From Content to Concepts (and Back Again?):

Decoding an Introductory Linguistics Course

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This chapter charts the multiple implications of an evolution in thinking behind the learning goals for an introductory-level linguistics course. This shift in framework for the goal of the course itself was grounded in personal application of the basic steps of Decoding the Disciplines model (Middendorf & Pace, 2004) and supported by a general understanding of the ways learning works (Ambrose et al., 2010). While the data examined in this chapter are specific instances of adaptations to the goals, materials, and design of a particular course, each of the examples serve as evidence for a changing mind-set about the ultimate goal of teaching in any course, and many of the issues addressed are common to all of us who teach in postsecondary settings.

Entering the field of the Scholarship of Teaching and Learning (SoTL), first called for by Boyer (1990) has been an eye-opening journey. It has fostered rich new avenues in my thinking and approaches in the classroom. It has created incomparable opportunities for discourse about teaching across multiple disciplines within my university, as well as with colleagues in a variety of fields and at diverse institutions across the country and around the world. It has expanded and enhanced the way I conceptualize the academic endeavor, both as a scholar and as a teacher. In fact, the journey into this field includes a deeper shift in identity: from being a scholar and a teacher into being a scholar, a scholarly teacher, and a scholar of teaching and learning.

Leaders in the field of SoTL make a distinction between scholarly teachers and scholars of teaching and learning (Hutchings & Schulman, 1999). The scholarly teacher is one who is interested in trends in the field, seeks out new models and teaching approaches, and regularly updates course materials to provide her students with the most effective opportunities for learning. Scholars of teaching and learning are those who do research in the field of SoTL itself: conducting original research on classroom-based experiences, taking classroom products as the data
for analysis, and seeking to determine what the most effective learning experiences actually are.

When I first joined the Gallaudet Scholarship of Teaching and Learning Initiative (GSTLI), I was already a scholarly teacher. The course I focus on here, Linguistics 263: Introduction to the Structure of American Sign Language (LIN 263), was one I had been teaching every semester for several years. Though the course itself had been developed long before I came along, I was doing what so many of us naturally do: adjusting the materials each semester, improving presentation formats, reorganizing content into what feels like a more coherent order, incorporating new homework assignments, and rewriting test questions. I was interested in what approaches were most effective in the classroom, in particular at Gallaudet University, where lecture, dialogue, and discussion occurs in American Sign Language (ASL) creating an academic environment in which deaf and hard of hearing students have direct access to learning. GSTLI seemed like another way to improve my teaching.

As do many others new to the field, I initially conceptualized SoTL as “researching my teaching” and envisioned myself considering what I do in the classroom, determining which parts of that work and which parts don’t work, and then designing groundbreaking curricula based on what I had discovered. It all seemed so simple. But SoTL is so much more than “go look at what you do when you teach.” It is a field of study. And as with any field, the more we learn, the more we realize how much more there is to learn, and the more we begin to see, the more we realize how much further we need to step back in order to see anything at all. While my initial thinking was oversimplified, the basic steps of determining (1) “what is,” (2) “what works,” and (3) “what can potentially be” are indeed crucial components of the SoTL research process (Ciccone, 2012; Hutchings, 2000). In stepping all the way back to “what is,” I discovered that I had only superficially understood what the course, and indeed what learning, was all about.

THE COURSE

I first began teaching LIN 263 as an adjunct instructor while I was a doctoral student. Now as a full-time faculty member, I have had the honor and good fortune to continue to teach it every semester for the past five years.

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Like introductory-level courses in many fields, this course draws students from a wide variety of disciplinary leanings at various stages in their postsecondary careers. Within the curriculum, LIN 263 is the second course in linguistics that Gallaudet undergraduate students can take. It is a requirement for several other majors (interpretation, ASL, deaf studies), so many students enroll in the course simply because it is necessary for the completion of their degree. LIN 263 is also the gateway to the minor in linguistics for those who wish to continue taking further courses.

