

CHAPTER 9

NEUROPLASTICITY, GENRE, AND IDENTITY: POSSIBILITIES AND COMPLICATIONS¹

Irene Clark

California State University, Northridge

Helen: I thought there was no such thing as the self.

Ralph: No such *thing*, no, if you mean a fixed discrete entity. But of course there are selves. We make them up all the time.

—David Lodge (2001), *Thinks . . .*

In *Connectome: How the Brain's Wiring Makes Us How We Are*, Sebastian Seung (2011) maintains that what is usually considered “identity” is strongly linked to “the totality of connections between the neurons in a nervous system,” (p. xiii), a phenomenon that he defines as a “connectome.” Seung argues that “minds differ because connectomes differ” (2011, p. xiv), and that a person’s “connectomes change throughout life” (p. xv), influenced by many factors, including skill acquisition, new knowledge, and life events. The concept of a connectome suggests that identity has a physical manifestation that can be discerned in neuronal activities, and that because these activities are perpetually in flux, the concept of identity should not be viewed as an essentialized, permanently etched static construct, but rather as a complex state of being that is subject to change. Moreover, it further suggests that because neuronal activity is activated by experiences, activities, and learning, “identity” can be influenced by performative elements, over which, at least potentially, the conscious performer can have agency.

What are the implications of this perspective on identity for Writing Studies scholarship? In this chapter, I will argue that current research in neuroplasticity—that is, changes in the brain that can occur through education and experience—problematizes the idea of an “authentic” identity and the extent to

1 Some of the material in this chapter appears in Clark, I. L. (2016). “Genre, identity and the brain: Insights from neuropsychology.” *Journal of General Education*, 65, 1-19.

which it can be affected by awareness, conscious behavior, and performance. In the context of this research, I will suggest that the association of identity with neuronal activity raises questions about an issue that has received significant attention in Writing Studies/Genre scholarship—the ethical question concerning whether the privileging of academic genres, with their inherent ideologies and values, constitutes a colonizing impact on students’ cultural identities. Finally, because current neuropsychological research implies that behavior and its attendant neuronal activity can significantly affect identity, I will recommend the use of several pedagogical approaches that can foster students’ awareness of this issue and thereby contribute to their ability to make deliberate choices about their identity.

IDENTITY CHANGE AS AN ETHICAL ISSUE

The concept of identity change—the idea of being or behaving as someone other than who you *really* are—has long generated suspicion and mistrust, from Plato’s contempt of the sophists as masters of deception, to the current view of politicians or used car salespeople, who are often disdained for their ability to alter their personas to suit different audiences, appearing to “be” anyone to achieve their own ends. Such people are often perceived as false and untrustworthy, schemers or “performers,” ethically inferior to those who are true, sincere, and “authentic.” Nevertheless, as educators who focus on communication as a means of achieving academic and professional success, we understand that it is necessary to play or “perform” different roles in different contexts and that everyone involved in social interactions does so, some with greater facility than others. Erving Goffman’s (1959) book, *The Presentation of Self in Everyday Life*, using imagery associated with the theatre, discusses the importance of performance in our everyday life interactions as a necessary element in social interaction. In fact, as Dirk Remley notes in a chapter included in this collection, to maximize trust and credibility, a speaker may try to sound like a member of his or her intended audience, a performance that will then activate mirror neurons in that audience. Successful communicators are aware of the dialogic interrelationship between speakers/writers and audience and understand that absolute “authenticity,” however the term may be defined, is both impossible and undesirable. In composition classes, we often discuss the importance of audience awareness, and the necessity of assuming an appropriate discursal role, and we don’t tend to view this advice as unethical or damaging to students’ “real” selves, even though some of us may also encourage students to find their own “voice.”

Most writing textbooks also include a section that discusses the relationship of audience to authorial identity, advice that is not usually tempered by warnings

about being manipulative or sophistic. However, in terms of the “identity” issue addressed in rhetorical genre studies, the identity shift that some students may experience when they are immersed in academic genres is frequently viewed with concern. Such an identity shift may involve not only how one speaks, writes, and acts, but also how one thinks and views the world, and, as has been noted by a number of Writing Studies scholars (Bartholomae, 1985; Bazerman, 2002; Gee 2001; Hyland, 2002; Ivanič 1998; LeCourt, 2006; among others.), this identity change may have a particularly significant impact on educationally disadvantaged students, who initially experience the discomfort of being a cultural outsider in the academy and then, as they assimilate, may become alienated from their own cultures. As Bazerman (2002) observes in his discussion of how genres can impact identity, when people begin writing or speaking in a particular genre, they begin “thinking in actively productive ways that result in the utterances that belong in that form of life,” taking on “all the feelings, hopes, uncertainties, and anxieties . . . associated with that identity” (p. 14). From this perspective, it is presumed that habitual involvement in a genre can have a substantial impact on the identity of the participant, because people may become permanently committed to the identity associated with that genre. In genre scholarship, this interconnection between genre and identity has raised the issue of whether students’ engagement with new genres can be perceived as a type of identity threat, a phenomenon that presumably occurs when students encounter unfamiliar academic genres that normalize power inequities and are associated with ways of thinking, attitudes toward life, values, beliefs, ideologies, and behaviors that conflict with those in students’ home cultures. The ethical question concerns whether students can become proficient in academic genres without permanently embracing the values inherent in these genres and whether we, as educators, should be troubled about that possibility.

