

# How Our Majors Believe They Learn: Student Learning Strategies in an Undergraduate Theory Course

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## Abstract

In this study, I set out to gain a better understanding of the learning strategies typically used by sociology majors, whether and to what extent they engage in metacognitive strategies, and whether teaching about learning results in students reporting greater use of self-regulatory behaviors. I discuss the importance of self-regulated learning and metacognition for student success and describe the ways in which I incorporated instruction in these skills into an undergraduate theory course. Data collected over the past five semesters illustrate the positive effects of these activities on student motivation and use of cognitive and metacognitive strategies. Students report greater use of higher-level cognitive learning strategies such as critical thinking and are more intrinsically motivated as a result of taking the course. This quantitative investigation of students' use of cognitive and metacognitive skills adds to McKinney's (2007) qualitative research on the process of learning sociology.

## Keywords

student learning, metacognition, critical thinking (skills), social theory

According to McKinney (2007), the scholarship of teaching and learning in sociology has yet to make significant inroads in understanding how our majors learn the content and skills of our discipline. She challenged us to “begin a discussion in the literature on how our majors believe they learn and how they actually learn in our field” (McKinney 2007:12). McKinney (2007) began this conversation by reporting on senior majors' understanding of their learning processes. In the interim, however, little has been done to follow up on her call to engage with the wide range of research on learning that has been done in higher education.

This article heeds McKinney's (2007) call. Several years ago, I began a study of sociology majors' learning styles and strategies in the upper-level Development of Sociological Theory course I teach. Modeled off research that is typical in the fields of educational psychology or higher education, I set out to gain a better understanding of what

strategies for learning are utilized by sociology majors, whether and how our majors assess their learning, and whether these strategies are effective for understanding sociological theory.

In particular, I was interested in discovering the degree to which our majors utilize metacognitive or self-regulatory skills as they move from surface to deep learning and from novice to expert learner (McKinney 2007; Roberts 2002). Metacognition encompasses both the knowledge we have about the process of learning and our ability to put that knowledge into practice as we regulate how we learn (Pintrich 1999, 2004; Roberts and Roberts 2008;

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Roberts 2002). Students with good self-regulatory skills engage in “effective intentional learning” (Bransford, Brown, and Cocking 2000:97). They are able to reflect on, assess, and change their learning behaviors in order to achieve a greater depth of understanding (Pintrich 1999). My investigation has led to a better understanding of how we “learn to learn” for me, as an instructor, and has resulted in greater attention to the issue of learning in my classroom.

This quantitative study of students’ use of cognitive and metacognitive skills adds to McKinney’s (2007) qualitative research on the process of learning sociology. Data collected over the past five semesters show that sociology majors report using cognitive and metacognitive strategies and that teaching about learning can result in greater use of self-regulatory behaviors. Increases in students’ reported use of metacognitive practices over the semester in turn affect students’ use of critical thinking skills, motivation, confidence, and study habits. In what follows, I discuss empirical research and theories on learning in higher education that focuses on learning strategies, metacognition, and motivation. I then describe the set of in-class activities and writing assignments used to develop self-regulated learning skills and metacognitive strategies in my course. Finally, I present findings from my study on the effects of teaching about learning in the sociology classroom.

## LEARNING, METACOGNITION, AND MOTIVATION

Research in educational psychology stresses “the importance of both motivational and cognitive components of learning” (Pintrich 1999:459). This work demonstrates that students who use a variety of cognitive and metacognitive strategies tend to master course material more easily and that motivation is central to promoting and sustaining this kind of self-regulatory learning at the collegiate level. If we are interested, as Roberts (2002) has advocated, in furthering students’ intellectual development, we need to incorporate non-content student learning objectives (e.g., developing critical thinking skills or the ability to communicate effectively) into our courses and provide instruction in cognitive and metacognitive strategies.

For many sociologists, the development of critical thinking abilities is *the* primary non-content course objective. The capacity for critical thinking typically corresponds to the ability to reflect, critique, synthesize, and evaluate. Cognitive development perspectives highlight the processes through which individuals

develop this capability by first becoming separated or connected knowers (Clinchy, cited in Bain [2004]) and then building the capacity for reflective thinking (King and Kitchener, cited in Bain [2004]) or complex analysis (Perry, cited in Roberts [2002]).