Though as faculty members we can and do develop new courses, most of us will also be responsible at some point for taking on the teaching of a course that already exists as a regular and recurring component of an established curriculum. This situation, as I experienced with LIN 263, may create an odd conundrum: the sharing of syllabi, textbook or established readings, and materials from previous instructors are time-saving “gifts” that can simultaneously cause us to feel locked into a prescribed formula for how to teach the course, all the way down to the very notion of what the class is “for” or “about” at the most fundamental level.

This was the case for me with LIN 263. An introductory course on the structure of ASL had existed at Gallaudet for several decades, and the groundwork for its initial development had been laid long before I began to teach it. I was given access to syllabi and some PowerPoint slides and homework assignments that previous instructors had used when teaching this course. I remain deeply indebted to those who developed the materials and have so willingly shared them with me. At the same time, I was blessed to be given primary responsibility of the course just as its role in our curriculum was shifting, which allowed me the necessary room to step back and truly ponder its purpose and objectives.

The explicit goal of the course, like many courses, is for students to master a particular set of content, in this case, a basic overview of the linguistic structure of ASL. For students who will not pursue the minor, this is their last linguistics course, so they need to have enough concrete knowledge to be able to apply it to their fields of study. For students who do pursue the minor, this course is the bedrock upon which their continuing linguistic study will build.

**Student Learning Outcomes as an Impetus of Changed Thinking**

If you’re a teacher, you’ve probably been asked at some point to determine, or at least state in measurable form, the learning outcomes of the courses you teach. If you’re a student, you’ve likely seen lists of outcomes
on course syllabi. If you’re an educational administrator, you’ve probably either been asked to provide them or you’ve asked instructors to provide them to you. At Gallaudet, this type of written and explicit statement of Student Learning Outcomes (SLOs) became the norm and the requirement just as I was beginning my teaching career, so after teaching LIN 263 for a couple of semesters, I was asked to write SLOs for the course.

At that time my understanding of the course goal was as described above: to ensure that students know the basic facts about the linguistic structure of ASL. The course SLOs I wrote reflect that thinking. However, as I continued to teach LIN 263, I became aware of two different “levels” of student learning that are embedded in this course. One is the content of what is currently known about the linguistic features of American Sign Language, which is reflected in the course SLOs. The other is the framework for thinking about language that a linguistic approach entails and provides.

In LIN 263, as in other introductory courses, both the content and the ways of thinking are typically brand new to the students and through the semester they make remarkable revelations both about the information and about the benefits of this new (to them) paradigm. Though in LIN 263 the course “content” is the linguistic information about ASL, students who simply know that information by rote may be able to pass a multiple choice test, but many will not be able to retain that information into the next course, much less apply that knowledge to real-world situations they face beyond their postsecondary careers. The science of learning supports the notion that “usable knowledge” is not the same as a mere list of disconnected facts. Experts’ knowledge is connected and organized around important concepts (e.g., Newton’s second law of motion); it is “conditioned” to specify the contexts in which it is applicable; it supports understanding and transfer (to other contexts) rather than only the ability to remember. (Bransford et al., 2000, p. 9)

So while the explicit goal of the course may have been the content knowledge, I came to see the more important role of the course as introducing students to the scientific analysis of ASL data.

The students I would now describe as “successful” in the course are those who complete the semester thinking more critically about language-related claims. They understand how linguistic factors have influenced their lives and will potentially impact their future studies and careers.

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This development of a field-specific way of thinking is more important to me than students’ ability to simply regurgitate facts about ASL, as most of those facts are readily accessible via textbooks, articles, and, more and more, internet sources. Today’s students don’t need a course to get content information; what they can benefit from most is exposure to new ways of thinking that challenge their assumptions and move them forward intellectually. The conceptual outcome of the course was not well-reflected in the SLOs, but the more I taught the course, the more central it became.

This was the critical shift in my thinking about my role as the instructor for this course. While the traditional content is still covered, my goal is to include it in ways that support the development of larger conceptual application skills. In order to determine which aspects of the linguistics conceptual framework are most challenging for the students in my classes, I applied a small-scale version of the Decoding the Disciplines model (Middendorf & Pace, 2004) to the course. This process follows seven steps, as depicted in Figure 1.