THE ALIENATION NARRATIVE

Donna La Court (2006) referred to this idea as “the alienation narrative” because it suggests that academic discourse genres endorse power inequities by privileging middle class, elitist values and normalizing the superiority of one culture over another. Addressing the issue of whether students can become proficient “academic” writers without accepting the social hierarchies in which these genres participate and referring to “the classed nature of academic genres” (2006, p. 30), LeCourt noted that working-class and academic discourses exist in a dichotomous relationship where one discourse is depicted as in almost complete opposition to the other. Following this logic, working-class students succeed only if their class identity is stripped away in favor of a middle-class habitus.

(LeCourt, 2006, pp. 30-31)

Roz Ivanič (1998) similarly addressed this issue, observing that when students from economically or culturally disadvantaged backgrounds “enter what is for them a new social context such as higher education, they are likely to find that its discourses and practices support identities which differ from those they bring with them” (p. 33). The problem arises not only because these students may experience an initial period of alienation but also because they may come to accept unquestioningly the hierarchical values inherent in academic discourse genres. As Anis Bawarshi (2000) similarly noted in his discussion of the “genre function,” genres are not simply containers into which a writer inserts text. Rather, genres, themselves, exert an influence over writers, causing them to behave or “perform” in a particular way when they engage with a genre, influencing how they act and think—potentially generating change in who they become. This identity shift is similarly explored by Richard Coe (1994), Janet Giltrow (2002), and Anthony Paré (2002), among others, who stated that genres can influence how people think of themselves and who they want to be. As Ken Hyland (2010) has argued

Identity is a person’s relationship to his or her social world . . .
Who we are and *who we might be* are built up through participation and linked to situations, to relationships, and to the rhetorical strategies and positions we adapt in engaging with others on a routine basis. (p. 160)

This view of how genres influence identity leaves educators in what Le Court referred to as a “paradoxically difficult pedagogical” position, because as Sharon O’Dair (2004) noted, as educators, we want to help economically and educationally disadvantaged students succeed in middle-class educational institutions, but we also want them to retain their personal and cultural sense of identity. Certainly a choice such as this constitutes an ethical dilemma.

THE DIALOGIC SELF

Nevertheless, although Writing Studies scholarship may view differences between a presumed “authentic” home identity and identities forged in school as an ethical issue, other disciplines, in particular Social Psychology and Philosophy, have long recognized the existence of a “distributed, multivoiced self” (Hermans, 2001, p. 245). The philosopher, William James (1890) in his discussion of the social aspect of the individual self, observed that “a man has as many social selves as there are individuals who recognize him” (p. 294), an idea supported by Mikhail Bakhtin’s concept of the dialogical self, which is based on the “assump-

tion that there are many I-positions that can be occupied by the same person.” (Hermans, 2001, p. 249). As Hubert H. J. Hermans explains, “The dialogical self is ‘social,’ not in the sense that a self-contained individual enters into social interactions with other outside people, but in the sense that other people occupy positions in a multivoiced self” (2001, p. 250).

Moreover, in their book, *Dialoguing across Cultures, Identities, and Learning*, Bob Fecho and Jennifer Clifton (2017) argue that “when a person acts and interacts in a particular context, that person is recognized by the self and by others—as acting and interacting as a certain ‘kind of person’” (p. 26), that this type of recognition “is connected to identity” (p. 28), and that identity “can change from moment to moment with something as simple as an uttered word or a tossed gesture” (p. 31). They maintain that a person is always “in the throes of both being and becoming, and these ways of being and becoming are often contested and negotiated through ongoing dialogue with the self and with others, sometimes made visible through what a person is doing” (p. 93). This more nuanced perspective on identity is supported by the concept of neuroplasticity, which has become a popular topic in both academic and popular publications.

NEUROPLASTICITY² AND THE CONCEPT OF IDENTITY

Current research in neuroplasticity that demonstrates that the brain changes continuously as a result of new experiences, activities, and learning suggests that educators may not need to be concerned about *permanently* colonizing our students, because it demonstrates that the neuronal factors that constitute identity are perpetually in flux, reorganizing changing, and reassembling. This perspective suggests that identity is not a permanent entity, but rather is subject to frequent transformation, which means that who we *are*, in terms of how we view ourselves and present ourselves to others, is linked to what we *do*—how we act, speak, act and think. In addition, research concerning the relationship between the mind, the brain, and conscious behavior suggests that when we are *aware* of what we do—the activities we perform and the skills and knowledge we acquire—we can gain understanding of and increased agency over identity change. As Sharon Begley (2007) maintains,

everything we do, our experiences and actions literally expand or contract different regions in the brain. . . . The brain devotes more cortical real estate to functions that its owner uses more frequently and shrinks the space devoted to activities

2 Many thanks to Dr. Spencer Wetter, Neuropsychologist, for helping me understand the concept of neuroplasticity.

rarely performed. . . . Merely thinking about playing the piano leads to measurable, physical change in the brain's motor cortex. (pp. 8-9)

Brains change according to what we do and think—how we perform in our lives—and as Seung (2011) maintained, neuronal movement makes us who we are. “Minds differ because connectomes differ” (p. xiv), and a person’s “connectome changes throughout life” (p. xv). This is a profound concept for educators to understand.