Another common way of moving course objectives beyond mastering sociological content has been to include instruction in styles of learning. Roberts and Roberts (2008) developed a highly effective approach that draws attention to the importance of thinking about thinking and talking about learning in the sociology classroom. They begin by teaching students various strategies for connecting to reading materials—such as developing interest or curiosity, making connections to their own lives, or taking the perspective of the writer—and stressing higher order thinking in assignments. Then, Roberts and Roberts (2008) introduce students to eight learning style modalities based on Gardner’s forms of multiple intelligence: verbal/linguistic, musical, logical mathematical, visual/spatial, bodily kinesthetic, interpersonal, intrapersonal, and naturalist. Students are asked to identify, explain, and then practice their dominant learning style as they read. Finally, they recommend that students practice using a variety of other modalities in order to further improve reading comprehension and engage in deep learning.

There is increasing disagreement over whether individuals possess *a* particular style of learning—which might predispose them to be a visual, auditory, kinesthetic, or other type of learner—or a variety of learning styles that are used simultaneously. However, it is widely accepted that employing different cognitive strategies for learning helps students process information in different ways (Bain 2004; Pintrich 1999; Roberts and Roberts 2008; Roberts 2002). Cognitive learning strategies are typically grouped under the following categories: rehearsal (repetition of content), elaboration (paraphrasing, summarizing, creating analogies), and organization (clustering, outlining, selecting; Bangert-Drowns, Hurley, and Wilkinson 2004; Pintrich 1999). A variety of learning strategies are often used simultaneously in most learning contexts. Developing higher order critical and analytical thinking skills entails moving away from relying on the simpler set of skills that fall into the rehearsal category.

Further cognitive development, depth of understanding, and greater academic success occur when students use metacognitive strategies (Bangert-Drowns et al. 2004; Pintrich et al. 1993). As

mentioned previously, metacognition includes both knowledge about the process of learning and using that knowledge to enhance our ability to learn (Pintrich 1999, 2004; Roberts and Roberts 2008; Roberts 2002). The first aspect of metacognition—metacognitive awareness—refers specifically to whether a student knows about the process of learning, when to employ different cognitive strategies, and how to regulate their learning (Pintrich 1999). The second aspect of metacognition—metacognitive control—is often used interchangeably with the term *self-regulation*. Metacognitive control or self-regulation involves the ability to plan, set goals, organize material, question understanding, and continuously fine-tune cognitive activities (Pintrich et al. 1993). The skills involved in regulating learning include bringing behavior back in line with a pre-established goal, rereading or slowing the pace of reading, and reviewing in order to “correct their studying behavior and repair deficits in their understanding” (Pintrich 1999:462).

Models of metacognition or self-regulation also stress the importance of motivational and contextual influences on learning (Pintrich 2004). With regard to motivation, self-regulated learning models typically distinguish between intrinsic and extrinsic rewards. Most research shows that extrinsic goal orientation is associated with surface learning while intrinsic motivation leads to deep learning (Roberts 2011). Pintrich (2004), however, acknowledges the possibility that students’ use of intrinsic or extrinsic motivation to achieve different learning goals is flexible and contextual. Extrinsic goals, such as getting a good grade, are often adequate motivators for college students’ success as measured by class attendance, keeping up with class work, and other measures of performance (Pintrich 1999). Intrinsic motivation, particularly interest in mastering a subject, creates an emotional response (satisfaction, pleasure, etc.) that makes learning a rewarding experience (Zull 2004). It is associated with greater use of self-regulatory strategies (Pintrich 1999) and sustained, long-term learning (K. A. Roberts 2011). In addition, students who utilize more self-regulatory strategies have higher levels of self-efficacy, individual overall confidence about their capabilities, and judgments about their ability to accomplish certain goals or tasks (Pintrich 1999; see also Bandura 1997). Bain (2004:35) suggests that these kinds of self-regulated students “are more likely to take risks in learning, to try harder tasks, and consequently learn more.”

