order to help capture very complex data. Greene (2007) would label this an integrated mixed methods design. In some sense, the qualitative components, because the quantitative components alone may
be insufficient, were acting as the primary data collection lead in this study, which was not normally the case in higher education research on this type of scale. However, according to Porter (in press), these higher education measures should all be looked at quite skeptically and examined more in depth.

**Framework for the data analysis**

When engaging in mixed methods research, Greene (2007) has recommendations and important contributions for the ways in which to think about mixed methods. In her extensive list, she highlights some key stances which are important to the data analysis of this study. First, she states that “analytic procedures in a mixed methods study are importantly connected to, but not dictated by prior methodological decisions” (p. 143). This was crucial specifically to this project because the research design was an emergent one, using each phase of the study to build and feed the next phase. She goes on to say that this means that the researcher’s paradigmatic stance as well as the reasons for mixing methods and research design dimensions “indicate broad analytic directions, but rarely specify particular analytic procedures or strategies” (p. 144). This was essential in the data analysis of my study because this allowed for moments of disjunction in the data, which traditional analytic procedures may not allow for. These traditional procedures might be stifling the research process through analysis which seeks to harmonize, and not allowing for new creative moments such as those found in Laughlin and Creamer (2007).

According to Greene (2007), the purpose of data analysis is to first, “reduce and organize the raw data into a manageable form that enables comprehensive descriptive reporting as well as defensible further analyses” and second, to “assess patterns of
interrelationships, connections, or trends, as well as differences, in the data” and finally, to “support and validate conclusions and inferences” (p. 144). Greene states that this applies to “all forms of social inquiry” (p. 144), though in mixed methods, these three purposes must be exemplified in such a way to be clear and cohesive, especially when engaging both philosophy and research design. Greene then reviews a series of five activities for data analysis, which are summarized with moments of critical points italicized. These five activities shall now be discussed, with each activity being spoken of in tandem with data collected in this project. Importantly, though, she states that some or all of these activities are included in data analysis for a mixed methods study, but not all of them are necessary for a complete mixed methods study, depending on the design.

**Step one: Data cleaning**

First, Greene (2007) mentions the idea of data cleaning. Data cleaning in a qualitative data set differs from a quantitative data set, of course, but the basic idea she is trying to communicate is that the data sets are “reviewed for valid responses, methodological soundness, and indicators of variability and range” (p. 144). For qualitative data, this would include making sure that the transcriptions of the interviews with the students were accurate and complete, and for the quantitative data set in this project, this would mean making sure invalid responses were removed from the data set prior to analysis. The quantitative data set received was already “cleaned,” but in an effort to move towards rigor, the data set was again examined using a basic frequency analysis to make sure that there was no errant data that might have made survey responses appear in the data which were outside the range of available survey responses.
This could occur if the coding of the dataset had entry errors present within it. For this analysis, I used IBM SPSS Statistics Version 19, and found that all of the quantitative data was within the acceptable ranges of the survey.

For the qualitative data, the interviews were transcribed as accurately as they could be, and multiple recording devices were used simultaneously if there were unclear words in the recording in an effort to make the transcriptions as accurate as possible. The interview approach used also tried to get validation from the students as far as their statements by using reflective speech patterns (i.e. “what I hear you saying is…”), and allowing the subject to confirm/disconfirm the researchers audio understanding of the interview. Furthermore, time stamps were used in the transcripts in an effort to make sure that the researcher could return to the transcripts if need be to revisit specific moments in the interview. For the journal section of the project, the journals were simply cleaned to make sure that each time had an entry, and that each journal was arranged specific to the subject. Since this data was a direct input from the participants, it required very little cleaning preparation prior to data analysis.

**Step two: Data reduction**

In this phase, according to Greene (2007), the raw, cleaned data is reduced to some descriptive form that is easier to understand than full raw datasets. For the quantitative, NSSE data in this project, a simple frequency analysis, along with some various crosstabulations, were run in an effort to get general demographic information about the students who took the survey in the Fall quarter, 2010. Also, the frequency analysis gave me some idea of how people seemed to be answering on the multiple
variables on the survey. For the qualitative data, simple themes from the data were
derived from the full transcripts of the interview phase of the study, and these themes
were kept aside in an effort to relate them to the quantitative data set later. For the
journals, the data was simply kept in its cleaned state in order to compare it to the
qualitative and quantitative data later in the data analysis. This data simply appeared in
frequency format, but by subject.

**Step three: Data transformation**

Generally, in this activity of data analysis, Greene (2007) states that this is the
point in which quantitative data “may be standardized, scaled, factor analyzed, or
transformed into log linear form” (p. 145). Normally NSSE data would be converted into
a factor analysis in order to understand if the benchmarks referred to (LAC, ACL, EEE,
SFI, SCE) were related to institutional contribution (Porter, in press). With the NSSE
2010 dataset, these factors were provided to the researcher with the dataset, and will be
presented later in the analysis. However, these factors could only go so far in explaining
student engagement, one must presume that the way in which NSSE is defining student
engagement through these factors must somehow relate to the students’ definitions of
engagement in their interviews. Also, these factors have been challenged in the literature
about NSSE (Porter, in press).

According to Greene (2007), qualitative data “may be transformed into critical
incidents, chronological narratives, or other forms of displays” (p. 145). Greene states
that it is also possible to transform types of data to one another (i.e. converting qualitative
data to quantitative data and vice versa). However, this study has not sought to do this, as
the framework for the study treated each phase of the study as separate, yet summative. Phase IV, of the study, for instance, will be a summation of the first three phases, allowing the research design to emerge. For the data to interact in this study in a way that highlights the integration of philosophy (especially in the sense of disjunction), this data analysis sought to keep the data sets in their own “language.” This was an effort to have them dialogue with each other, especially since this dissertation sought to use Greene’s (2007) “dialectic stance.”

**Step four: Data correlation and comparison**

In this activity, the patterns of the relationships in the data set were examined. For quantitative data, this might be something such as a correlational analysis, while qualitative data might include “cross-tabulation of themes, contexts, critical incidents, and stories” (Greene, 2007, p. 145). Importantly, Greene states that “it is also possible to assess patterns of relationship across different forms of data (qualitative and quantitative) and to compare relational findings from one form of data to relational findings from a different form of data” (p. 145). In this data analysis, these correlations and cross-tabulations from the quantitative data set will be compared to the cross-tabulations of themes from the qualitative data set. These relationships also allowed a space in which to be creative and “adventurous” (Greene, 2007), as the qualitative relationships might allow for more in-depth understanding of the quantitative relationships. Comparisons also might be the space in which disjunction was brought to the fore to understand phenomenon in-depth.
Step five: Analysis for inquiry conclusions and inferences

For Greene (2007), this is the final of activity of analysis. In this activity, “higher order analyses are conducted in support of study conclusions or inferences” (p. 145). Greene explains that for a quantitative data set, this would include methods like “multivariate analyses of variance…structural equation modeling, path analysis, and hierarchical linear modeling” (p. 145). In regards to qualitative data, “these analyses might include the inductive development of warranted assertions from the data, the creation of composite stories, the reordering and recoding of the data into a final set of coherent and cohesive themes” (p. 145). For this research study, something like modeling or multivariate analyses of variance might be inappropriate with the quantitative data set given the limitations of the responding sample. However, with the qualitative data set, the reordering and recoding of the data set might be appropriate given that there were essentially two sets of interviews per participant.

Data corpus

In terms of my data corpus, first, there was the NSSE 2010 quantitative dataset. This dataset was given to the researcher in the cleaned and coded form, along with a codebook which explained any recoded variables. In addition to this data set, the researcher was also given the NSSE 2010 benchmark report for midwestern university, which took the form of an excel sheet per benchmark (recall the benchmarks as described by Porter, in press). Then, the second phase of the research project yielded two data sets. First, there were 44 of transcribed, verbatim pages from the five interviews conducted with the five participants in the study. Recall this was the phase in which the researcher
sat with the participants while they completed the NSSE survey. Secondly, each subject took the NSSE survey, for a total of five NSSE surveys, which were fully completed in front of the researcher. The third phase of the research yielded five completed journals, each with seven pages of data for the activities of the subjects for 24 hours. Finally, the last phase of the study yielded an additional 25 pages of transcribed, verbatim data from the interviews.