IDENTITY, CONSCIOUSNESS, AND THE MIND

Seung uses the term *mind* to discuss the connection between activities and experiences that generate changes in the brain, a term that is also used by Susan Greenfield, Professor of Synaptic Pharmacology at Oxford and Director of the Institute for the Future of the Mind. In *You and Me: The Neuroscience of Identity*, Greenfield (2011) explains how our experiences are manifested in the brain, comparing them to a type of narrative or story. Whatever we do—that is, the stories we create and the roles we play in these stories—are registered directly in the brain, and what is particularly intriguing about Greenfield’s scholarship is that she discusses studies in which different brain images can be detected when patients with a multiple personality disorder enact different identities. Differing identities, she notes, generate differences in “cerebral blood flow” (p. 35).

Greenfield’s research on the concept of identity uses the term *mind*, whereas Stanislaus Dehaene (2014), Director of the Cognitive Neuroimaging Unit in Saclay, France and author of *Consciousness and the Brain: Deciphering How the Brain Codes Our Thoughts*, uses the term *consciousness*. Dehaene maintains that consciousness “is intimately related to the sense of self” (2014, p. 23), and he lists three ingredients of conscious thought—“focusing on conscious access, manipulating conscious perception, and carefully recording introspection” (p. 12), arguing that although complete understanding of the relationship of consciousness to the self is impossible, the habit of metacognition can foster the “capacity to think about one’s own mind” (p. 24) enabling us to “reflect upon ourselves” (p. 25). Dehaene refers to the “signatures of consciousness”—patterns of brain activity that appear when a scanned person is having a conscious thought—noting that “several markers of brain activity change massively whenever a person becomes aware of a picture, a word, a digit, or a sound” (2014, p. 13).

Whatever term may be preferred—*mind* or *consciousness*—advanced brain imaging has brought the realization that what we do and think is manifested directly in the brain and that the brain can also influence the doing and thinking. In fact, scientists at University College, London have claimed that certain *beliefs*,

as represented in political views, may actually be linked to brain structure. In their study, 90 students were asked about their political views and then underwent brain scans. The results indicated that there were differences in the brain according to whether the subjects had liberal or conservative views, those with liberal views tending to have one particular area in the brain larger than normal (the anterior cingulate cortex), while those with conservative views more likely to have the amygdala of larger size (Alford et al., 2005, as cited in Greenfield, 2011, p. 88). An explanation for this, according to Ryota Kanai and colleagues (2011), is that “individuals with a large amygdala are more sensitive to fear and therefore might be more inclined to integrate conservative views into their belief system” (as cited in Greenfield, 2011, p. 91). The relationship of the brain to one’s political views constitutes an interesting research direction, although the issue of what constitutes liberal or conservative positions is extremely complicated and, as Greenfield cautions, one cannot assume a direct, measurable relationship between a political view and a direct manifestation in the brain.

STUDIES INDICATING THE IMPACT OF LEARNING ON THE BRAIN

Particular beliefs or political views may not be easy to pinpoint on a brain scan. But several recent studies demonstrate that the learning of a skill does have a discernible, corresponding manifestation in the brain and have a tangential connection to the genre/identity issue. Several of these studies are summarized below:³

THE JUGGLERS STUDY

Published in the journal *Nature* by Bogdan Dragonski and colleagues (2004), the Jugglers Study discusses an experiment in which young adults were taught to juggle until they were able to keep three balls in the air at once. fMRI images, taken before and after these adults learned to juggle, showed a density increase in a small part of the brain associated with vision and movement (as cited in Zull, 2004) when the jugglers were at the height of their skill and that the brain then decreased when they no longer could juggle. This study shows how practicing a skill is registered in neuronal activity.

3 It is important to recognize, however, that although fMRI imaging has yielded thought provoking information about how skills are manifested in neuronal activity, the technique is still fairly new and is limited in the extent to which it can provide detailed information concerning brain function. See Sutton, B. S. et al. (2009). Current trends and challenges in MRI acquisitions to investigate brain function, *International Journal of Psychophysiology*. (73.1), 22–42.

THE TAXI DRIVERS STUDY

A study of London taxi drivers that indicated how the learning of a skill is manifested in the brain was conducted by scientists at University College London. The study involved taxi drivers who were given brain scans before and after they had memorized the names of London streets, the post scans showing change in the driver's gray matter, particularly the hippocampus, which is the part of the brain that is concerned with navigation.

