Reflections on Course Work
Chmiel Portfolio 2
May 2011

Transfer Credits

Sociology 901: Culture and Cognition: Topics in Current Sociology (3)

This was easily my most challenging course, but one of the most valuable courses I have taken. The course explored the changing notion of "culture" in sociology. Readings started with Durkheim and Strauss, some of the founders of anthropology and the scene setters for most modern conceptions of culture. The course covered a number of theorists foundational in sociocultural learning theory—theorists that I had encountered in my education scholarship—but from a classically sociological perspective. This allowed me to not only put scholars such as Vygotsky into a greater historical context (he is normally presented as a disembodied theory in educational psychology textbooks) but it also challenged and ultimately strengthened by sociocultural framework for understanding learning and cognition and that framework guides scholarly interests and assumptions. The theorists we read here, Vygotsky, Hutchins, Pierce, James, Dewey, Gibson, and others continue to be a great influence on my understanding of cognition and epistemology, while others (Foucault, Bourdeiu) I'm simply glad to say I have read once.

Curriculum and Instruction 960: Science Education Seminar: Modeling and Inquiry (3)

This course has become foundational to my outlook on science education. In general, I found my course work in science education at UW-Madison to be phenomenal and this course, in particular, had introduced me to some of the most influential readings I've encountered as a doctoral student. The course examined the meaning of the term "inquiry". Inquiry is very commonly used in science education and it is *often* used to describe some hands-on activity. For instance, a textbook might have a lab where

students grow sugar crystals and label it as an opportunity for inquiry. This seminar examined literature for a number of sources ranging to the American Association for the Advancement of Science, to influential thought leaders in the history of science education such as Joseph Schwab, to Stephan Jay Gould, to contemporary science education scholars, to show that inquiry is the scientific process used to construct new ideas and theories. Inquiry is the description of how science is done, and by understanding this process in a contemporary and historical sense, individuals can attain scientific literacy.

My greatest take-aways from this have been the fact that what happens in most classrooms is that we teach kids *about* science, rather than teaching them science. The problem of divorcing scientific process from content goes deeper than traditional concerns over how much "critical-thinking " or "problem-solving" need to be taught in place of content. People get a fundamental misconception about the field of science when they are taught that there is a scientific method, that ideas or theories are attached to the name of one man (working alone, in a vacuum) and that the answers to science problems are in the back of the book.

Curriculum and Instruction 606: Critical Education Practice on the Internet (3)

This course has greatly influenced my conception of the role of digital media (the Internet) in education. Basically, the course argued that the Internet has always been present in the lives of today's students. Because of this, the nature of authority, information, production, and culture are fundamentally different for this new generation of students than the generations currently running classrooms and schools. We examined a variety of reports about the Internet habits of teens and considered the implications of digital tools such a social networks, wikis, blogging, and fandom (or affinity spaces).

Additionally, we examined the so-called "digital divides" that might exist in terms of age, gender, and household incomes.

The course influenced me in two important ways. The first is to think about technology and education in a broad way. That is, to understand that many U.S. students have access to digital media and use it to learn or communicate. This is true whether schools get involved or not. Formal education can choose to ignore the role of digital media in children's lives and allow certain children to develop their own informal digital curriculum. Or, formal education can get involved, work with children to be critical consumers and producers of digital media and work to make sure that all children have ample access to the advantageous resources that exist online.

The second important influence I take from this course is in thinking deeply about what it means to have "digital natives" and "digital immigrants" together in one school system. How can we work with "digital immigrants" to help them keep being effective teachers, administrators, and curriculum leaders when their students have greater comfort and fluency in these newer media? There are a lot of questions here, and research in this area is greatly needed.

Curriculum and Instruction 801: Interactive Media and Computers in the Curricula: Design Experiments (3)

The timing for this course was interesting in that I took the course shortly after a volume of *Educational Researcher* had been dedicated to the topic. Design Based Research (DBR) is a type of inquiry that relies on a mix of methodologies that a variety of scholars (but frequently scholars in science education and instructional technology) use when they are designing some sort of educational artifact. Issues surrounding DBR

are really magnifications of greater problems in educational research. For instance, DBR attempts to address ecological validity. Anne Brown, an educational psychologist who had, for years, conducted classic, experimental psychological experiments and found them unsatisfying due to their lack of real-world transferability, first formalized the idea of DBR. While her ideas about the limitations of experimental research never caught on with mainstream educational psychologists, they are incredibly popular with scholars who identify themselves as "learning scientists". Learning scientists embrace more socio-cultural theories of learning and cognition and while many learning scientists accept traditional, controlled, experimental inquiries into cognition, they eagerly explore other, more naturalistic methodologies. DBR fits in easily with these theories.