Ethics

Each of these activities was approved by the University Institutional Review Board prior to the start of the study. Subjects were asked to sign a consent form in which their confidentiality was assured by the researchers, and were told that any personally identifiable information would be removed prior to data analysis. All subjects were asked for permission to record the sessions. After the recordings were transcribed, they were destroyed. The journals were only viewable by the researchers and the participant; each subject had their own link and used their individual email accounts to access the online journal. Furthermore, the cleaned NSSE data set that was given to the researchers did not contain any personally identifiable information.

Politics

This project garnered a lot of interest from those supplying the data. Furthermore, the division in which I am currently employed has used the NSSE on a continual basis to evaluate and improve our services. Therefore, a certain amount of negotiation will be taken with the release of my findings to others in my field. Specifically, as the university in which I conducted my study will most likely continue to use the NSSE, I must be able
to negotiate both the worlds of practicality and skepticism in productive ways that will not scare practitioners from looking more critically at our instruments. However, this was the first time that qualitative, let alone mixed methods research has been conducted at the university in which I collected data in tandem with the NSSE. The openness that the university has had towards this sort of inquiry should be commended. I have gotten the distinct impression that people want to know more about student engagement than just the survey results.

**Study timeline**

For the quantitative section of this study, the data collection, which was independent of this dissertation (a university-sanctioned data collection), was completed during Fall quarter 2010. The data collection window was four weeks, and participants were solicited for survey participation during the second week of the quarter. After IRB approval, this cleaned data set was given to the researcher for analysis, which took place prior to Phase II of the study. For Phase II of the study, emails soliciting participation in the study were sent out after IRB approval (which occurred early in Winter quarter) during the second week of February. Interviews started during the third week of February and each lasted 30 minutes to an hour. Next, the journals (Phase III of the study) were completed during the fourth week of February. Finally, during the first full week of March, Phase IV was conducted, with each interview lasting from 20 minutes to 45 minutes.
Limitations of the study

For the quantitative part of the study, the largest limitation is the response rate, at 22%. When tests of representation were run, it was found that there were limits on generalizations about males (as they under-responded) to the survey. Furthermore, this study examined the results from the NSSE 2010 survey instrument, and, as a result of Porter’s (in press) critiques, the NSSE is currently being redesigned. Future studies should employ this new instrument in order to see if the instrument is more adept at capturing the experiences of students.

For the qualitative sections of the study, the small sample size may be a hindrance. However, given the richness of the data collected from the emergent research design, and the primary purpose of this dissertation was to explore the interaction of philosophy and research design, this limitation might not be as glaring as one might think. Divergence was found even among this very small sample, making one think that perhaps divergence has existed in a large number of studies, but may have been ignored without proper attention to it.

One other limitation of the qualitative part of the study was that it took place over a relatively short period of time for these students – three weeks. One student even suggested that she should be tracked for an entire quarter, rather than just through a one week journal. This suggestion may lead to more accurate data at the micro-level, but attrition of the sample was still a very realistic concern with this suggestion. Even with the relatively short three week time period, one student dropped out of the study prior to Phase II.
Interlude: Towards a nomad science

Torres (2006) suggests that in mixed methods studies, it is a requirement of researchers to provide a high amount of detail as to why research decisions were made the way in which they appear in the research design and data analysis. This detail can allow for an explanation of “process as well as methodological issues” (Torres, 2006, p. 300). This chapter showed the explanation of the process. The data analysis in the next chapter will follow the following structure: since the research was divided into four “phases,” each of which built upon the other, the data overview shall be presented, followed by detailed findings, and each explanation of the research phase shall be interrupted to chart the process of the emergent research design. Furthermore, key decisions in method shall be explained, and moments of divergence and how those moments affected the next research phase shall be explained. Throughout, the use of literature and theoretical frameworks will be employed overtly in order to show the connections between philosophy and research design. The key here was the creation of a nomad science (Deleuze & Guattari, 1987), one which sought not to totalize knowledge, but rather allowed and followed lines of flight as they emerge.
Data analysis in a mixed methods study, especially with multiple data sets, can be a daunting and intimidating task. However, Greene (2007) has wise words which ultimately guided my data analysis in this study, namely that, “interactive mixed methods analyses are highly iterative and are best undertaken with a spirit of adventure” (p. 144). It was with this sense of adventure that I approached my analyses. One could quickly get mired in paradigmatic debate or conflict, however, I did not perceive this as getting mired in a negative way. I chose to have a researcher’s attitude which embraces the idea of “getting lost” (Lather, 2009). In this research journey, I positioned myself to get into an uncomfortable social science, one in which “stuck places” (p. 52) and difficult philosophical issues can be confronted (Lather, 2006). Rather than avoid these issues or seek to harmonize data, I actively chose to spend time in the “stuck places” in order to see what philosophical insights could be gleaned from these moments, which are normally avoided in research.

Phase I – QUAN findings

This study sought to uncover the various ways in which students understood their engagement at the university through multiple and mixed methods of data collection. The National Survey of Student Engagement (NSSE) data from 2010 was analyzed in order to learn more about the students who were “representative of the phenomena of interest”
(Patton, 2002, p. 177), namely, first and fourth year students. A simple frequency was run upon this data set to give a snapshot of the student population of first and fourth year students at the university. Below are general results from this data that might help understand the “larger picture” of this student population at the university in the 2010-2011 academic year.

**Reliability of the instrument**

Recall that NSSE attempts to make sense of data an institution’s data and comparing it to what NSSE term their “benchmarks.” These benchmarks are level of academic challenge (LAC), active and collaborative learning (ACL), student-faculty interaction (SFI), enriching educational experiences (EEE), and supportive campus environment (SCE). In practice, when speaking of the reliability of the instrument, the Cronbach’s alpha in relation to these benchmarks is often given. For first year students, LAC has a Cronbach’s alpha of .733, ACL is .666, SFI is .712, EEE is .600, and SCE is .787 (NSSE, 2010). For seniors, the Cronbach’s alpha for LAC is .765, ACL is .672, SFI is .740, EEE is .662, and SCE is .795 (NSSE, 2010). Generally, a Cronbach’s alpha value that is below .7 should be interpreted with caution (McMillan & Schumacher, 2001). Items which make up each of the benchmarks can be viewed at: http://nsse.iub.edu/pdf/nsse_benchmarks.pdf, and the NSSE 2010 instrument can be viewed online at: http://nsse.iub.edu/html/survey_instruments.cfm. Average inter-item correlation results are also available at NSSE (2010).

According to NSSE (2010), the five benchmarks have varying degrees of reliability across populations. Those that are consistently high are the SFI and the SCE.
benchmarks. Those with a medium amount of reliability are the LAC and the ACL benchmarks. Finally, the EEE benchmark is consistently lower than the other four benchmarks. Again, NSSE (2010) recommends caution when interpreting results around the LAC, ACL, and especially the EEE benchmark.

**Benchmark results, midwestern university**

Benchmark results for this phase of the study are provided with means, standard deviations (SD), and standard error of the mean (SEM) results. For first year students, the mean of the responding sample on the LAC benchmark is 55.0, SD is 12.7, and SEM is .3. For seniors, the mean is 56.7, the SD is 13.9, and the SEM is .3. On the ACL benchmark, the mean for first year students is 42.8, the SD is 16.0, and the SEM is .3. For seniors, the mean is 48.5, the SD is 16.4, and the SEM is .3. In regards to the SFI benchmark, the mean for first year students is 34.9, the SD is 18.1, and the SEM is .4. For seniors, the mean is 39.9, the SD is 20.5, and the SEM is .4. Regarding the EEE benchmark, for first year students, the mean is 32.4, and SD is 14.1, and the SEM is .3. For seniors, the mean is 43.1, the SD is 17.3, and the SEM is .4. Finally, the results for the SCE benchmark show, that for first year students, the mean is 63.6, the SD is 17.8, and the SEM is .4. For seniors, the mean is 59.5, the SD is 19.1, and the SEM is .4. One can see the trend seems to be that seniors have higher scores on the benchmarks, with the exception of the SCE (supportive campus environment) benchmark. Given that this is one of the benchmarks with somewhat high reliability, particular attention was paid to this benchmark in the following data analysis. The theoretical idea of a “supportive
campus environment” helped to fuel the emergent research design in a qualitative manner.