BRAIN CHANGE IN CHILDREN WITH DYSLEXIA

Another study demonstrating how the learning of a skill is manifested in the brain concerns children diagnosed with dyslexia. Conducted by Elise Temple and colleagues (2003), the study involved 20 children with dyslexia, ages 8-12 who were tested before and after they engaged in a remediation program that focused on auditory processing and aural language. The results indicated that the degree of students' improvement in both oral language and reading performance was manifested directly in brain activity in particular parts of the brain, such as the left temporo-parietal cortex, "bringing brain activation in these regions closer to that seen in normal reading children" (p. 2860).

MUSICAL TRAINING

Musical training, has also been associated with discernible changes in the brain as was reported in a study by Jason D. Warren (1999). Warren's study shows that with advanced fMRI techniques, differences between musicians and non-musicians in terms of right and left hemisphere blood flow in the brain.

Of course, one may question whether the impact on the brain of learning a specific skill, such as juggling or street name memorization, corresponds to what may be manifested when students become familiar with academic genres or whether this sort of learning can have an impact on identity. Being proficient in any type of skill can certainly affect one's self-esteem and may, indeed, affect one's habitual behavior and sense of self. But in the context of the genre/identity issue, these studies are significant primarily because they demonstrate that learning has an effect on the brain, that the effect can be discerned in increased neuronal activity, that the brain can change, and that it does so often. These studies also indicate that if activities are no longer practiced, presumably, the brain will change again—no state of brain can thus be viewed as "permanent"—in essence, a the situation may be considered a "use it or lose it" relationship.

WRITING ABILITY AND THE BRAIN: THE NUN STUDY

The studies summarized above, concerned with juggling, map memorization, reading, and musical training, all focused on learning particular “skills” that generated corresponding neuronal activity. But a longitudinal study titled The Nun Study indicates that even writing ability, a much more abstract concept than learning a particular skill, may also have a physical equivalent in the brain. In 1930, a group of 678 nuns wrote short biographical sketches that included details of parenting, significant childhood events, schooling, and reasons for the nuns’ decision to enter the convent. These texts were then examined in 1986 and assessed for a number of variables, the most significant being grammatical complexity and “idea density,” which can be understood in terms of the number of idea units or propositional density in a text. As the nuns aged, some of them began to manifest symptoms of decreased cognitive function, and several studies (see Snowdon et al., 1996) revealed an inverse correlation between low cognitive performance in these essays written when the nuns were young and cognitive impairment in later life.

The findings from the Nun Study indicate that the ability to write texts that are “idea dense” may be manifested in the brain in some way and raise intriguing questions about the connection between literacy and cognitive function. They also complicate issues concerning the relationship between genre and identity. The genres that the nuns wrote in 1930 were short narratives or stories that addressed biographical content, and presumably, the nuns were familiar with the genres they were expected to produce. But some wrote stories with greater detail (idea density) than others, a finding that raises a number of interesting questions. Did the nuns whose texts were characterized by idea density differ in some way from those whose texts were less so? Did these nuns perhaps read more frequently than did the other nuns and were the “idea dense” texts perhaps influenced by engagement with literature? Was there greater neuronal activity in the brains of nuns who wrote idea-dense texts? And did that mean that perhaps their sense of self or “identity” may have been different from that of the other nuns? Another question concerns whether the connection between the ability to write idea-dense texts and Alzheimer’s disease was causal or correlational. Did the ability to write idea-dense texts *prevent* dementia in some way? Or was the poor linguistic ability and dementia related to some other factor that affected both?

AGENCY AND AWARENESS

Although we do not have answers to the complicated issues raised by the Nun Study, current research in neuroplasticity strongly suggests that what we learn and what we do correlates with neuronal activity, which, presumably, has an im-

pact on what we term “identity.” This insight suggests the importance of helping our students learn to “perform” in ways that will enable them to succeed both academically and professionally and to develop awareness of that performance so that they can gain agency over what they *choose* to do and whom they *choose* to be. Helping students understand that all social situations involve role playing and gain insight into how their “identity” can change according to situation and audience can maximize their choices, as does encouraging students to reflect on these issues.

This relationship between context, content and writer identity has been addressed in some detail by Amy Burgess and Roz Ivanič (2010), who, while acknowledging that academic writing often poses a conflict of identity for students because the “self” that is required in academic discourse feels alien to them, argued that *all* writers assume and must assume different identities when they write in different contexts for different audiences. Although all writing involves the assumption of an identity, and although “asking a person to write a particular type of text” requires “that person to identify with other people who write in this way” (Burgess & Ivanič, 2010, p. 228), identity

has multiple facets; is subject to tensions and contradictions; and is in a constant state of flux . . . It includes the “self” that a person brings to the act of writing, the “self” she constructs through the act of writing, and the way the writer is perceived by the reader(s) of the writing. (p. 228; see also Ivanič, 1998)

Referring to a study concerned with returning students, Burgess and Ivanič argue that “for most students, identities in educational contexts are transitory, mediating identities; hence, the practices in which they engage while attending courses may be for extrinsic purposes, not part of the identities to which they aspire for the rest of their lives” (2010, p. 230).