Because this model views learners as active participants in the learning process and recognizes

their ability to control aspects of their cognition, motivation, and behavior, it is possible to intervene effectively in the learning process. We can further students’ intellectual development by teaching them about the process of learning, helping them practice different cognitive learning strategies, encouraging the development of self-regulatory learning strategies, and increasing intrinsic motivation. It is reasonable to suspect that becoming a self-regulated learner is especially important for sociology majors generally, but for students in sociological theory courses in particular. The present study investigates whether and to what extent sociology majors report using cognitive and metacognitive strategies and whether teaching about learning results in greater use of self-regulatory behaviors.

## CONTEXT AND METHOD OF THE STUDY

### *Classroom Context and Learning Skills Interventions*

Research on learning and learning skills interventions emphasizes the importance of context, whether it be the creation of a student-friendly learning environment (Macheski et al. 2008), the establishment of non-content course objectives (Roberts 2002), or the careful construction of assignments with cognitive and metacognitive learning outcomes (Grauerholz 1999; Hudd, Smart, and Delohery 2011). Therefore, I begin with a brief description of the course context before discussing the method of data collection.

Development of Sociological Theory is a 400-level undergraduate theory course designed to cover the evolution of sociological thought from the early foundations of the discipline up to and including contemporary theoretical perspectives. The course is required of all majors in the Department of Sociology & Anthropology at the University of Nebraska-Omaha, a midsize, Midwestern, metropolitan university. Departmental advising guidelines currently suggest that students take this course after they complete the core required statistics and research methods courses but before registering for the senior capstone course. Therefore, students enrolled in the course tend to be advanced undergraduates (junior or senior level) who have largely completed their general education course requirements and most of their course work in the major.

Developing critical thinking and writing skills are both clearly stated as course objectives in the syllabus. The core required assignment, “Film

Analysis Papers,” is designed to achieve both of these objectives (Pelton 2012). It asks students to complete a critical theoretical analysis of four different films throughout the semester. I establish a seminar-style environment that routinizes student participation and involvement and I employ collaborative learning methods in the classroom in order to accomplish this goal (Pedersen 2010; Rinehart 1999). Students share responsibility for interpreting texts, lead discussions throughout the semester, and practice critical reflection and consensus building in small-group work that is designed to provide a safe space for students to grapple with difficult material.

I have experimented over the course of teaching Development of Sociological Theory with a variety of learning skills interventions, alternately introducing students to different styles of learning or self-regulatory and metacognitive strategies. The benefit to focusing more simply on styles of learning is that many students have been exposed to this concept before and may have taken a learning styles inventory in a previous class. The idea of having a predominant “style” is mainstream enough that many students have at least contemplated how they “learn best.” On the other hand, I have found that instruction in metacognitive strategies is actually the more useful tool for students in a theory class. Anecdotally, many of my students say they have given little thought to the idea that they can control the process and outcome of their learning and this feels empowering. Instruction in these strategies may require more work from an instructor who is not familiar with the theory and research behind metacognition.

I incorporate written and applied activities early in the semester that ask students to contemplate how they learn best. I begin their first small-group activity by asking students to engage in metacognition through an informal in-class Quick Write about their preferred learning strategies. Students share their reflections about learning and I use this discussion to introduce the list of modalities of learning presented by Roberts and Roberts (2008; discussed previously). Then, students form groups of similar learners, talk about how they learn best, and share how they used their preferred style of learning while they read the first theoretical text of the semester. Toward the end of class that day, I ask the various groups to talk about how their style of learning helped them to process information from the text and how they might continue to use it successfully in the course. I hope that students will contemplate using a variety of strategies for

comprehension after hearing about the wide variety of ways they could engage with the course material. The small-group interaction also helps to diffuse anxiety as they talk with others about a difficult text.

I revisit the idea of different strategies for learning throughout the semester. For example, students practice different modalities as they complete a series of reading guides for the most difficult texts. This assignment involves low-stakes informal writing that usually focuses on internalizing course content (Stokes, Roberts, and Kinney 2002), promoting understanding, and creating a basis for forming new knowledge (Hudd et al. 2011). Several of the guides ask students to draw a model, diagram, or pictorial representation of the theory; construct outlines of the text; or categorize key theoretical arguments from the reading. Logical mathematical learners, who like to categorize or quantify information, often have difficulty creating visual or spatial representations of ideas. But these activities always generate rich discussions of the material and develop critical thinking skills. We spend a good deal of class time critiquing and revising individual pictures or models until the students arrive at a final image that best represents the most important theoretical arguments from a particular text.