Interlude: Phase I, research decisions and possible lines of flight

The primary assumption of NSSE is that student engagement is a “good thing” and is able to tell us how a student will perform in college, in academics as well as other indicators of success. This is a large body of literature in higher education practice and research, with many researchers writing on the topic (Astin, 1993; Chickering & Gamson, 1987; Kuh, 2000; Kuh et. al., 1994; Pascarella, et. al, 2009). What was interesting in this data, at least initially, was the measure of the SCE benchmark, particularly how the idea of a “supportive campus” environment seemed to go down for seniors as compared to first year students. With this in mind, it seemed that there were two lines of flight to pursue in the next phase of the research. First, how would first year students and seniors explain their perception of the supportive campus environment at a midwestern university, and second, would these students’ definition of engagement include a supportive campus environment, and if not, why not? Another data point which stuck out was the rather large variation in the standard deviations of the benchmarks, which made me decide to sit with students as they were taking the survey in order to try and figure out what students were thinking as they were taking the items on the survey. In Porter’s (in press) arguments, he identifies a number of issues with the NSSE survey, with one of those items being students’ understanding of the survey items, and how their understanding could be highly contextual. This could cause difficulty for the students as they took the survey, or for researchers as they tried to draw inferences from the survey
results. As such, the first major research decision was made to sit with students as they took the survey, and have them explain their thinking as they selected their answers to the responses. This method is used by Davis (1997) in which she “talks” to survey participants as they were taking the survey, leading to insights which the survey instrument alone could not account for. Specifically, Davis works with a young African American female who was taking a survey on AIDS education. This young female was incensed that the items she was answering were things she had not been taught about, but eventually, this method of data collection became “emancipatory” for the subject because she could now learn about the items on the survey. The NSSE is different in that it is a more innocuous instrument, but I, as researcher, was interested if there were things that would spark an emotion of, “why have I not been exposed to this?” or, “I did not know the university had this!” during this method of data collection. I was especially interested in this among the seniors, and also wondered if they had any regrets about their college experiences. I also knew which items on the NSSE instrument comprised the SCE benchmark, so I was especially interested in the subjects’ responses to those items, as well as their thought processes. But I also knew to be careful about directly comparing the benchmarks to items to a much smaller sample. In my mind, the spirit of adventure (Greene, 2007) was the lens I was using entering Phase II, as I did not know what to expect from the qualitative participants.

Phase II – quan + QUAL findings

For this phase of the study, 50 students were asked to participate, with the sample being divided in half between first year students and seniors. Five students committed to
participating in all three of the next phases (II-IV) of the study. As mentioned above, one student dropped out of the study once the confirmation email mentioned that the study would take place over three weeks, though the invitation had mentioned this as well. Though this was a small number of subjects, especially compared to the large quantitative sample of the NSSE 2010 dataset, the nature of the research and its reliance upon each subject to complete all of the phases of the study was as such that low participation was expected.

In this phase of the study, each participant was given a copy of the NSSE 2010 sample survey (the same survey used in the quantitative data collection of Phase I), and was asked to sit with the researcher as they worked their way through the survey. Subjects were asked to talk about their thought processes as they were taking the survey, and if any terms stuck out to them as something they did not understand. Porter (in press) identifies this comprehension of items as an issue with NSSE, particularly around the use of the term “instructor” and “serious conversation,” which both appear within items on the NSSE 2010 survey. He makes this argument for most surveys in higher education as well, however.

**Interruption: Hypotheses in qualitative design?**

*There was an immediate tension in this phase of the research design, one in which it was beneficial to be reflexive about at this moment– the tension of looking for extant data in the qualitative interviews, which might even have been labeled hypothesis testing in a quantitative, particularly experimental or quasi-experimental design. For example, above, Porter (in press) was in my head as I was sitting with the students as they were*
taking the surveys, and even knowing that there were certain terms that Porter had found
trouble with amongst students may have somehow affected my perception of the research
as it was happening. However, I listened to the words of Greene (2007) here and decided
to let the data emerge on its own in the “spirit of adventure” (p. 144) by just sitting
passively with the students as they explained their thought process as they worked their
way through the NSSE. I also took constructivist (Lincoln & Guba, 1985)
epistemological position, as this mode allowed the experience to be created between the
researcher and the participants. Charmaz (2000) argues that a constructivist position
allows the “discovered’ reality [to] arise between the participant and researcher” (p.
524). I answered questions as they were asked, but often asked the students about their
interpretation and how they were thinking about the items. Though there was some
frustration from the students at first as far as “what the surveys were looking for,” I told
the students that it was a matter of how they were perceiving the items and talking me
through that perception that was important. I stressed to them that there was no “wrong
answer,” though one student in particular kept saying that she did not want to skew the
survey by talking about her own perception, and did not want to deviate from how she
would compare herself to her own perception of the “average” student. When asked how
often she worked with students outside of class, she stated that, “I guess I would put
sometimes, but if you look at ‘often or sometimes’ compared to other students, I would be
often.” Her answer was working on multiple levels, and almost all of her answers were
based on her perceived meaning of how students would answer. Therefore, she was not
answering via her own perceptions of her own activities, but rather her activities
compared to the perception she had of other students. This was explored later, but further troubled the idea of “very often, often, sometimes, or never”, which Porter (in press) points out as another issue.

Comprehension of the survey

The first part of this interview consisted of the researcher sitting with the students as they took their surveys. No subject went through the survey without asking for clarification on certain items, and each subject expressed some type of confusion towards the way in which the questions were being asked. However, when asked at the end of the interview whether this was a good survey, each subject responded in the affirmative, with a variety of caveats or suggestions for improvement. This section shall try and capture what each subject thought about as they were taking the survey.

As students started the survey, items asking various questions with the frequency options of “very often,” “often,” “sometimes” and “never” were presented to them. Right away, students had issue with the frequency options, as some students immediately asked what the difference between “very often” and “often” was. One student, a senior, who was majoring in engineering and music, stated that “my scale did arbitrarily change depending on what question I was being asked.” This is consistent with the findings of Pace and Friedlander (1982), when they found that surveys responses based on frequencies differed radically between subjects. The same student stated, “and ‘never’ is if I did it one percent of the time.” There is no zero point in the scale for this student, while the other students seemed to have seen “never” as meaning that they had not ever
done the activity, ever. Porter (in press) identifies this scale confusion as a potentially fruitful area of higher education research in the future.

The first section of the NSSE survey asked a variety of questions about a student’s experience (see http://nsse.iub.edu/html/survey_instruments.cfm for a copy of the survey). Some students struggled, like those referenced in Porter (in press), with certain terms, such as the term “instructor,” and “serious conversation.” However, the implicit logic to this section was that the more that a student answers “very often” to positively worded questions and “never” to negatively worded questions, the more that student showed they were “engaged.” One student, a senior in history and comparative religious studies, challenged this idea (that the more engaged one seemed, the better). She stated that she tried to avoid working with other students as much as possible. Calling herself a “perfectionist,” she said she could not rely upon other students to “pull their weight” when it came to projects, and that generally she just finished the projects herself. She stated that it was because she was an honors student, and that most honors students she knew had similar feelings. Furthermore, one student, a freshman in special education, said that she “very often” came to class without completing readings or assignments. Though some might balk at this answer, she stated that she did not do the readings beforehand because she “feel[s] like it’s almost better, at least for me to hear the professors and go through the readings…I think my learning style is as such, I like to hear things then reading it afterwards reinforces what I hear a lot more.”