Actually, despite scholarship that expresses concern about the inadvertent colonization of our students, it is likely that many are already aware of how their engagement with unfamiliar academic genres can affect how they are perceived by and interact with others, both of which can contribute to alterations in identity. In *The Mind and the Brain: Neuroplasticity and the Power of Mental Force*, Jeffrey M. Schwarz and Sharon Begley (2002), discussing perspectives on free will and moral responsibility, use the term “volitional brain,” referencing the work of Ben Libet, who they maintain, put “free will on the neurobiology radar screen” (p. 303). Inspired by work reported in 1964 by Hans Kohnhuber and Luder Deecke, Libet used an electroencephalograph (EEG) to explore the chronological relationship between a voluntary movement and brain activity. Kohnhuber and Deecke discovered that before subjects initiated a voluntary movement, there

appeared to be a “slow, electronically negative brain wave termed the *Bereitschaftspotential*, or readiness potential” (Schwarz & Begley, 2002, p. 303), which they compared to the “whine of an idling jet engine shifting in pitch before the plane takes off (p. 303). Building on this idea, Libet and his colleagues focused on determining the moment when a person became aware of the conscious desire to act and whether a person had the ability *not to act*, even when preceded by a significant readiness movement. According to Libet (1999), conscious will can affect the outcome of an action, even when an action is initiated by unconscious cerebral processes, arguing that “everyone . . . has the ability to act or refuse to act, even when the readiness impulse is triggered in the brain” (pp. 51-52).

Libet’s work, as applied to the genre/identity issue, suggests that with sufficient awareness, student writers have the capacity to make a decision about the identity they wish to portray in their writing and elsewhere. Whatever might be the requirements of a particular academic genre, student writers (and all writers) possess what Ivanič referred to as an “autobiographical self,” which they bring to all literacy activities, and which continues to exert an influence over other “selves” that are developed through involvement in new discourse communities. Ivanič defined this autobiographical “self” as being continually influenced by experiences and social interactions of various kinds, maintaining that it retained a strong influence over other “discoursal” selves that students may perform in the context of academic genres. To examine this relationship between students’ “identities” and academic writing, Ivanič conducted a study in which students were taught to analyze what is meant by an “academic” identity and to indicate the extent to which they wished to embrace it. Many indicated that they did wish to acquire such an identity—that is, to become academic thinkers and writers. But other students “felt that the conventions forced them to dismiss other aspects of their identity, for example, being committed, caring or funny” (Ivanič, 1998, p. 234). In fact, one student discussed “trying identities on for size” (Ivanič, 1998, p. 234). In the context of the genre/identity issue, then, this experiment suggests that if students have sufficient self-awareness and insight into other ways of being, they will not only be able to *choose* an identity, but also to explain the rationale for their choices. Recent work on consciousness, the mind, the self, and the brain supports this perspective and suggests pedagogical possibilities for enhancing students’ choices.

IDENTITY AS PERFORMANCE

The complex interactions between the neuronal activity, overt behavior, and consciousness indicates that what we refer to as “identity” is extremely complex and that identity in the context of academic literacy can be viewed as a type

of performance. These interactions also suggest that this performance will not result inevitably in a profound identity change over which students have no control. After all, stage and film actors perform on a regular basis, and even when they have performed the same role frequently—sometimes for many years—they don't usually *become* the characters they are playing, because they are aware that they are performing. Even if a particular acting role triggers a sub-conscious element in an actor's mind or consciousness, actors understand that they are playing a role and do not undergo a significant transformation from their everyday selves. An interesting example of the interconnections between one's everyday self and the habitual playing of a role as an actor can be noted in the two volumes of Leonard Nimoy's autobiography. Nimoy, who, for many years played the character of Mr. Spock on the TV series, *Star Trek*, titled Volume I of his autobiography *I Am Not Spock* (1975) and then retitled the second volume, published in 1995, *I Am Spock*. Referring to the change in title of the second volume, Nimoy explained that the character of Spock had always been a part of him and revealed that throughout his life, he often had internal conversations with the calm, logical element within himself that is associated with the character of Mr. Spock. However, despite the title of the second volume, it is significant to note that Nimoy considered the character of Mr. Spock as a "part" of himself, perhaps representative of particular character traits that Nimoy had himself or valued. However, the character of Spock was not identical to the person who was Leonard Nimoy, and the fact that Nimoy was analyzing his connection to this character indicates that as an actor, he was aware that he was performing a role and understood what that performance involved. Helping our students gain this type of self-awareness, I argue, should be a goal in our classes.