I also include systematic instruction in metacognitive and self-regulatory strategies via a short lecture on metacognition and strategies for planning, monitoring, evaluating, and regulating their understanding while reading, writing, and taking notes in class. The content covered in the aforementioned literature review forms the basis for this mini-lecture. Afterward, I lead a class discussion focusing on how students might engage in metacognitive behaviors as they read by talking about best practices for reading difficult texts. Each semester, I present students with bookmarks that have the following helpful suggestions for improving reading comprehension: Read slowly and reread often, difficult sections should be read two or three times, have faith that later passages will clarify earlier parts, *write* don’t highlight, ask questions and argue with the text, connect the text you are reading with personal experience or material from other classes, and challenge yourself to struggle with a difficult text as long as it takes to understand it on your own. By the end of the semester, many students still arrive with these bookmarks marking their place in the assigned text. Conversations about metacognition and self-regulatory strategies are peppered in throughout the remainder of the semester to reinforce their importance.

## Participants

All students enrolled in Development of Sociological Theory are invited to participate in this research and none have declined thus far (IRB 465-11). Since all sociology majors are required to take this course in order to graduate, I do not have reason to believe that this sample is statistically different from the population of all students who graduate with a major in sociology from this university. Because the study presents a snapshot of our sociology majors toward the end of their undergraduate careers, however, it cannot capture changes in learning strategies across the curriculum as a student progresses from the introductory course to the capstone. Over the course of the past five semesters, complete data have been collected from 84 of the 107 undergraduate sociology majors who registered for the class. Students who dropped the course (11) and those who did not finish the course or did not complete both pre- and posttest questionnaires (12) were dropped from the analysis. Students range in age from 20 to 41, with a mean age of 24, which is typical of sociology majors at this university. The class composition is overwhelmingly female (75 percent), 83 percent of students self-identified as white, 7 percent as black or African American, and 7 percent as Hispanic or Latino. A substantial number of students were working full-time (37 percent) while enrolled in the course; nearly all students worked at least part-time (92 percent).

## Procedure

I adopt Pintrich's (1999) model for simultaneously studying motivational, cognitive, and metacognitive skills because his Motivated Strategies for Learning Questionnaire (MSLQ) is widely seen as a reliable and valid measure of each of these three concepts (Pintrich et al. 1993). The MSLQ "is a self-report instrument designed to assess college students' motivational orientations and their use of different learning strategies for a college course" (Pintrich et al. 1993:3). The questionnaire was designed to be course specific because motivation and self-regulated learning are contextual (Pintrich 1999). Therefore, it is not able to detect differences in motivation or self-regulation that may arise as a result of a specific task or class activity. The findings presented in the following section represent the impact of the course as a whole on student learning strategies. Data are collected at the beginning and the end of the semester to gauge change over time.

The MSLQ includes 81 statements in 15 subscales that measure cognitive (rehearsal, elaboration, organization, critical thinking) and metacognitive (planning, monitoring, regulating) learning strategies, motivation (extrinsic and intrinsic goal orientation, self-efficacy, anxiety), and resource management strategies (study environment, effort, help seeking, peer learning). Sixty-seven of those items were assembled into the questionnaire used in this study. The decision to exclude items, such as the five items in the text anxiety scale, was made on the basis of whether the items were relevant to the specific course under investigation and in order to prevent respondent fatigue. All 67 items in the questionnaire ask respondents to rate themselves on a 7-point Likert scale from 1 for not at all true of me to 7 for very true of me.

Though each of the 15 subscales are created from similarly constructed items, they do not contain the same number of items. For example, the rehearsal and elaboration scales each contain 4 items, the self-efficacy scale is made up of 8 items, and the metacognitive self-regulation scale includes 12 items. Sample items from the self-regulation scale include: "When I become confused about something I'm reading for this class, I go back and try to figure it out" and "If course materials are difficult to understand, I change the way I read the material." More detailed descriptions of the scales can be found in the following section. A complete list of the 81 items can be found in the *Manual for the Use of the Motivated Strategies for Learning Questionnaire (MSLQ)* (Pintrich et al. 1991), and copies of the adapted questionnaire are available upon request. Negative items were recoded and scales were constructed using the mean of individual item scores. Exploratory factor analysis was used to confirm reliability of subscales (alpha values are reported in Table 1 and discussed in the next section).