DBR is useful for a good deal of inquiry, especially considering my interest in design. It is, however, still a relatively ill-defined body of work and remains on the fringes of academic study. This course was a wonderful introduction to the learning sciences, their epistemic advantages and limitations. The course also exposed to me, for the first time, that we don't have it all "figured out" when it comes to methods in the social sciences. When I first learned about research methods as a master's student, they seemed like a highly prescriptive central dogma. The very emergence of DBR and many of the internal debates in the area demonstrate that many educational researchers are dissatisfied with the more established educational research methods and I count myself among the dissatisfied.

Summer 2009

EDIT 772: Web-based Instructional Tools {Flash (2)}

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This was a very practical course, oriented around a particular authoring tool. Flash is one of the most important production tools in my field, and I have moved entirely to using Flash for video game production. Much of my current professional strength lies in the fact that I have a basic understanding of computer programming. This gives me a better sense of what is or is not possible when it comes to planning and execution of a project. Likewise, I wanted to get a better understanding of the Flash authoring tool to better understand the constraints and affordances of this vital software. My understanding of the possibilities of Flash help better inform theoretical arguments about how we can communicate scientific ideas with digitally interactive media.

Fall 2009

EDUC 800: Ways of Knowing (3)

I thought the Ways of Knowing course was a great kick-off for a PhD program. The texts were incredibly well selected, diverse, and thought provoking. I was a little surprised by how hard it seemed for the course to stay on-track with more epistemologically oriented discussions. Conversations kept drifting towards day-to-day issues people struggled with in the classroom. While I certainly think teachers' experiences (and I was a classroom teacher, so I can certainly relate to many of these conversations) are valuable to explore, I thought it would have been worthwhile to spend sometime in the course talking about a transition from practitioner to researcher. Doctoral studies are so dramatically different, in education, from the master's experience, and I think the conversations in Ways of Knowing would be enriched if there were greater scaffolding on this transition.

EDUC 805: Research and Scholarship in Education (3)

Prior to the George Mason University (GMU) PhD in education program, I had

completed three years of coursework toward a PhD at the University of Wisconsin—Madison, which was organized very differently. AT UW-Madison, doctoral students were segregated into academic silos. My only opportunity to interact with students from other divisions within the school of education was through a special, highly selective, Spencer doctoral research fellowship program. The program attempted to introduce students to faculty from around the school of education, but the culture of the school made talking across disciplines not only rare, but also very difficult. For this reason, I liked the message GMU was sending education PhD students by requiring *all* students to understand the diversity of approaches scholars take in addressing questions that stem from this broad area we call, "education." This semester, I was interested in having my assumptions challenged and hoped to rigorously question myself about what my role in the education research community should be. The diversity of research questions presented this semester further clarified that my interests are in the processes of learning in context. Specifically, I am interested in how learners make sense of things, how learning environments are designed, and I am particularly interested in looking at these questions from a socio-cultural perspective (as opposed to questions of pure policy, leadership, or teacher education). Through reflecting on our speakers, in addition with my graduate assistantship position, I've discovered an emerging interest in making contributions to literature on research methodology. I had some ambient awareness that there were scholars out there who specialized in research methods, but I figured they had hatched that way from some kind of pod. I had no conception of how (or why) people got interested in doing that type of work. I've been excited to see how much his work invokes the philosophy and history of science, which are both passions of mine.

Connecting those interests with methodological issues has opened new avenues of inquiry for me. One of our speakers commented that many findings in his field that cannot be revealed in quantitative studies are often left out of policy decisions. I find this fascinating and problematic. Likewise, as I struggle to reconcile my views towards experimental designs in learning with my socio-cultural views on learning, I have come to appreciate the types of questions that can be explored through relatively new approaches such as mixed methods research or design based research. With the nascence of socio-cultural learning theories and the emergence of technology-enabled learning, older methodologies will require re-visitation and revision.

EDIT 705: Instructional Design (3)

The instructional design course was a very practically oriented course revolving around case studies, which I think is a great idea. Many of the cases were based on more classic instructional design problems (in training situations) but I was interested to see how many of the problems that arise in those design situations fit in with my challenges designing games in education. The teacher and classmates were incredibly supportive of my interests in games as instructional design-problem spaces, and I was able to collaborate with like-minded students on a final project oriented around a game about Mendelian genetics. The strategies I learned in this course have informed my professional practices, and it strengthened my ability to talk about how design can constrain or highlight certain learning objectives.