Actually, according to James Gee (2001), the assumption of an academic persona for most students, but particularly those from educationally disadvantaged backgrounds, always involves an element of performativity. Gee referred to the use of an academic voice as a type of "identity kit," complete with an appropriate costume and instructions about how to act, speak and think for the duration of the performance. Gee's perspective on the academic persona constructs identity as a type of disguise—a "self" used in a particular context—separate from the other "selves" that a person may have. The metaphor of an "identity kit" raises a visual image of how performance and identity correspond with one another. Assuming that students want to assume an academic persona, they are likely to begin with less than perfect mimicry. In fact, Gee maintained that the performance is always imperfect, a form of mushfake, never quite the real thing, which Gee (2001) defines as "making do with something less when the real thing is not available" (p. 533)—a phenomenon that many of us have noted when novice students use an unnecessarily large vocabulary in order to "sound" more like

an established academic. But eventually, students become more comfortable in the role they wish to play and the performance will become more convincing, an outcome that perhaps can be viewed positively, as indicative of educational progress or sophistication. Although in the current culturally sensitive climate, we now interrogate and are suspicious of what that progress represents in terms of power dynamics, not too long ago, the idea of learning to play that role was considered unquestionably advantageous for our students. We may recall David Bartholomae's (1985) well-known statement, "the student has to learn our language, to speak as we do, to try on the peculiar ways of knowing, selecting, evaluating, reporting, concluding, and arguing that define the discourse of our community" (p. 134), or Patricia Bizzell's (1986) assertion that "students must master academic discourse if they are to participate in the academic community" (p. 53).

APPLYING INSIGHTS FROM NEUROSCIENCE TO THE CLASSROOM

Insights derived from current work in neuroscience reveal the complexity of identity and problematize the ethical issue of the interrelationship between genre and identity. They also suggest possible pedagogical approaches that can be used to enable students to gain agency over the identities they wish to assume. In the next section, then, I will argue for the importance of helping students develop metacognitive and genre awareness and discuss the use of imitation and modeling in the writing class as a means of enabling students to practice playing various roles and thereby gain agency whom they choose to be.

FOSTERING METACOGNITIVE AND GENRE AWARENESS

In the classroom, it is useful for students to have the opportunity to reflect on the values inherent in academic genres and discuss the extent to which those values may differ from those of their home culture. Reflection has now become an approach that many of us in Writing Studies are using in our classrooms for a variety of reasons, and, indeed, the *Framework for Success in Postsecondary Writing*, prepared by the Council of Writing Program Administrators, the National Council of Teachers of English and the National Writing Project in February 2011, has endorsed the importance of cultivating "habits of mind" as critical for academic success. These habits include critical reflection and self-awareness, which are similar to Pierre Bourdieu's (1997) definition of the "academic habitus," associated with "a set of acquired patterns of thought, behavior, and taste" (p. 1). Helping students understand what is meant by an academic "habitus"

and realize that a habitus can be acquired or performed can provide students with the agency that enables choice and self-determination.

As our classrooms become increasingly diverse, it is important for teachers to encourage students to reflect on their own identities, values, and cultures and explore how they may be different from those they are acquiring at the university. It would also be helpful for students to become aware of some of the ethical issues being discussed concerning genre and identity and, in fact, to discuss research in neuroscience that pertains to this topic. Two theoretical frameworks, genre analysis and metacognition theory, combined in the work of Raffaella Negretti and Maria Kuteeva (2011) endorsed the use of metacognition and genre awareness in L2 students' ability to complete academic reading and writing assignments and suggests that reflection can be empowering for our students as they engage with unfamiliar genres which promote particular cultural values. These values can help students make performative choices with greater insight since, as Hyland maintained

Identity isn't what we say we are or think we are, it is what we do—how we represent ourselves in talk again and again and again. It is about belonging to a group and being an individual member of that group. It's always a balancing act between community and individuality. (Hyland, as cited in Rouault [2014, p. 16]).

This distinction between community and individuality and culture is necessary for students to understand to help them gain agency over the identity they wish to assume.

A particularly intriguing classroom activity that can help students gain this understanding is suggested in an essay by Nicholas Carr (2011) titled, "The Lovesong of J. Alfred Prufrock's Avatar." Discussing Prufrock's oft-quoted anxiety about preparing a "face to meet the faces that you meet," Carr analyzed people's tendency to create online "selves," on Facebook and elsewhere, and in the context of fostering students' awareness of the genre/identity issue, a useful and entertaining exercise might be to have students create an avatar with a name, gender, occupation, values, and other characteristics. Students might then explore the similarities and differences between the created avatar and their everyday selves—physical appearance, age, personality, values, interests, and concerns—and write in the "voice" of that avatar. Actually, when students play video games, they often create an avatar, and if used strategically in the writing class, this approach can help students gain a deeper understanding of the genre/identity issue.

In this context, Chris Thaiss and Terry Myers Zawacki's (2006) discussion

of “open-mindedness” as an important value across academic disciplines is relevant here. When students understand that an important element of the academic persona is to be “open-minded,” they can then realize new possibilities for assuming multiple selves. Involvement in academic genres thus can allow an *expansion* in identity—not a mindless substitution of one for another.