Each step of the decoding process leads to specific understandings or actions. As I progressed through the steps, I implemented changes to the course. In hindsight, each of those small changes added up to a large overall shift in the dynamic and outcomes of the course, as described below. The rest of this chapter presents the implications of that analysis on course design.
BOTTLENECK IDENTIFICATION AND ANALYSIS

The process of decoding a discipline, or in this case a specific course, begins with identifying specific moments, tasks, or concepts that students typically struggle to master. In the Decoding the Disciplines model, these are referred to as **bottlenecks**. Bottlenecks are those areas or moments that students have difficulty progressing beyond.

The primary bottleneck I identified for students in LIN 263 progressing to a scientific understanding of language in general, and of ASL specifically, is their inability to conceptualize the interrelationship between definitions and examples. This is a crucial component of scientific thinking of all kinds. For a scientific analysis of data, it is necessary to establish clear definitions of concepts to which we can compare examples to determine whether they instatiate that concept or not. Often these definitions are based on a generalized schematization of multiple examples, so the relationship between a definition of a concept and examples of that concept is bidirectional.

Let’s look at this idea more closely. One of the primary endeavors in science is description, which is based on creating various categories. For example, biologists who study frogs are interested in determining the criteria for inclusion in the *frog* category. The “definition” of *frog* can be conceptualized as the combination of features that frogs have; given a specific animal (a new data point), one should be able to determine whether it is or is not a frog based on that definition. At the same time, as the scientists learn more about frogs or discover new species of frogs, the particular features that make up the definition may need to be adjusted. So the definition itself is a natural extension of abstractions over multiple examples, and each new example is weighed against that definition to determine its fit in the category.

Linguistics is the science of describing language, so this same principle applies. The notion of a *compound* (or indeed of a *noun*, *verb*, *question*, *passive construction*, *phoneme*, *classifier*, *narrative*, etc.) is a categorical concept, for which the definition can be conceptualized as a list of features that are understood to be true of all members of the compound category; given a specific word (a new data point), one should be able to determine how well that example fits the compound category, based on that definition. So what students must learn is not a memorized “textbook definition” of compounds (nouns, verbs, questions, etc.) but...
rather a conceptualization of the category of compounds that helps to
determine whether novel instances are examples of compounds or are
functioning in a different way and therefore instantiating some other
linguistic category.

In linguistics we describe features of specific languages (German,
American Sign Language, Tagalog, etc.) in use in order to help us under-
stand more about the human mental capacities, mechanisms, and pro-
cesses for language in general (Comrie, 2007). The critical factor here is
that any definition of a linguistic category should apply to any language
that makes use of that category. Students in linguistics courses at Gallau-
det are bilingual, and the content covered includes both ASL and English
examples, so the validity of definitions for linguistic concept must be
tested based on examples from both ASL and English. For many stu-
dents, making this distinction—separating the two languages clearly and
understanding that definitions function in language (the human capacity)
rather than just for any one particular language—adds a unique wrinkle
and proves to be quite a difficult aspect of this bottleneck.

Step 1 in the Decoding the Disciplines cycle asks “What is a bottle-
neck to learning in this class, a place where many students fail to master
crucial material?” The bottleneck I identified for students in LIN 263 was
that students failed to understand the interrelationship between defini-
tions and examples, namely that definitions are generalized statements
of the (abstract) commonalities over multiple examples. For students
at the introductory level of linguistics, and perhaps of science courses
more generally, this is a threshold concept (Land, Meyer, & Smith, 2008;
Meyer, Land, & Baillie, 2010), in that it is central to the mastery of the
subject. The learning of threshold concepts is always transformative and
“often involves messy journeys back, forth and across conceptual terrain”
(Cousin, 2006, p. 5).

This particular bottleneck creates obstacles for students at multiple
levels, though that trait is not unique to the scientific concept of the inter-
relation between examples and definitions. Three basic types of bottle-
necks have been traditionally discovered in any decoding of a discipline:

1. procedural obstacles in which students have not mastered the
   steps that are necessary for successfully completing the tasks
   required in a course;
2. epistemological bottlenecks in which students fail to understand
   the basic nature of knowledge construction in a discipline; and

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3. *emotional* bottlenecks in which students affective reaction to
the nature of the discipline or of the subject matter hinders
learning.—(History Learning Project, n.d.)