Spring 2010

EDRS 797: Mixed Methods (3)

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Out of the gate, the mixed methods course appealed to me in its frank discussion about how and why the "paradigm wars" have, potentially, negatively impacted educational research. This course exposed me to a number of well-designed research studies (from a number of different fields) as well as theoreticians I look forward to reading more deeply. Through my graduate assistantship, I have and am reading a lot of Maxwell's work, but this summer I hope to find more of Howard Becker's work and read him more deeply. Becker and Maxwell both do work that is more oriented toward social theory, and my interests are ultimately about "learning", but given my orientation in socio-cultural learning theories, I find their work on research methods to be more informative than classical educational psychology perspectives.

I should also briefly mention that it has been a while since I've been engrossed in a book that was part of a class assignment, but that was certainly the case when we read Obedience to Authority. Putting aside the controversial nature of the experiment, I was intrigued by the fact that Milgram was so driven by a question, and he modified and toyed with research design to interrogate that question in every way he could think of. That thirst to answer a question, rather than chase after publications or grants or fashionable issues was pretty inspiring. I'll have to keep that in mind for after I get tenure.

EDRS 810: Problems and Methods in Educational Research (3)

One of the biggest challenges for me in this course was that fact that since it is meant as an "Educational Research 101" course, Creswell dictated much of the content and with Creswell come dichotomies of quantitative versus qualitative data. Our instructor, Dr. Brozo, however, did a good job of letting students know that Creswell's

definitions were an oversimplification. Perhaps the most useful (and encouraging) part of the course for me was our talk with and eventual assignment to address the George Mason Internal Review Board (IRB). This was incredibly useful. I had to deal with an IRB at UW-Madison and they were very slow and hard to reach. Our speaker did a great job explaining why many research questions emerging from the digital age are "tricky" and may well never be addressed. She talked a lot about how the IRB considers some of the edge cases and made their purposes and work very transparent. The talk was monumentally helpful. I had a lot of anxiety about the IRB process and her talk helped me realize that they really were there to aid the researchers.

EDUC 897: Independent Study for the Doctor of Philosophy in Education (3)

The independent reading has allowed me to explore, more deeply the issues of embodied cognition, pragmatism, and qualitative realism and begin to draw some tenuous connections across these fields. The opportunity to read deeply in this area has convinced me that qualitative realism has a lot to offer this conversation that pragmatism has been historically unable to address, especially for those of us concerned with applied questions in the areas of learning and cognition. My next step will be to better synthesize the readings from this semester and identify the epistemological questions raised by embodied cognition. I hope to use this opportunity to weave through ideas about how qualitative realist approaches can address these issues and how the qualitative realist perspective is uniquely suited to move the conversation forward. Finally, I would systematize other attempts in the field to advocate for particular epistemic stances and demonstrate how qualitative realism can address issues that might have otherwise been

left open-ended.

EDUC 994: Advanced Internship in Education (3)

Much like the independent study, this internship was one of the most valuable experiences in my coursework at GMU. Working with data obtained from Dr. Peters-Burton, I analyzed structured interviews from pre-service teachers who were leaving STEM careers in order to become teachers. After my initial excitement to dig into the date, I was rather quickly intimidated by the task in front of me. I certainly saw patterns emerging from the participants, but attempting to characterize those patterns, establish validity, tie my findings in with other literature, and communicate all of this soon revealed itself to be a very daunting task. Fortunately, I learned it just took time: time with the data, time working with another coder, and time to find insightful parallels with other research. The literature review for this project was daunting for the same reason the project was exciting: this topic is vastly under-theorized. The other challenge was trying to figure out how much to say about the various components that went into the paper. For instance, we were looking at pre-service teachers understanding of the Nature of Science (NOS) and how this played into their vision for their teaching. How much detail, or convincing, does the reader need in order to agree that NOS is a worthy goal to begin with? Understanding practicing teachers' understanding and employment of NOS is fraught with complication, and evidence shows that scientists themselves do not show a great deal of NOS understanding outside of their own fields: what does all of this mean for our participants? These were all issues that were worked out only by writing many drafts and getting copious feedback from Dr. Peters-Burton and other colleagues. I was very happy when the proposal was accepted to NARST and apparently well received.