More troubling to the survey interpretation, however, was the frame of reference going through the students’ heads as they were taking the question. Each student who
was a double major thought about their different areas while taking the survey. Sometimes, students said they were thinking of a lecture-based class in one major, then they would switch to thinking about a more discussion-based class, perhaps in another major entirely. The idea was especially evident with the senior engineering major who was also majoring in history. She stated that, “engineering is all about making presentations…music is more learning your craft.” One question on the NSSE asked about class presentations while another asked about memorization, and the student stated she was thinking about her different majors depending on the question. NSSE did not allow for this type of thinking to be reflected in the results in its current iteration.

Another difficult spot for students in the first section was the question on the NSSE in which students were asked if they have talked to faculty members or advisors about career plans. Both senior students said they had talked to faculty, but one would not talk to an advisor, while the first year students seemed a bit bewildered by the question. One first year student stated that she had not yet talked to a faculty member or advisor about her career plans, and when asked if that was important as a first year student, she said “I probably should…like have a track or an idea of what I’m getting myself into…and not just kind of go blindly.” Another first year student stated that she did not think that first year students were expected to talk to their faculty or advisors about their career plans so early in their college career. Each of the first year students put “sometimes” or “never” for this question on the survey, while the seniors put “sometimes” or “very often.” The engineering and music major senior, however, stated that the survey should ask a separate question for faculty and advisors, as she rarely, if
ever, sought out career advice from her advisor, and relied on faculty instead. Interestingly, according to the quantitative dataset, about the same number of first year students and seniors reported “sometimes” or “never” talking to faculty members or an advisor about their career plans (60% to 60.9%, respectively).

Another important difficulty students had with the NSSE survey was the idea of “problem sets,” particularly among those involved in liberal arts majors. The senior in history and comparative studies checked the “none” box for both questions in regards to problem sets, saying, “we pretty much read books or discuss what we read in books in class, or get lectured to by our teachers…I guess my vision of a problem set is a little…different.” One might wonder if those students who are in more humanities-oriented majors might have difficulty on this question on a larger scale, or if somehow this idea of “problem sets” might not be as transferable as one interpreting the data might hope.

Difficulties also arose in another question of the NSSE, which asked if students have participated in certain experiences while on campus, if they “plan to,” if they “do not plan to,” or if they “have not decided.” Each student had a concern about the wording in the questions, particularly around the word “practicum” and the idea of a “culminating senior experience.” Specifically, students had an issue with the words “capstone course,” “thesis,” and, “comprehensive exam,” as well as “independent study,” with each student expressing a different concern. Most of the freshmen did not even know what these words meant, let alone whether their major (or majors) required one of these things. Even the seniors expressed confusion; one senior even stated, “but I guess
I’d be unsure what independent study even is.” This student also said of the “study abroad” question, “I wanted to study abroad, but I didn’t have the opportunity to. So, um, I guess I would put ‘do not plan to do’ even though I wanted to do it, and they don’t have a box for that…so…” This sort of sentiment might be another level of challenge to the scale, as the other senior (the one who had only been at the university for three years) stated that not doing a study abroad experience was “the one regret of her college career.”

The NSSE then asked students to characterize a “typical 7-day week” in regards to the activities they participated in, such as “preparing for class,” “participating in co-curricular activities,” “relaxing and socializing,” and so on. Some students expressed concern with the idea of a “typical week,” as some students indicated they were incredibly busy, or that the week they were thinking of was the one most immediate to them and therefore their judgment of a “typical” week was clouded. Each student spent a lot of their time in this section, with the exception of the “working for pay on campus” and “working for pay off campus” questions. One senior, who stated she was in a sorority, said this question was difficult because she lived in the Greek house, and therefore could have said she was involved in a student organization for 24 hours a day. As students were marking their answers to this section, it became evident that the students’ frame of reference as they were taking the survey was very important to understanding the data.

**Interlude: Research decision**

*As I watched the students struggle through this section, it became clear to me that there should be some follow up to allow them to track a week in their lives. They were*
struggling with the idea of a “typical week,” specifically with memory recall issues, which Porter (in press) also identified as a potential threat to the NSSE. It was my understanding from the students that they were thinking about the week most immediate to them, rather than a “typical week.” This was clear in regards to the seniors, perhaps most strikingly, as the seniors were asking if they were supposed to talk about a typical week from this quarter, last quarter, or perhaps average the two quarters. Therefore, I created the journal to track their week during a specified time frame, but I thought it was of the utmost importance to also have some space for students to write in an open space if they wanted to say more than what they were doing. I created this space because it seemed like most students had an explanation for each answer on question seven, and I wanted to see the potential “lines of flight” that would come out of the study based on their open-ended responses as well as their reaction to the journal in Phase IV.

Comprehension of the survey, continued…

The NSSE concluded its main section by asking three overview questions, namely, the satisfaction with the institution, quality of the institution’s academic advising, one’s overall educational experience, and whether they would attend the institution if they would start over again. The seniors seemed quite confident when they answered this third question, with both saying that they “loved” the institution. However, the first year students were a little confused by the question. The international student, specifically, was confused by this question, saying, “it’s just kind of odd they ask this…I haven’t had enough time or experience to answer the question.” She suggested putting a “do not know yet” option for people who were new to the university (like first year students).
The final section of the NSSE questionnaire asked students some general demographic questions, such as race/ethnicity, gender (though the instrument stated “sex”), and whether the students started at this university or another one. It also asked if a student was an international student, a member of a fraternity or sorority, and whether the student is a collegiate athlete. Other items included asking about parent education and what a student’s grades have been up to this point at the university.

Some students expressed concerns during this point in the survey as well. The senior who was majoring in music and engineering had some trouble with the race/ethnicity section, as the survey said in the instructions to “mark only one.” This student identified as bi-racial, and stated, “it’s weird that I can pick only one, when you say multiracial (one of the survey choices), it could be really exotic things, but I’m not, I’m just Asian and white…I like it when you have the boxes you can check what you are.” This student also expressed concern at the question for class rank, saying, “my credit hours have always put me in the wrong class, so this year I would always check senior…but in the past I would always say I was older and I would never know what to put for that box.” The international first year student questioned the item that asked about grades up to this point, because she did not know what to put, as it was her first quarter at the university. One could easily imagine other first year students at the university facing this same issue, especially since NSSE is generally given very early on in the first quarter of the academic year.
Interlude: Sitting with someone and taking a survey

As I was listening to the thoughts of the students, I could not help but try and think of the connections to student engagement theory, and it troubled me how tenuous the instrument seemed to be after hearing the questions and concerns of students. I recalled that the point of this study was to allow a student definition of engagement to emerge, however, and that it was perhaps for later study to wrestle with the extant literature on this topic, given the small nature of this empirical study. I wondered how philosophy would come into play here; there were definitely moments of divergence in the study appearing at every step, and I was not even expecting as many things to come out as actually did during this part of Phase II. However, it seemed to me that the reliance on this instrument alone to understand the engagement experience of students was something I no longer felt comfortable with, though I myself had used these results alone to get a picture of the first year and senior students in the past. Rather than feel guilty, I chose to embrace the “spirit of adventure” (Greene, 2007) here and continued to press on in the study, racking my brain to figure out how I would explain this insight to my colleagues who rely so much upon the results of the NSSE to make sense of the university’s student community. It was both exciting and terrifying to think about the direct implications for practice this study had on my current job as an assessment professional in the field of higher education. I felt a unique collision of both ethics and epistemology here, one which I hoped I could explore more through in this study.
Overall questions about the survey experience

After students took the survey and talked to the researcher about their thoughts, they were then asked a series of questions about their experience with the survey, and how their answers represented their time at college thus far. Students were asked if there were any other issues or concerns they had with the survey after taking the entire instrument, and most students did not identify any issues that they had not already identified earlier with the researcher. Importantly, though, the international first year student did have trouble thinking about how the survey was asking about contributing to her community. She was not sure if the survey were referring to the local community near midwestern university, or it was were referring to her home country. She identified that she was thinking of her home country when she answered this question, which highlighted an important way in which international students might be thinking about this question. The midwestern university has heralded itself as an international university, but it might make sense to ask international students, particularly if they feel as if the institution is stressing contributing to their community abroad.