The threshold concept that definitions arise as we recognize patterns
in data and that analysis of additional data points allows us to refine our
definitions to better understand the nature of our object of study is an
*epistemological bottleneck* in science. Until they achieve that threshold,
students may struggle with the *procedural obstacle* of comparing exam-
pies (data) with a definition (term/concept/category) to determine whether
the data point in question instantiates that category or not.

The acquisition of this particular threshold concept in LIN 263 at
Gallaudet is also hindered by *emotional bottlenecks* at multiple levels.
Students may have general notions that science is difficult and/or eso-
teric. In many cases these ideas have been reinforced by previous negative
educational experiences. Linguistics specifically requires consideration of
something that is intricately personal—one’s own language use—through
the objective lens of science. It takes trust and self-confidence for students
to be willing to analyze language in this manner. For the deaf commu-
nity in particular, there are deeply ingrained perceptions about ASL and
English that can be difficult to disentangle. Science has a history as the
tool of those in power and as the oppressor’s discourse strategy, instan-
tiated by the fact that ASL linguistics as a field has been dominated by
hearing researchers who don’t often partner with the deaf community. All
of these factors must be overcome in order for students to successfully
integrate the example/definition relationship into their way of understand-
ing the world.

The stated purpose of decoding courses and curricula is “to set in mo-
tion a series of steps (modeling, practice and feedback, motivation, and
assessment) that will allow larger numbers of students to enter the learn-
ing process” (History Learning Project, n.d.). This was my goal, and the
following sections outline my work to this end.

**Decoding LIN 263**

Once a specific bottleneck has been identified, the next step asks what
specialists in the field do in order to progress beyond this bottleneck.
In any introductory course, the students who excel and gain a level of
mastery of the content are those who begin to “think like” experts in that field. Research on the science of learning (Bransford et al., 2000; Ambrose et al., 2010) describes expert thinking as a different way of organizing knowledge than that used by novices.

The Decoding the Disciplines model has been used to successfully uncover many of the ways of organizing thought that have become part of the “unconscious competence” of experts in a given field, who are often the people tasked with teaching in that field.

Figure 2, from www.mindtools.com, shows the typical trajectory in any learning process. Learners who are new to any task start in a state of unconscious incompetence, unaware of what they don’t know. The first step in their learning process is to recognize the fact that there is something they do not know and move into a state of conscious incompetence. At this stage, learners may feel frustrated or overwhelmed by the task,
but when learning continues they will move into a stage of conscious competence, when they must think through each step but with that focused thinking are able to complete the task. Finally, once the task has been mastered, learners can become experts, fully able to complete the task without putting much mental effort into it at all. At this point, we generally lose the ability to identify the steps we are mentally working through—hence this stage being one of unconscious competence. Logically, experts are often asked to teach; alas, it is often that very expertise that blinds them to the steps of processes that would most benefit learners were they made explicit.

Focusing on the procedural obstacle related to the identified bottleneck, while remaining cognizant of the others as complicating factors, the critical task confronting linguistics students at the introductory stage is to compare examples (data) with a definition (term/concept/category) to determine whether the data point in question instantiates that category or not. When I carry out that task, I do so based on my field-specific training as a linguist and based on what I understand from cognitive linguistics about how meaning works, what definitions are, and how conceptualizations are built.

As part of considering this bottleneck, I videotaped myself during the spring of 2012 producing an ASL reflection about the interrelationship between examples and definitions. This helped me to bring any potential unconscious competence to the forefront. Until I made my thoughts explicit through this step of the process, several of the main components that I now understand to be part of the critical threshold concept, as described above, were not clear to me. In the reflection I stated that definitions are not separate from examples, that the scientific process includes the identification of patterns across members of a data set and uses a schematic description of the features of that pattern as the definition of that conceptual category, and that once conceptual categories have been established they are used as benchmarks for comparison of any novel data instances to determine fit and adjust the definition. These thoughts led to the clear statement that definitions and examples are a chicken-and-egg type phenomenon: It is not that one is more important than the other; rather, their inexorable tie itself and the ways they continually feed into and influence each other are of the greatest significance.¹

¹ The link to the reflection on my concept of examples and definitions is http://youtu.be/9dilynbpHuc.