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After recently submitting the paper for review to a journal, I look forward to knowing that whatever happens, I will get more feedback to strengthen the paper.

EDRS 811: Quantitative Methods (3)

When I think back to this course, I think of "neat and tidy". The subject matter was presented in a neat and tidy way. The ready-made data sets we had for homework were neat and tidy and gave us very clear results after we pushed the right buttons in SPSS. For my final paper in this class, I did not research any topics I had a remote professional interest in. I simply tried to find neat and tidy numbers so that I would be able to do all of the required tests and be able to report significant results (which we were encouraged to do). I looked at SOL scores for 5th and 3rd grades in Title 1 versus non-Title 1 schools and schools with low, medium, and high ESOL populations. Even there, my data were not neat and tidy enough to provide me with meaningful results for my ANOVA. In particular, my populations did not have homogenous variance, which I felt terrible about, but I plugged on and reported the results as I got them.

I certainly came away from this course with new software skills (which are always great!) and a lot of confidence in reading and understanding quantitative research papers. However, I do think quantitative research has a lot of sneaky problems. For one, there are too many assumptions that seem to be impossible to fill to conduct some of these analysis in the first place! Secondly, the entire issue of constructs seems to be fraught with problems. I think, for instance, of the famous studies examining aggression after playing video games. Psychologists would ask an experimental group to play video games with a lot of violence. They would then present players of both groups with one of those punching-bag clowns. They defined hitting the clown as the behavioral construct of

aggression. The problem I always had with this construct is, that is what those clowns are for! The toy is designed to be punched! Aggression is even easier to define behaviorally than many of the constructs in education. It is this issue of potentially flimsy constructs mixed with the strange luck a researcher must have to make to make their statistical analysis assumptions valid that makes me nervous about these methods.

EDRS 797: Survey Research (3)

Much like EDRS 811, one of the things that most caught my attention in the survey class was the idea that survey research has changed, advanced, and been improved over the decades. Dr Galluzo provided fascinating insight on professional survey companies, such as Gallup, do their research to maximize randomization. For instance, they have strategies for who to ask for when they phone people for surveys, and when selecting names, certain races and ethnicity can be over-represented in some parts of the alphabet and under-represented in others. For this reason, random number generators are preferable to methods such as picking every fifth name. Likewise, technology has begun to cause problems for survey researchers as well. Many adults in their 30s and 20s no longer have land lines. This has really interfered with tried and true survey research methods. Web delivered surveys are certainly the way of the future and this is in part the reason I would like to take the survey research course from the sociology department. The professor teaching the course specializes in web-based surveys and I think it would round-out my coursework very nicely.

EDPS 823: Research Projects in Educational Psychology (3)

This is a difficult course for me to comment on because Dr. Sheridan is leading it very much as a design-studio course. We come in with our project ideas and work closely with

her and other students to talk, clarify our ideas, winnow our intent, and justify our reasoning and rationales. The final weeks of the course will be dedicated to qualitative research questions because so much of the class was converted into realizing they needed qualitative components to their studies (!!!) and I had been one of the only students who had qualitative intentions from the beginning, so the next few weeks will be really useful. I have used this course to bounce a lot of ideas off of Dr. Sheridan as I begin to think very seriously about my doctoral proposal, and she has been tremendously helpful. She is a great example of someone who can play the believing game and the doubting game with equal skills and ease. I came into the class with two potential project ideas: Her doubting has helped me realized I needed to scrap one idea and it has made me feel very confident about the second idea. I have already written an IRB proposal for that idea, which Dr. Sheridan signed for the course, so that I can begin research this summer. I hope to parlay that work into my advanced qualitative research course.

EDRS 821: Advanced Quantitative Methods (3)

I found a lot of things I felt about 811 remain true for this class, save for the fact that I find myself baffled more often! In all honesty, I'm really glad I convinced myself to take this course because I do feel that I have a stronger insight into the world of educational research. As I mentioned elsewhere in this portfolio, the thing that amazes me is that there are still innovations being made, especially in some of the more sophisticated tests such as confirmatory factor analysis or structural equation modeling. Part of the reason for progress in these areas lies in the added power of computing. Its so strange that my research is so focused on how technology affects school aged learning, yet I'm so surprised that it also affects *learning* about *learning*. The professor is making a really

hard sell on taking the structural equation modeling course in the fall and I have been so tempted to take on the challenge, but I don't think I can handle a third semester in a row! This particular class (821) was/ is definitely tough.