## THE USE OF COGNITIVE AND METACOGNITIVE STRATEGIES FOR LEARNING

Because we know little about the specific types of cognitive or metacognitive strategies that our majors use, I begin with a brief discussion of the mean scores on the various scales at start of the course. It is important to keep in mind the limited generalizability of these data given the small sample size and student characteristics. Nonetheless, the data presented offer a unique insight into the

**Table 1.** Mean Differences in Pretest and Posttest Responses on Motivated Strategies for Learning Questionnaire (MSLQ) (N = 84).

	Pre	SD	Post	SD	$\Delta$	SD	t
<b>Cognitive and metacognitive strategies</b>							
Rehearsal ( $\alpha = .588$ )	4.90	1.038	4.79	1.114	-0.110	1.186	0.851
Elaboration ( $\alpha = .761$ )	5.10	0.953	5.70	0.863	0.601	0.913	6.028***
Organization ( $\alpha = .657$ )	3.54	1.362	4.73	1.267	1.190	1.409	7.746***
Critical thinking ( $\alpha = .796$ )	4.72	1.189	5.37	0.939	0.645	1.077	5.487***
Self-regulation ( $\alpha = .752$ )	4.54	0.810	4.77	0.760	0.235	0.656	3.282**
<b>Motivation</b>							
Intrinsic ( $\alpha = .807$ )	4.96	1.081	5.28	1.150	0.321	1.011	2.913**
Extrinsic ( $\alpha = .755$ )	5.19	1.361	4.63	1.338	-0.560	1.074	4.773***
Task value ( $\alpha = .891$ )	5.80	0.974	5.80	1.142	0.002	1.049	0.017
<b>Expectations</b>							
Control ( $\alpha = .717$ )	5.92	0.876	5.66	0.912	-0.264	0.928	2.606*
Self-efficacy ( $\alpha = .941$ )	5.06	0.973	5.23	0.917	0.174	0.963	1.653
<b>Management strategies</b>							
Study habits ( $\alpha = .603$ )	4.93	1.179	4.94	0.998	0.017	1.118	0.142
Use of peer learning ( $\alpha = .527$ )	3.49	1.410	3.74	1.480	0.256	1.623	1.445
Help seeking ( $\alpha = .756$ )	4.14	1.253	4.18	1.276	0.037	1.577	0.213

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

perceived use of various learning strategies among upper level students in the sociology major.

At the start of the semester, students were most likely to see themselves using the skills of elaboration (relating ideas, writing summaries, making connections, applying concepts). The pretest mean score of 5.10 on the elaboration scale ( $\alpha = .761$ ) is the strongest for all of the cognitive and metacognitive strategies (see Table 1). Few students reported using the skills of organization (outlining, making charts, diagrams, or tables) as indicated by the low mean score of 3.54 ( $\alpha = .657$ ). Many students reported using the skills of rehearsal in their sociology classes ( $M = 4.90$ ;  $\alpha = .588$ ), indicating that upper class sociology majors still engage in surface-level learning strategies such as memorizing, making lists, and reading over notes. However, strong mean scores of 4.72 for critical thinking ( $\alpha = .796$ ) and 4.54 for self-regulation ( $\alpha = .752$ ) suggest that a large number have begun relying more on deep learning and reflective practices overall. At the least, this indicates that students believe they are engaging in questioning or analytical behaviors and monitoring their learning to a decent degree.