Each student thought that the survey did a good job of covering their college experience thus far, but each had something to say when asked if there was something that ought to be included in the instrument that was not. For the international first year student, she wanted the NSSE to ask her questions about her cultural transition to the United States, and whether the school supported that cultural transition during orientation. She also stated that her orientation was kept separate from the non-international students. She stated, “that’s the problem…,” and then talked about how
there is not much of a chance to meet American students, especially for those international students who might enter in a non-traditional quarter, such as Winter quarter. The senior student majoring in engineering and music thought the NSSE should ask the race question differently, stating that students should have the option to choose which race/ethnicity combination makes up something like “multiracial.” The senior majoring in history and comparative religious studies had an issue with the way in which the job question was asked, saying, “my freshman year I did have a job, that’s not reflected here.” Survey reports would typically look at the results only, and not see that this student’s grades may have been affected by the presence of this job during her freshman year. The first year student majoring in special education stated that she liked the way in which the instrument tried to get at the out-of-classroom experience, but wondered why it did not ask what types of organizations or clubs one was involved in, or how many, for that matter? She raised an important point: is there something bad about perhaps being “too engaged” with student organizations and out-of-classroom involvement? When thinking of Astin’s (1984) definition, perhaps too much psychological and physical energy from a student could be a detriment to their academic career. Finally, the first year student who was also a college athlete stated that this survey did not capture her experience as a collegiate athlete at all. She talked about how she spends so much time on sports and this affected all of her answers. Generally, these survey results are used to compare GPA of athletes with non-athletes; one could think that perhaps collegiate athletes have a different student engagement experience than non-collegiate athletes.
Interlude: Research decision

It seemed to me as if there was a lot of variability in these students’ experiences. This variability seemed too broad to capture under the idea of “student engagement,” which made me think of two things that I should do for Phase IV of the research study. First, I should ask each student how they define student engagement, after the students completed their journals in Phase III. Secondly, since each person seemed to state that they wanted something added that talked about the out-of-classroom experience, I thought asking a question in Phase II about whether the NSSE was weighted more towards academics or the out of classroom experience would be valuable. I asked a follow up question during the first interview that I then asked of all the participants about this potential “weighting.” Each student felt that the survey was definitely more weighted towards the academic side of things, making me wonder what the relationship between student engagement and academics was, but also why the survey would seem so weighted towards academics, when academics was not the majority of a student’s time in college. I also struggled with doing quantitative comparisons on a variety of questions for this phase of the study. It did not make sense to me to directly compare means (as the n was so low for the qualitative sample), and even comparing frequencies without the nuance of the conversations I had with the students seemed to me to be a potential misrepresentation of the data. That said, a direct comparison to the NSSE benchmarks seemed odd to do, as the main sample did not experience the chance to talk with someone about their thoughts while answering. I found this all very problematic, so much so, that I decided I should ask students in Phase IV of the study to suggest possible alternatives to
get at this idea of “student engagement” instead of just using the NSSE survey alone. I felt as if I was seeing constructivism interact with research design here as I thought about the ways in which to lead the study.

**Phase III results - QUAL**

The third phase of this study asked students to track, in an online journal available to them in Google documents, their activities for a week. Recall, this idea came from the perceived difficulties the students had around the “typical week” questions on the NSSE. This journal allowed students to fill in what they were doing hourly, and it also left some open space in which students could write more detail about their entries (hourly, if they wanted to). Students also sat with the researcher during Phase II to set up reminders to complete their journal entries daily for a week. Each student had the opportunity to set their preferred way in which they wanted to receive these reminders.

In all, the journals were able to capture what the students were doing hourly for a week’s time, but the amount of detail that students elected to put in the open space was quite minimal. Students seemed to use this space mostly to clarify certain entries. For instance, the first year collegiate athlete wrote “bus ride” for a couple hours of one entry, as she was heading to a conference championship for her sport. But then she wrote, “the bus ride consisted of homework, watching TV, and socializing,” as if to clarify her entry. There was one other emergent pattern: it seemed that students only used the open space during the first couple days of the week in which they were tracking, rather than using the space for what they wanted, whenever they would have liked.
Research decision: Questions and disappointment with the journals

Though the journals were useful for collecting detailed responses from the students about their days at a micro-level, it was, I believe, a missed opportunity with the open-ended spaces. These spaces could have been utilized more to explain engagement at a deeper level, almost like a reflection exercise, which was what participants were asked to do when they were introduced to the journals. However, realizing I wanted to remain true to the emergent research design, I decided that I would ask the students in Phase IV if the open-ended space should exist, and whether it should be kept if this type of study would be run again. I also noticed an interesting pattern in which students would block large portions of their time to something like “homework.” Thinking back to my own study habits as an undergrad, I wondered if the whole hour was used for homework, or if there were other activities happening during the hour in question. I decided that I would explore this as well in Phase IV of the study. Finally, the journal just seemed to need something more to it; Porter (in press) has suggested doing time-diaries as another mode of data collection. Perhaps layering student engagement theory within a time-diary design would lead to marked improvement in the journals. As it stood, however, all I had was an hour-by-hour tracking of what students spent their time doing. The majority of this time was spent doing homework, studying, and socializing with friends. These were not unexpected results. I needed to get some sort of more “thick description” (Geertz, 1973) from the journals if this were to be done in the future. I also was stuck in some sense, so I decided that in Phase IV, I would ask students for alternative suggestions to not only surveys, but also of these types of journals. I was not
convinced that the journal in the current format did more than substantiate one very small section of the NSSE. The students might suggest something like peer observation or shadowing (later in the chapter we will see that they did in fact suggest this). Perhaps student engagement, for me, needed a wider view rather than merely mundane day details. It was debatable whether the data collected had useful qualitative implications, or useful interaction with the quantitative data from Phase II of the study. Rather than numerically compare entries with what students put on the surveys they took, I decided I would ask them during Phase IV if the journal week they entered, when compared to their answers on the NSSE, was in fact comparable in their minds. Perhaps this would bring greater understanding to the idea of a “typical week” in the minds of these students. In this moment, interestingly, an emergent research design was allowing a “line of flight” to evolve. I was witnessing what Deleuze and Guattari (1987) call “smooth space” in action. Like the study of Trnavcevic, Logaj, and Sirca (2008), titled “Failed survey: The bricolage of market research,” I was working from the “ruins” of a somewhat disappointing part of the study, the journals. In their study, they used a survey to collect data which did not work, so they ultimately revisited the remnants of the survey in an effort to put the “pieces” from the ‘ruins’ of the survey together as a bricolage — a research discourse that significantly disrupts and disturbs the disciplinarity in and of sciences” (p. 217). I recalled the words of Deleuze and Guattari above when they stated that: “however refined or rigorous, ‘approximate knowledge’ is still dependent upon sensitive and sensible evaluations that pose more problems than they solve: problematics is still its only mode” (Deleuze & Guattari, 1987, p. 373, original author emphasis). With
this in mind, I allowed the “sense of adventure” (Greene, 2007) to then guide Phase IV of the research study.