PROVIDING OPPORTUNITIES FOR PRACTICE: RECONSIDERING IMITATION IN THE WRITING CLASS

Another pedagogical insight that is suggested by current research in neuroplasticity is the importance of practice in enabling learning, certainly an idea that we all support. As James Zull (2004), author of *The Art of Changing the Brain*, explained,

When we practice something, the neurons that control and drive that action fire repeatedly. If a neuron fires frequently, it grows and extends itself out toward other neurons, much like the branches of bushes. Moreover, when the neurons begin to touch one another, these places form signaling connections called synapses, which, in turn, form networks, the physical equivalent of knowledge. Changes in these networks is learning. (p. 69)

One way of thinking about these changes is to view them metaphorically as if we were forging a pathway across a field of long grass. The first time the path is forged—whatever the activity might be—juggling or learning to write using an academic genre—the grass is high and forging the path involves considerable effort. But then, after several times, the grass becomes beaten down, requiring less energy to forge the path. With this sort of practice, one can do it without difficulty, and according to Zull, this is the way that neural pathways are created.

In the classroom, practice can be achieved through a number of strategies, but one approach that has not recently received a great deal of attention in Writing Studies is to provide opportunities for students to imitate the genres with which they are expected to engage. Imitation, however, although greatly respected in ancient western rhetorics and curricula, has not only been neglected in Writing Studies—it has been strongly disdained. As Paul Butler (2001) pointed out, using imitation and modeling in the writing class has drawn criticism from “two sites of composition theory: the process movement and the expressivist idea of individual genius” (p. 108). Process oriented views have argued that offering students examples or models simply gives them a “product” to analyze, without enabling them to develop a writing “process”

that they can apply to other writing tasks, and expressivist views privilege individual self-expression in order to help students find their own voice. The common objection seems to be that a pedagogy that includes imitation and modeling is inconsistent with rhetorical invention, squelches possibilities for creation and discovery, may result in formulaic writing, and, in fact, could encourage plagiarism. Nevertheless, in the context of providing students with opportunities to practice writing in unfamiliar genres, reflective, mindful imitation can help students develop a deeper, metacognitive understanding of genre and enable them to practice with greater insight.

To reintroduce imitation into the classroom, I suggest we eliminate the various negative adjectives that are often associated with the term, such as “slavish” or “mere” because imitation can be both creative and generative. Its purpose is to show what might be done, not what must be done on particular assignments, and to generate mindful reflection that can lead to deeper understanding of the interrelationship between text and authorial persona. Most writers imitate—ideas, approaches, structures, patterns, styles—and when we do so, we assume different authorial roles. Imitation can be used to foster understanding of those roles and need not be done mindlessly.

THE COMPLEXITY OF IDENTITY— OUTSIDERS AND INSIDERS

One of the most important implications of current research on neuroplasticity is that it demonstrates the complexity of identity and the understanding that identities are subject to frequent alteration. This changeability is useful to discuss with students, enabling them to acknowledge that they do sometimes feel like outsiders, both at the university and within their own families and cultures and that such feelings are not uncommon. At the university where I teach, many students are the first in their families to attend post-secondary education, and when we discuss the genre/identity issue, some do admit that they feel a bit on the outside when they attend family gatherings or “hang out” with friends who are not attending a college or university. For some students, however, being an outsider might yield a fresh perspective on previously unexamined cultural values, both within and outside of the academy. Perhaps the role of an outsider, while not always comfortable, might be desirable—possibly inevitable—as students mature and learn.

Current neuropsychological research suggests a new perspective on the complex interrelationship between genre and identity and the ethical concerns that have been addressed in rhetorical genre scholarship. Actually, Shakespeare addressed this issue many years ago in his well-known lines:

All the world's a stage,
 And all the men and women merely players;
 They have their exits and their entrances,
 And one man in his time plays many parts.

For our students, insight into this issue can maximize possibilities for self-determination.