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The reflection process of Step 2 led me to a deeper understanding of the bottleneck and of how linguists work through the procedural obstacle. The task that students needed to complete in the course was to determine whether specific language-based examples are instances of a particular category or not. And the way that linguists go about this task is by recognizing the pattern-based definition of the concept in question and testing the example against that pattern.

Step 3 in the decoding process next asks: “How can I explicitly model these operations for students?” For me, the most important component of this step was making processes and ways of thinking explicit. I had previously begun each semester discussing the characteristics of natural languages. In the fall of 2012 and beyond, before we ever got to that, we took the time to discuss what it means to study language, what it means to study it linguistically (scientifically), and what we are studying when we study linguistics. The three slides shown in Figure 3 illustrate this; they are from the keynote presentation I used on the very first day of the spring 2013 semester.

The content explaining what linguistics is and the goals of linguists were not new in the course curriculum. The increased explicitness, however, is new and is evidenced by the emphasis that this component of the content received, as well as the thorough discussion of how these goals relate to the concept of scientific reasoning as it applies to language.

Because the scientific framework had been foregrounded more than in previous semesters, I was able to use that as a springboard to yet another
explicit discussion, this one addressing the issue of examples and definitions head on. Rather than just thinking it to myself, I took the notion of a scientist studying frogs as a metaphor for the task confronting us (the students and myself) as linguists. I made the metaphor explicit, guiding the students through a discussion of what science is for and how it progresses, and together the students and I explored how far this metaphor could extend. We broke down the steps, coming up first with definitions of “frog” as a category, and then considering examples and counterexamples. The final slide used to represent the interrelatedness of both the examples and definitions is shown in Figure 4.

Now that I was actively seeking ways to make the interplay between examples and definitions explicit and to model for students how I worked through the procedure of comparing a novel example to various categorical concepts, Step 4 of the Decoding the Disciplines process required that I consider what opportunities I could provide for students to practice themselves and receive feedback. Because the procedural task experienced as an obstacle involves comparing examples to definitions, I redesigned the assignments in the course to include as many opportunities to practice this skill as possible.

Research linguists use various tools to analyze language data, and one of the most widely used for signed language data today is a freely available video transcription software package called ELAN (http://tla.mpi.nl/tools/tla-tools/elan/). In previous semesters teaching LIN 263, I
had shied away from introducing ELAN, because I knew it would require considerable time for students to overcome the learning curve related to the software package itself. However, as soon as I came to the realization that the outcome most important at the conclusion of this course was students’ skill at the process of comparing exemplars with categorical patterns, the time commitment necessary for becoming comfortable with the ELAN software became insignificant in relation to the amount of hands-on direct practice it would allow students to experience.

The homework schedule for LIN 263 during the spring of 2013 included nine individual “analysis assignments” in which students were tasked with watching a provided ASL video clip and identifying examples of a specific linguistic feature that we had discussed in class together. Through these homework assignments, they practiced identifying and describing examples of categories ranging from sentence structures to verb types to compounds. The use of ELAN allowed me to view the exact moments in the language data that they had identified as examples and to comment and give feedback on their individual explanations for why they chose those examples. Figure 5 shows a screenshot of a section of one student’s ELAN file for an analysis on verb types.

With each analysis assignment designed as a singular experience, I wanted to make sure students also had the opportunity to practice identifying a broader range of examples across multiple category types in a less restricted format, so that they could mentally conceptualize that features play out simultaneously but that each scientific analysis necessarily proceeds at a certain level. I therefore designed the final project as a scaffolded layering of many of the tasks they had previously completed individually in analysis assignments, providing them the opportunity to practice yet again while also using their identification/categorical comparison skills in a more synthesized way. The final project was similar to the analysis assignments, but included multiple linguistic features from a single video, which the students chose for themselves.