**Phase IV = QUAL Phase III = QUAL (quan)**

In the final phase of this research study, the same group of five students was asked to come back and sit with the researcher for another interview asking them about their college experience. The interview questions were based on the research design thus far, and were located around uncovering more about how these students were perceiving their engagement at the university. As such, the research questions focused around four main topics: first, a comparison of the week in which they journaled to the students’ NSSE responses in Phase II; second, what they thought of the open space on the journal; third, the students’ definition of “student engagement,” and finally, if they would tell administrators to continue the survey, and why. Students were also asked for alternatives to survey as a data collection methodology, and what they might suggest to administrators in regards to accurately capturing the students’ definition of student engagement. First though, each student was asked if they had ever kept a journal before. Students kept things like to do lists, but only one student kept any type of journal. The first year student, who was a collegiate athlete kept a training journal for her sport. Interestingly, the senior, who was double majoring in music and engineering, had been asked before to keep a journal of sounds she heard (a soundscape) in an exercise designed by a music professor to show how different cultures “hear” different things. The professor was using this exercise as a way to teach how different cultures create different music.
Comparison of “typical weeks,” and the open space on the journal

Each of the first year students, when asked, seemed to think that the journal was more representative of their “typical weeks” when compared directly with their NSSE results. The first year collegiate athlete stated that “relaxing and socializing probably went up…and probably studying went down.” The senior who was a music and engineering major said that the journal week was probably more accurate, and “the survey results were different…by a lot.” The senior double majoring in history and comparative religious studies said that the journal was not really a good indicator of her typical week, and said, “if I had a journal of my quarter, maybe that would have been more reflective of the [NSSE] numbers.” In sum, the students, when given the opportunity to track themselves for a week, found a noticeable difference between their survey responses and their journals. Most said the journal was more accurate, but they did provide some suggestions for improvement. The special education first year major, for example, suggested making the journal into 30 minute increments as she just “rounded up” when it came to studying. Each student stated they would like to keep the open space on the journals, as a way to clarify or at least have the option for explanation of the items they entered. The students, especially the first year collegiate athlete, said it was important to have this space so researchers could understand what students were writing.

Interruption: Being viewed electronically

I noticed that as some students were talking, they were going on tangents about how they wished they would have studied more, or that I might be judging them for
watching TV. So I asked each of them if knowing that the researcher was going to see their journal entries affected how they entered their journal entries. Survey researchers will sometimes call a move towards positive responses the “social desirability bias” (Crowne & Marlow, 1960), and I was curious if this was taking place in the journals. I was also thinking of surveillance, as described by Foucault (1980). According to the senior majoring in history and comparative religious studies, it was. She stated, “I did [filter] on the weekend activities. The weekend activities I censored, but other than that, I did not.” There were two ways to go with this statement: I should be thankful that she told me the truth about the parts she did censor, or I should worry about the larger NSSE responses trying to capture student engagement. I wondered if it would be the case if a large amount of survey results could be called into question with this sort of idea in mind. Generally, statistics assumes things like a bell curve to help “normalize” responses, but what if everyone taking the survey was padding their answers just a little; are we assuming a lot from a false normalization? Reliability of self-reports has been debated in the literature (Fowler, 2009), however, I felt like I definitely needed to take survey responses with a grain of salt in the future, or at least try and repeat Phase II in my future research.

A student definition of “student engagement”

Each student was asked what their definition of “student engagement” was, after completing Phase II and III of this study. Each student seemed to identify both academic and social aspects in their definitions. For the senior majoring in history and comparative studies “student engagement” was “completing all my schoolwork but it also means very
much the socializing aspect of being engaged with my friends and peers…and also the
curricular activities.” The first year collegiate athlete stated that for her, engagement
was “really broad like anything from sports to organizations to academics to social life.”
For the senior majoring in engineering and music, engagement was “just participating in
anything that’s either run by the school or that you’re giving back to the school. Or doing
for the school…like if you’re doing an outreach in the name of midwestern university.
Or TA’ing for a class, because I do that.” For the first year student in special education,
engagement meant “how involved a student is, be it at university or living, how much
time they spend interacting with people, studying, preparing for class and such.” For the
international student, the definition of engagement was simply participating in class and
doing your homework, and socially engaging with friends and organizations.
Interestingly, this student was the only one who mentioned services the school had to
offer as part of her definition. Most definitions seemed to stay at the student level, and
the international student seemed to see a connection between environment and
engagement, unlike the other students. Importantly, the NSSE did make this connection
when it asked about students’ perceptions of institutional contributions to specific
variables. One might argue from the definition above of student engagement (from
NSSE) that this potential institutional contribution is key; it was surprising not to see
more students identify it in their definition.

**Interruption:** What about those students who are not “engaged”?

_When students were asked what a student who was not engaged might look like,
each student stated that it would be someone who might not go to class, and perhaps “sit_
in their room all day.” The senior majoring in history and comparative religious studies said that this student would be one who was “missing out on all the university might have to offer.” Interestingly, however, this same student did not include these university offerings in her definition of student engagement mentioned above. It seemed as if her definition was more in line with Astin’s (1984) definition, and based on psychological and physical energy. I wondered, at what point did Astin’s definition morph into NSSE’s definition of student engagement, and when did the institution become such a large factor? I struggled with this thought, as Astin’s definition seemed student-focused while NSSE’s very much highlighted the institution’s role in engagement. Perhaps a mix of both was what I was looking for, but these were two very different definitions, with radically different implications.

**Future directions: From the mouths of the participants**

When the students were asked if the university should continue to do the NSSE survey, each student seemed supportive of that initiative, with minor adjustments. The senior who was majoring in music and engineering, however, said that there should be open-ended boxes that accompany some of the questions, especially the ones about organizational involvement. The special education major first year student mirrored this sentiment, saying that there should be space to talk about “how” a student is involved in an organization, perhaps at different levels, such as an executive officer or just a general member, as she thought these might be very different levels of involvement.

Each student was then asked for an alternative to NSSE, or something to augment the administration of NSSE. The students were told that any answer was a correct one,
and not to worry too much about the details of putting their plan into action. The international student suggested having someone shadow students to find out more detail about what they do in their daily lives. She mentioned this because she thought a lot of people did not really know, from her perspective, about the engagement of international students. The first year special education major said she enjoyed the journal, but would recommend having more precise time measurements, perhaps by half hour increments, as mentioned above. The senior majoring in engineering stated she thought the addition of open-ended questions to the NSSE might be a good idea, and even suggested having students who took the survey define what student engagement meant to them. She stated, “a sentence that would probably best define it and if they want to know how engaged you are, maybe a journal is better, I mean people are going to forget to fill it out sometimes, but at least it’s probably more accurate than just thinking off the top of your head.” The first year student who was a collegiate athlete suggested some sort of tie-in to meetings with academic advisors, “maybe if there was a way to do it through your own academic counselor where you had to come and meet…maybe they’d get to know your engagement better…less like a survey and more like an evaluation.” She went on to say that this information could then be shared with other faculty and staff (in an anonymous or aggregate fashion) to give them a better picture of how students were engaged on campus. Finally, the senior who was majoring in history and comparative studies took a different approach. She stated, “something that might help is just remembering that people sometimes have off days…we have ups and downs, too.” After being asked if the journals would help give professors and staff insight, she said, “I don’t want to sound
rude, but I don’t think they’d pay attention...sometimes they are just there to teach you, they are there to throw it on you, and you can do what you want.” She then elaborated and said there were some faculty members that seemed to care, but some that did not. When asked the difference, she stated, “they (good faculty members) are realizing that a student isn’t just a consumer and they’re not just here to pay and be talked at and rewrite everything you said just to boost your own ego. I think they are there to challenge you and make you think.”

**Interlude: The bigger picture**

*While part of this study was to be focused upon an empirical project, one should recall that the point of this dissertation was to explore the idea of a nomad science (Deleuze & Guattari, 1987) which does not devolve into a royal science. Thus, I have chosen to end the data analysis with a divergent student voice, one which suggested that there is something deeper at play here when speaking of engagement, that is, the interaction between people. The university was ultimately made up of a variety of people (students, faculty, administrators, etc.); this senior’s call is a call to recognize our common humanity, which extends beyond the scope of any one measure. This senior is creating fertile ground for both nomad science and creation of smooth space in her statement which extends beyond the scope of this project. Though at first I thought her comment was off topic, I now see the merit of her idea: without realization and investment in our common humanity, what is the point of the university?*

*This connection was made evident as well with the international student. Given that she was a new student to the university from a country other than the United States,*
she felt very alone and seemed saddened that she had not made very many American friends. After the recorders were off, I felt an ethical pull to help this young woman, so I asked her if she was aware of the student organization website for the university. She said no, and for about a half hour we sat and perused the site, using my knowledge and her interests to craft a “student organization” roadmap for her to perhaps pursue. I felt that this was a way of “giving back” to the research participants, and she emailed me recently to say how thankful she was that we perused the site. She had gotten involved with some student organizations, and was happy to say she had some American friends, and included me in that list.