Mean scores for the motivation scales suggest that these sociology majors were motivated more by extrinsic ( $M = 5.19$ ;  $\alpha = .755$ ) than intrinsic ( $M = 4.96$ ;  $\alpha = .807$ ) factors at the start of the semester. Greater extrinsic motivation indicates

that emphasis is placed on getting a good grade in the course, improving one's grade point average (GPA), or impressing others. Intrinsic motivation, on the other hand, indicates that the student prefers to be challenged by course material that is difficult or assignments that are interesting and that understanding course content is more important than getting a good grade. Overall, students see the content of the theory course as valuable, important to learn and understand, interesting, and useful, as indicated by a mean score of 5.80 on the task value scale ( $\alpha = .891$ ). Also important is the relatively high mean score of 5.06 on the self-efficacy measures ( $\alpha = .941$ ). By the time they reach the theory course in our curriculum, majors are confident that they will understand theoretical texts and concepts (even the most complex) and do well on the assignments in the course. And a mean score of 5.92 on the control scale ( $\alpha = .717$ ) indicates that upper-level majors understand that they are in control of their learning; whether they study in appropriate ways and try hard enough determines whether they will understand and learn the course material.

Finally, mean scores on the management strategies scales tell us that most of our majors are not highly engaged in the use of peers in their learning process ( $M = 3.49$ ,  $\alpha = .527$ ) and that while they might understand the usefulness in seeking help, they do not always ask the instructor or other



students for assistance in understanding course material or particular concepts ( $M = 4.14$ ;  $\alpha = .756$ ). Stronger mean scores on the study habits scale ( $M = 4.93$ ;  $\alpha = .603$ ) suggest that students generally study in a place where they can concentrate, have a regular study schedule, try to keep up with readings and assignments, and attend class regularly.

## IMPROVING MOTIVATION AND SELF-REGULATION

Comparison of means, using paired  $t$  tests for dependence, was conducted in order to ascertain whether there was a significant difference between pre- and posttest levels of motivation, self-efficacy, and cognitive and metacognitive strategies. Valid responses for all items on the pre- and posttests were obtained from all 84 participants. Because of the predicted increase in students' development of high order cognitive strategies over the course of the semester, I expected positive mean differences for all measures except the rehearsal strategies scale. Significant changes in the predicted direction were found for all but the rehearsal measures (see Table 1).

After completing the course, students reported significantly greater use of elaboration ( $\Delta = .601$ ,  $SD = .913$ ), organization ( $\Delta = 1.190$ ,  $SD = 1.409$ ), critical thinking strategies ( $\Delta = .645$ ,  $SD = 1.077$ ), and self-regulatory or metacognitive strategies ( $\Delta = .235$ ,  $SD = .656$ ). The greatest change over the semester was in students' reported use of organization strategies. This, I think, is largely a result of training in how to read theoretical texts effectively. Early in-class activities (described previously) emphasized the importance of using outlines to organize thoughts and trying to read for the big idea rather than pay close attention to every detail. Particularly interesting is the potential impact of the diagramming exercise on students. At the start of the class, few students reported using simple charts, tables, or diagrams to organize course material. At the end of the class, and after drawing images of particular theoretical concepts and ideas, many students saw themselves using these kinds of techniques more often.

For those instructors who see the development of critical thinking skills as central to what our discipline has to offer, this study confirms that our majors see themselves engaging in this type of thinking after taking our classes. I attribute the significant gains in critical thinking strategies in this theory course to its emphasis on the practice of "doing theory" or developing the ability to theorize

and to the required film analysis writing assignment. In previous work, qualitative data gathered from students in the class showed that they believe the "Film Analysis Papers" assignment helped them think more clearly and critically about the theoretical texts they read because they had to apply the ideas and concepts in their analyses of popular films (Pelton 2013).

Although gains in students' reported use of self-regulation strategies are small, it is encouraging to see that training in metacognitive skills has produced significant results. It is important to note that these gains have gradually increased over the past five semesters as I have included more training and practice of the strategies and as I have improved my ability to teach these skills. I think this is a direct result of putting research into practice in the classroom. There are a number of reasons why gains in self-regulation are smaller than for the other cognitive strategies. One potential explanation is the difficulty of the course itself. At the start of a theory course, students may overrate their ability to monitor and control their learning in light of successes in lower-level courses. After completing the challenging work of reading and understanding classical and contemporary theory, they may feel that the strategies that once worked for them were not adequate in this course. The result is higher ratings on items that ask students whether they miss important points while reading or whether they often find they have been reading for class and don't know what a text was about. Similarly, reading theoretical texts places significant demands on students' time so they may not feel they have the luxury of skimming material first, rereading long texts, or taking time to reflect on their level of understanding. This is particularly true of students in this theory class, nearly half of whom worked full-time and many of whom who have family responsibilities.