The evidence presented shows things I have already done to engage students in targeted practice of the procedural task, ideally getting them past the bottleneck and able to master the threshold concept. This same structured approach would then be reiterated on other identified bottlenecks, while simultaneously continuing to improve opportunities for practice and provision of feedback on those already identified, consistent with understanding from the field of the science of learning (Ambrose et al.,
As Kristin Mulrooney addresses in her chapter in this volume, the type of practice and the ways in which feedback is provided are critical to student mastery of any conceptual or skill development.

Scholarly teachers, regardless of whether or not they are decoding their courses and academic disciplines, are concerned about the affective experiences of students in their classes, which are addressed in Step 5. Because this chapter is focused solely on the decoding process and evidence of
how it specifically has changed the design of LIN 263, I will not include examples or analysis here of my approach to affect and motivational considerations. Suffice it to say that the depth of my understanding of this step of the process has increased dramatically through collegial discussions with my peers in the GSTLI, especially Sharon Pajka, whose chapter in this volume provides insight into the incredible impact of affect experiences on student learning. Though her evidence far outshines anything I can aspire to, her work inspires future focus for me in this area. For now my colleagues and students often comment on my exuberance during class and in one-on-one interactions with students, the wide range of facial expressions I use to convey with delicate nuance whether students are on the right track in their thinking during class discussions, my contagious enthusiasm for ASL linguistics as a topic area, and my dedication to students and their learning process. I look forward to the opportunity to study this aspect of my teaching on students’ learning in more depth in the future.

Step 6 of the decoding process involves reconsidering assessment to determine whether the specific operations in question, rather than the memorized content, have actually been mastered. This shift for me has been integrated directly with the opportunities for practice and feedback in Step 4. The progress on this front has been slower, however, and evidence for it is less direct. For example, in grading the final project, I feel myself looking for patterns of skill, rather than precise answers, but I have yet to integrate that effectively into the rubric. Each semester when I give exams, I adjust the questions slightly, and in the spring of 2013, I found myself changing from “matching” style tests of students’ knowledge of definitions to essay/explanation type questions. Rather than giving students the definition of the term *derivational*, for example, I asked them the following:

Reduplication in ASL is a *derivational* morphological process. What does the word “derivational” mean?

The most powerful evidence of how assessment has changed for me through the decoding process is in the range of what I now consider to be assessment data. Because I am looking for evidence of student mastery of skills and concepts, rather than information, the formats in which that evidence can present itself are much more broad. My favorite example came in the form of an email message from a nontraditional student
who is a nonnative English user, just minutes after class had concluded (Figure 6).

This, then, is the ultimate evidence of student learning. The email demonstrates the student's ability to work through a process of application (not based on but) using the definition to identify and argue for examples and counterexamples in both languages. The reasoning here is solid. Not only that, the mistaken example that he had been presented during class was one he had been exposed to in an ASL classroom, and his analysis shows just how confident he can be to take the linguistic thinking he learned in LIN 263 and use it immediately in his life, in his education, and in his budding career.

CONCLUSION

The final step in the Decoding the Disciplines process is spreading the word and sharing what we learn in our classrooms and about our discipline and teaching with others. In addition to applying a conceptual transition based on the science of learning and SoTL principles in my own classroom, I have also had unique opportunities to share it with others in ways that impact the curriculum of introductory linguistics courses on the
structure of ASL more broadly. For example, in the fifth edition of *Linguistics of ASL: An Introduction* (Valli, Lucas, Mulrooney, & Villanueva, 2011), we were able to incorporate this explicit discussion of linguistics as scientific process as the very beginning of the textbook, parallel to how I now structure my course. I have also developed a workshop on strategies for teaching ASL linguistics for my fellow teachers of introductory ASL linguistics courses from across the country. The workshop is designed to target their needs in both the linguistics content areas and address the goal of presenting a conceptual framework through which students may more effectively access that content.

This chapter is, of course, one primary way of opening up about my experiences in the classroom and the potential for increased student learning. This volume as a whole is also an endeavor toward sharing how the SoTL enterprise is growing at Gallaudet University. I have no doubt that growth will continue into future semesters as we present workshops within our university community and participate in national and international SoTL conferences. I, for one, have only just begun, and I am looking forward to even more riches on the journey ahead.

**REFERENCES**