**Conclusion: The creation of an exemplar**

In this chapter, mixed methods as a nomad space was exemplified in the emergent research design. Moments in which research design and philosophy were highlighted in the interludes, and the interruptions and research decision section, showed how “smooth space” can be created in research design. Divergent data was highlighted and put to work in a productive fashion to gain new insights not only outside the scope of this study, but also inside of it. In essence, this chapter was a case of highlighting the practice of mixed methods design as nomad science. The next chapter will discuss how various lines of flight in the research design through philosophical interaction added to the study, as well as do the work of unpacking the exemplar in this chapter. In short, Chapter five will “theorize the practice” of mixed methods as nomad science.
Chapter 5: Conclusion – From “What Works” to “Lines of Flight”

This dissertation study sought to show the idea of a “nomad science” (Deleuze & Guattari, 1987) in action, that is, allowing for lines of flight and the creation of “smooth space” in an effort to highlight mixed methods research that was emergent and allowed for interactions with philosophy. The mixed methods literature was reviewed and situated with a primary focus on the use of Greene’s (2007) “dialectic stance.” This allowed for iterative data moments and communications among multiple data sets and data types (qualitative and quantitative). Literature using mixed methods research was also reviewed in the context of higher education, categorizing this research into different compartments based on their overt use of philosophy. Throughout the study, particular attention has been paid towards data which may be divergent, in the hope that new insights could be gained from the datasets using this lens. The emergent research design was catalogued in a way that encouraged rigor in the study, as well as allowed the option for philosophical interludes and interruptions in a mixed methods design. Given the idea of nomad science, replicability is always an option, but what is more exciting is potentially doing this type of study again, and allowing the creation of “smooth space” to continue to problematize long held theories such as the theory of “student engagement” (Astin, 1984).
Unpacking the exemplar

This study showed how the interaction of mixed methods and philosophy could lead to productive new directions for research, both within and outside of the research contained in the dissertation. In an effort to create a mixed methods as nomad science exemplar, this study purported to show how following “lines of flight” could lead to important discoveries in the research, and even lead to a study-changing course throughout. This section will attempt to “unpack” the work that has been done in the study with an eye towards whether this was an example of “smarter mixed methods” as described in Chapter two.

Recall, “smarter mixed methods” was the idea that a mixed methods study highlights the interaction between philosophy and research design, and will attempt to grapple with issues which may arise during the study. This dissertation exemplified this through the use of tracking of research methods, research decisions, and highlighting interruptions and interludes in the data analysis section. Importantly, the research design was emergent, and each research decision was accounted for in the study, with the idea of a “nomad science” in mind.

Attempting “smarter” mixed methods

The use of interludes, research decisions, and interruptions was a useful exercise in this study. Torres (2006) stated that one should be clear about why various research decisions were made in the study. I attempted to balance her idea with what Greene (2007) advised about maintaining a “spirit of adventure” when conducting mixed
methods studies. The study, for the most part, was allowed to pursue various lines of flight, with these lines of flight informing subsequent research phases in the study.

For “smarter” mixed methods studies, it is important to catalogue how and why various research decisions were made, as Torres (2006) notes. In this study, each decision was catalogued not for the sole intent of making this study replicable, but rather to show how it was that philosophy could interact with the research design in productive and novel ways. Also, the pauses in the study allowed room for moments of discord and divergence, which could then radically alter the research inquiry. In this research, for example, these moments led to asking the students for their own definition of student engagement, in an effort to get an understanding of what they were thinking about during their college experience. These interruptions and fractures, though “messy” (Lather, 2010), allowed moments in which mixed methods research could exemplify nomad science. The cataloging, then, became not only a description of the study, but also a characterization of “smooth space” (Deleuze & Guattari, 1987).

Being adaptable and following these “lines of flight” allowed the study a stance rooted in the “dialectical,” as Jennifer Greene (2007) describes. As she states of this stance, “paradigm differences should be respectfully and intentionally used together to engage meaningfully with difference, and, through the tensions created by juxtaposing different paradigms, to achieve dialectical discovery of enhanced, reframed, or new understandings” (p. 69). This was exemplified through the use of the interludes. In one interlude, for example, I questioned the idea of a research hypothesis in qualitative design, and whether it was permissible to think about these issues. More importantly,
though, the exemplar of this dissertation study acted as a way of both “doing” mixed methods but also deviating when needed. In a sense, the study was itself a new understanding, and used the idea of a “nomad science” to show the utility of allowing research design and philosophy to interact. The interludes, interruptions, and research decisions are strong elements of this type of design, and without them, the study would not be what it was.

**Difficulties with “smarter mixed methods”**

There were also elements that did not work in the study. For example, it would be difficult to replicate this type of study. However, this may actually be a strength of the inquiry. One could replicate the study up to the point of Phase II, but replications would end at that time if one were following the idea of allowing “lines of flight” to affect emergent research design. If one were interested in pursuing the idea of “student engagement” again, however, one could come up with new understandings about this construct in another study. This would, of course, add to the richness of the theory, rather than detract from it. If we can learn more about how students are engaged in college, the implication would be that practices and services could more adeptly meet the students’ needs, specifically since student demographics change repeatedly and rapidly. Practitioners could still generalize, if they wish, to the student experience, but this type of study would allow them to think about more nuanced versions of student engagement, perhaps to reach populations which their traditional practice might miss. A clear example of this would be the new international student, as she entered the university in a non-traditional quarter, which to her, meant that services that most students would receive
were not opportunities that she was presented with when she arrived on campus. Practitioners might also think about how “student engagement” on their campus differed from other types of universities and colleges. Community colleges, which may have primarily commuter students, might have a radically different student engagement experience.

Furthermore, there were political realities that this study had which might make replication quite difficult. This study just so happened to fall on a year in which the NSSE was administered, and my professional position on campus probably afforded me the political capital needed in order to access the NSSE data from the university in which my study took place. I also had previous experience working with the NSSE instrument from my professional position. Furthermore, I was allowed to do this study with the understanding that recommendations would go directly to practitioners in the field, which had its own set of ethics and responsibilities. I had to show that what I was doing was value-added to a very specific group of people; in some way, my study was a direct dialogue with policy makers. My biggest recommendation as a result of this study would be to think about other modes of data collection as well as the NSSE if they are interested in “student engagement.” My second recommendation would be to give these alternative modes of data collection as much weight (that is to say, based on a rigorous and well thought out research design and theoretical framework) as is given to the NSSE.

Given the short nature of this study, one possible item that did not work was some form of member-check outside the actual data collection period. Granted, Phase II and Phase IV of the research had specific parts built into them for the purposes of verifying
what each student was saying, but there was nothing outside the actual study to help make sure the findings were representative of what the students said to me. That said, Phase IV built on Phase II and would not have happened had I not been able to tie in and verify statements of the subjects back to the previous stage. I would not have, for example, asked about each student’s definition of “student engagement” had I not seen a pattern of difficulty when I was speaking to students about what they thought was important to know about their college experience, particularly around their NSSE answers. Also, the way in which I asked for their definition was based solely on their experience in the study, and the subjects were given the chance to confirm or deny my findings, which then allowed us to proceed with the study. In future studies, though, a possible “line of flight might” be to see how a mixed methods study as “nomad science” might handle the issue of member-checks.

Finally, the journal simply was a disappointment in the study. However, the ruins were worked with in such a way that Phase IV of the study was still informed by this mode of data collection. The students and I also had a referent to critique during Phase IV of the study, with most students saying that they would do the journal a tad differently. Also, the idea of a “failed” journal did lead me to ask the question about what alternative modes of data collection the students would suggest. The idea of shadowing students was quite compelling, and may not have arisen without the embers from the “failed” journals still smoldering.
Attempting, stumbling, and difficulties as treasure

In an effort to theorize this practice of mixed methods as “nomad science,” if I were to “listen” to what the methodology here in the study was “saying” to me (Childers, 2008), it would primarily say I was listening to the ebbs and flows which arose during the course of the study. Rather than have a rigid research plan, one which did not allow for pursuit of specific directions when they arose, I followed the lead of the research and data, through the way in which the subjects shared their experiences with me. I had to make quick research decisions, but luckily had enough experience to think I knew what to do best in the situation. I tried to have both planned stopping points and unplanned stopping points; points in which data came to fore as loud and abrasive, and other times in which it was soft and easily missed if one was not listening. In some sense, this creation of smooth space was very much chaos and order wrapped into one, a dance with both the traditional modes of inquiry and the unknown margins of emergent research design. The idea of “smooth space” had its limitations in research inquiry. Specifically, the empirical focus may not be replicable. But the dance through “smooth space” is a dance in which we all have the capacity to engage, we just must be bold while doing so, forgetting and remembering what we know about research at the same time.