There were also statistically significant changes in student motivation, in the expected direction: There is a decrease in reliance on extrinsic motivation ( $\Delta = -.560$ ,  $SD = 1.074$ ) and positive, though smaller, gains on measures of intrinsic motivation ( $\Delta = .321$ ,  $SD = 1.011$ ). A larger decrease in extrinsic motivation than increase in intrinsic motivation is less than ideal, because developing these skills is one of my non-content goals, but it can still be seen as a positive development. Students are significantly less motivated by external factors like grades or GPAs and have developed greater interest in mastering the content of the course and the challenge of learning to theorize.

Several nonsignificant findings deserve discussion. First, the fact that students do not report

significantly less use of rehearsal strategies ( $\Delta = -.110, SD = 1.186$ ) may seem at odds with the type of learning that a theory class often requires. I suspect that students mistakenly equate reading difficult passages over and over or having to read some passages aloud in order to understand theoretical texts with these types of surface-level rehearsal strategies. Typically, rehearsal strategies are about repetition and memorization in the context of cramming for an exam. I do not think this is what students were doing, but without qualitative data I can only assume that they were, in fact, practicing effective strategies for reading comprehension instead.

Also notable were nonsignificant gains in self-efficacy ( $\Delta = .174, SD = 0.963$ ) and the unexpected finding that students reported a lower sense of personal control over the learning process ( $\Delta = -0.264, SD = .928$ ). The first trend suggests that in spite of the barriers described previously, students who are equipped with or at least know about the power they have to regulate their learning are likely to remain as confident in their abilities to succeed even after completing a very difficult course. This suggests that because all of the core sociology classes—statistics, methods, theory, and a capstone course—are perceived to be difficult, we might help ensure our majors' success by incorporating instruction in metacognition into the curriculum more fully. As will be shown in the following, students who were more confident in their ability to do well in the course were more likely to use a variety of cognitive and metacognitive strategies.

The second trend, a decrease in students' sense of personal control, is contrary to what we might expect. Learning about metacognition should result in a stronger sense of personal control over their ability to learn and understand course material. Why might this study show otherwise? Again, I believe that this finding is due to the particularities students face in theory courses as compared to senior sociology majors generally. Many students, no matter how hard they may try, will leave a course where they have read original theoretical texts and felt like they did not understand and that no matter how hard they might have tried, they never would have.

### CONNECTIONS BETWEEN LEARNING STRATEGIES, MOTIVATION, AND CONFIDENCE

Table 2 presents additional data on the correlations between learning strategies, intrinsic motivation,

**Table 2.** Correlations between Changes from Pretest to Posttest Responses on Motivated Strategies for Learning Questionnaire (MSLQ) over the Semester for Selected Variables (N = 84).

	Rehearsal	Elaboration	Organization	Critical Thinking	Self-regulation	Intrinsic Motivation	Task Value	Self-efficacy	Study Habits	Help Seek	Grade
Less rehearsal	1.000										
More elaboration	0.233*	1.000									
More organization	0.278*	0.218*	1.000								
More critical thinking	0.058	0.122	0.127	1.000							
Greater self-regulation	0.277*	0.437***	0.439***	0.250*	1.000						
Greater intrinsic motivation	0.140	0.256*	0.237*	0.390***	0.493***	1.000					
Higher task value	0.178	0.090	0.289**	0.126	0.460***	0.410***	1.000				
More self-efficacy	0.061	0.210	0.065	0.149	0.233*	0.205	0.298**	1.000			
Better study habits	0.123	0.330**	0.102	0.220*	0.331**	0.251*	0.236*	0.368**	1.000		
More help seeking	0.210*	0.315**	0.098	0.130	0.243*	0.236*	0.138	0.268*	0.462***	1.000	
Course grade	0.063	-0.116	-0.016	-0.176	0.116	0.059	0.088	0.206	0.025	0.111	1.000

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



self-efficacy, and two of the management strategies. For this analysis, I constructed scaled measures of change over time by subtracting pretest scores from posttest scores on the particular subscales. This allows us to see whether a high degree of metacognitive awareness is related to a greater sense of self-efficacy, motivation to learn, or perceived ability to think critically.

The strongest connection exists between increased use of self-regulatory behaviors and increases in intrinsic motivation ( $r = .493$ ), suggesting that teaching about metacognition and helping students learn how to control the process of learning leads them to place a higher value on internal rewards like mastering the material and increasing their own competence. The research cited previously suggests that this should lead to greater academic success.

Greater self-regulation is significantly correlated with gains in all other areas as well. The relationship is particularly strong in four cases: students who report more self-regulatory behaviors at the end of the semester have increased their use of elaboration ( $r = .437$ ) and organization ( $r = .439$ ) strategies, they leave the course with a much stronger belief in the value of learning about sociological theory ( $r = .460$ ), and they have greatly improved study habits ( $r = .331$ ). Importantly, there is also a significant connection between engaging in more self-regulatory strategies and feeling more confident in one's ability to succeed ( $r = .233$ ), though it is not as strong. Greater intrinsic motivation is highly correlated with increases in critical thinking ( $r = .390$ ) and greater value placed on the task of learning theory ( $r = .410$ ). Finally, although no significant change in study habits was found using comparison of means, it is significantly correlated with nearly every variable. Students who maintain a steady study schedule, set aside a regular study space, and keep up with readings and assignments are more likely to use higher order learning strategies, are intrinsically motivated, and strongly believe in their ability to understand theory and do well in the course.

Although course grades are not the best indicator of the impact of teaching about learning on student outcomes, I have included it in this analysis. Students who did particularly well in the course overall were also those with the biggest increase in confidence or self-efficacy. This relationship is not quite significant but is important nonetheless. I think it suggests that simple interventions in the classroom—developing metacognitive strategies in this case—can help to build student confidence.

Greater confidence in turn helps students succeed when confronted with difficult or unfamiliar subject matter. Anecdotally, I can attest to seeing this effect in the students themselves. The students who are particularly anxious at the beginning of the course embrace the idea of self-regulatory behaviors. They exhibit the greatest gains in confidence and either earn the highest grades or show the most improvement over the semester. Because increases in self-confidence can have long-lasting effects over the course of a student's undergraduate career, this is perhaps the best incentive for devoting class time to non-content-related course objectives.

## CONCLUSION

The findings reported in this paper suggest that systematic instruction within sociology courses on learning strategies affects how our majors approach learning. We can help students move from novice to expert learner and from surface to deep learning if we encourage them to engage in metacognitive self-regulation. In the process, we will help build student confidence and encourage sustained long-term learning based on intrinsic motivation and rewards.

Admittedly, this study only captures self-reported changes in students' use of higher-order cognitive strategies, but it supports McKinney's (2007) qualitative findings with quantitative data. McKinney (2007) found that the most successful senior sociology majors in her study were engaged in deep learning, put forth greater effort on tasks, understood the process of learning, and were able to reflect on the effectiveness of their learning strategies. Preliminary data from this study suggest that students who engage in more self-regulatory behaviors, rely more on intrinsic than extrinsic motivation, and see the value in a particular learning task may have greater academic success.

More research is needed, of course. This work brings us closer to seeing how our sociology majors learn, what kinds of cognitive strategies they rely on, and whether they engage in metacognition. Self-report data, however, do not allow us to see exactly what self-regulatory behaviors sociology majors engage in as they reflect on and assess their learning. This study also highlights the importance of motivation and confidence in learning. However, this instrument does not allow us to see what strategies students use to control motivation, employ intrinsic rewards, or increase confidence in their ability to learn. In addition to gathering more information about how our students learn, we also need

a better picture of the specific behaviors that help sociology majors engage in deep learning.

In the meantime, it seems imperative that we try to help our majors learn not only the content of our sociology courses but also to develop these higher order thinking skills that will help them achieve successes beyond the walls of our classrooms. As Roberts (2002) cautioned, it is difficult to navigate these kinds of non-content course objectives within the classroom, but it is well worth the effort.

## EDITOR'S NOTE

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