Discussion: Inferences from the empirical study

This study led to a number of conclusions, which a mixed methods framework cognizant of philosophical interactions highlighted. First, the NSSE, as an instrument, may be insufficient in describing the student engagement experience on a large scale. This was made evident from the qualitative research conducted in this study, but also
from the fact that even with a small sample, most of the issues that Porter (in press) pointed out were present in the data. From the ambiguity of scale design to students’ definitions of “student engagement,” one idea is clear from Chapter four: a quantitative instrument so widely used should be held to the scrutiny it is experiencing currently. It seems that the tenuous nature of this instrument was made clearer by this study, though it should be stressed that each student said that administrators should continue to use the instrument, with modifications. Research in the future should combine this new instrument with the type of design explored in this study in an effort to see how transferable the findings of the NSSE are in various settings. But they should do so in such a way that divergence is not marginalized, but rather highlighted.

Future research should explore the nature of scale construction, as Porter (in press) highlights as well. The little amount of ambiguity experienced in this project could be a major factor in students’ understanding of the way in which they conceived survey responses. Furthermore, the exercise in Phase II was helpful in understanding how students were conceptualizing their responses to the survey, and it would be my suggestion that this would happen on a much larger scale in the future. Recall, a compelling example was forwarded by the student who was majoring in music and engineering, when she stated that “never” meant she had done it at least once. This counter-intuitive highlight could drastically affect survey data interpretation.

Students with double majors also present a unique challenge to the NSSE, as they might be thinking of one or both majors when answering a survey item, potentially skewing the results of the NSSE. The suggestion here would be to somehow design a
survey which could account for this phenomena, or have a sample of students sit with researchers as they took the survey to see if this finding held true on a larger scale. Also, the NSSE asked about a student’s major at the end of the survey, rather than the beginning. A suggestion might be to ask this at the beginning, and then have some sort of option that represents when students are thinking about both majors at the same time, or if they are thinking of one major at a time. Students’ perceptions of which major they were speaking of had a major effect in how they answered the survey question, according to the data in Phase II.

The use of time-diaries (Porter, in press), would be another recommendation from this study, as the journals were found to be a bit insufficient in their explanatory power. From Phase IV, it was found that students conceived of student engagement very differently, and one student even suggested creating a space in which people could write in their own definition. This might not be feasible for a large NSSE sample, but perhaps a sub-sample. First year students and seniors had very different experiences fueling their answers, and, as such, it would be a recommendation that there should be something that differentiated the NSSE forms for these two groups and asked specific questions to those populations. It was evident from the study that the first year students were sometimes not even sure what to put, especially when they had to evaluate the institution. The international student had about a month of on-campus experience when she was asked this question, and as a result, did not think it was a fair question to ask of her.

Importantly, a student came up with the idea to have someone follow, or shadow, students for an unspecified period of time in order to learn more about their
“engagement.” This was an interesting idea, and could be a “line of flight” for future research. Administrators could train students to observe certain “student engagement” behavior in an effort to understand the college experience more, with little cost to the time-limited administration. Students then could be embedded as part of the research process, both researched and researcher, and could be engaged on an entirely different level than the traditional college academic experience allowed, using a study with observable behavior as the main focus.

**Discussion and conclusion: Towards a nomad science**

Though the empirical portion of this study was important, it was not the primary focus of this study. Instead, the creation of a mixed methods study which highlighted the interaction of philosophy and research design was the end to which this study was intended. It seemed that one finding which became clear from the study was that something like divergence could exist in the smallest of places, if one were open to it. Some data, perhaps cast off as “noisy data,” actually could be useful in feeding a study or theoretical idea. In this case, the idea of student engagement, as NSSE defines it, was challenged by the understanding students had of the concept in their lives. An emergent research design which sought to create “smooth space” (Deleuze & Guattari, 1987) was allowed to show and highlight moments in which philosophical difficulties, “stuck” places, and challenges to widely used instruments could exist and be integrated into subsequent phases of the research study.

However, what sort of implications could this study have for research practice, which is bound by very realistic time and resource constraints? The first answer to that
question is that the ability to follow “lines of flight” might lead to challenging long-held ideas that the survey was the be-all-end-all in higher education research. Modes of qualitative and mixed methods inquiry were also valid in practice, and allowing all three traditions to interact in productive ways could lead to insights which were not only new understandings, but also perhaps more reflective of, in this case, the students’ reality and life at college. The type of research design in this dissertation could be followed in multiple types of empirical projects, but again, the key was to allow for philosophy and research to interact. By confronting the moments in which the research got “stuck” and capitalizing on these moments in order to create a more complex understanding, I allowed the space in which the data could truly “speak” to the research design.

Secondly, mixed methods as “nomad science” becomes a viable alternative to mainstream mixed methods research, which seeks to harmonize data, and uses a form of pragmatism which might be construed as “vulgar.” For those interested in the work of philosophy and research design, and the potential of these various combinations, this type of research becomes a fertile ground in which alternative modes of inquiry flourish. For those interested in emergent research design, this type of “nomad science” becomes a way to understand and catalogue what is occurring during the study, in such a way that did not stifle the research process. The space is allowed for “paradigm wars” within a study, and provides a way in which one could begin to negotiate the wars in their own research, and in concert with both data and a research design which was responsive and agile.
Thirdly, divergence may be an underutilized source of research. Divergence is sometimes hard to see, as perhaps some are more interested in the project of making data work together. Divergence allowed the “consensus” of data in a sense, rather than the democracy in which the majority rules. Consensus attempts to hear all voices, and moves with the narrative which includes all the voices, even those which diverge. As a result, as researchers become more tuned to seeing divergence, they might notice new patterns in data, patterns which perhaps have been ignored or pushed to the margins in the interest of a tidy research project. As we have seen, though, sometimes these divergent moments lead to tremendous insights. One of the most striking examples was the work by Laughlin and Creamer (2007), cited earlier, regarding the adjustment of the theory of self-authorship in college students. Perhaps further study on “student engagement” will lead to new insights on this long-standing theory as well.

**Conclusion(s) and caution(s)**

In conclusion, mixed methods studies, as Torres (2006) suggests, should have well thought out, documented, and reasoned narratives behind various research decision moments. This study sought to conduct itself in that manner, while being true to what Greene (2007) references as the “spirit of adventure” (p. 144). The research sought to interrupt the idea of “harmony” and show that pragmatism might not be the only philosophical frame from which mixed methods can benefit. Using Greene’s (2007) “dialectic stance,” the multiple data sets could dialogue with each other in such a way to inform the subsequent phases of the research design. Most importantly, however, this study sought to show that the idea of a nomad science as conceived by Deleuze and
Guattari (1987), could be a productive alternative (or complement) to the overarching use of the pragmatist paradigm in mixed methods. By conceiving of mixed methods in this way, one could allow for various “lines of flight” as they arise, and rather than relegate all decisions to “what works,” one could truly experiment to test the assumption that something does in fact, work. A nomad science creates an exciting and productive arena for mixed methods research, and should resist, as much as it can, falling into “abeyance” (Deleuze & Guattari, 1987, p. 373).
References


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Maxwell, J. (2009). What qualitative research(ers) can contribute to mixed method studies. Paper delivered at the Fifth Congress of Qualitative Research, Champaign, Illinois.


Appendix A: Journal Template

Online form, via an individualized google document, in spreadsheet format

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