REFERENCES

- Alford, J. R., Funk, C. L., & Hibbing, J. R. (2005). Are political orientations genetically transmitted? *American Political Science Review*, *99*, 153-167.
- Bartholomae, D. (1985). Inventing the university. In M. Rose (Ed.), *When a writer can't write* (pp. 134-65). New York: Gilford Press.
- Bawarshi, A. (2000, January). The genre function. *College English*, *62*, 335-360.
- Bawarshi, A. (2003a). *Genre and the invention of the writer: Reconsidering the place of invention in composition*. Logan, UT: Utah State University Press.
- Bawarshi, A. (2003b). Sites of invention: Genre and the enactment of first year writing. In P. Vandenberg, S. Hum, & J. Clary-Lemon (Eds.), *Relations, locations, positions: Composition theory for writing teachers* (pp. 103-137). Urbana, IL: NCTE.
- Bazerman, C. (2002). Genre and identity: Citizenship in the age of the Internet and the age of global capitalism. In R. Coe, L. Lingard, & T. Teslenko (Eds.), *The rhetoric and ideology of genre: Strategies for stability and change* (pp. 13-38). Creskill, NJ: Hampton Press.
- Begley, S. (2007). *Train your mind, change your brain. How a new science reveals our extraordinary potential to transform ourselves*. New York: Ballantine Books.
- Berninger, V. W. (Ed.). (2012). *Past, present, and future contributions of cognitive writing research to cognitive psychology*. New York: Psychology Press.
- Berninger, V. W., & Richards, R. L. (2002). *Brain literacy for educators and psychologists*. Amsterdam: Academic Press.
- Bizzell, P. (1986). Foundationalism and anti-foundationalism in composition studies. *Pre/Text*, *7*, 37-56.
- Bourdieu, P. (1997). *Outline of a theory of practice*. (R. Nice, Trans.). London: Cambridge.
- Burgess, A., & Ivanič, R. (2010). Writing and being written: Issues of identity across timescales. *Written Communication*, *27*(2), 228-255.
- Butler, P. (2001). Toward a pedagogy of immersion: Using imitation in the composition classroom. *Journal of College Writing*, *4*(1), 107-114.
- Carr, N. (2011). The love song of J. Alfred Prufrock's avatar. In S. Vie (Ed), *(E)ntity* (pp. 159-166). Southlake, TX: Fountainhead Press.
- Coe, R. (1994). Teaching genre as process. In A. Freedman & P. Medway (Eds.), *Learning and teaching genre* (pp. 157-168). Portsmouth, NH: Boynton/Cook.
- Coe, R., Lingard, L., & Teslenko, T. (Eds.). (2002). *The rhetoric and ideology of genre: Strategies for stability and change*. Creskill, NJ: Hampton Press.

- Council of Writing Program Administrators, National Council of Teachers of English, & National Writing Project. (2011). *Framework for success in postsecondary writing*. Retrieved from <http://wpacouncil.org/files/framework-for-success-postsecondary-writing.pdf>
- Dehaene, S. (2014). *Consciousness and the brain*. New York: Penguin Books.
- Devitt, A. (2004). *Writing genres*. Carbondale, IL: Southern Illinois University Press.
- Dragonski, B., Gase, C., Busch, V., Schierer, G., Bogdah, U., & May, A. (2004). Changes in grey matter induced by training. *Nature*, 427(6972), 311-312. Retrieved from <http://dx.doi.org.libproxy.csun.edu/10.1038/427311a>
- Fecho, B., & Clifton, J. (2017). *Dialoguing across cultures, identities, and learning: Crosscurrents and complexities in literacy classrooms*. New York: Routledge
- Freedman, A., & Medway, P. (Eds.). (1994). *Learning and teaching genre*. Portsmouth, NH: Boynton/Cook.
- Gee, J. P. (2001). Literacy, discourse, and linguistics: Introduction and what is literacy? In E. Cushman, E. R. Kintgen, B. M. Kroll, & M. Rose (Eds.), *Literacy: A critical sourcebook* (pp. 525-544). Boston: Bedford St. Martins.
- Giltrow, J. (2002). Meta-genre. In R. Coe, L. Lingard, & T. Teslenko (Eds.), *The rhetoric and ideology of genre: Strategies for stability and change* (pp. 187-206). Creskill, NJ: Hampton Press.
- Goffman, E. (1959). *The presentation of self in everyday life*. New York: Anchor Books.
- Greenfield, S. (2011). *You and me: The neuroscience of identity*. London: Nottinghill.
- Hermans, H. J. M. (2001). The dialogical self: Toward a theory of personal and cultural positioning. *Culture and Psychology*, 7(3), 243-281.
- Herrington, A., & Curtis, M. (2000). *Persons in process: Four stories of writing and personal development in college*. Urbana, IL: National Council of Teachers of English.
- Hyland, K. (2002). Authority and invisibility: Authorial identity in academic writing. *Journal of Pragmatics*, 34, 1091-1112.
- Hyland, K. (2007). Genre pedagogy: Language, literacy, and L2 instruction. *Journal of Second Language Writing*, 16, 148-164.
- Hyland, K. (2010). Community and individuality: Performing identity in applied linguistics. *Written Communication*, 27(2), 159-188.
- Iacono, D. et. al. (2009). The Nun Study: Clinically silent AD, neuronal hypertrophy, and linguistic skills in early life. *Neurology*, 73 (9), 665-673.
- Ivanič, R. (1998). *Writing and identity: The discursive construction of identity in academic writing*. Amsterdam: John Benjamins.
- James, W. (1890). *The principles of psychology* (Vol. 1). New York: Henry Holt.
- Kanai, R., Feilden, T., Firth, C., & Rees, G. (2011). Political orientations are correlated with brain structure in young adults. *Current Biology*, 26, 677-680.
- LeCourt, D. (2006). Performing working-class identity in composition: Toward a pedagogy of textual practice. *College English*, 69(1), 30-51.
- Leggett, H. (2009, July 8). Nun brains show language skills predict future Alzheimer's risk. *Wired*. Retrieved from <http://www.wired.com/wiredscience/2009/07/nunstudy>
- Libet, B. (1985). Unconscious cerebral initiative and the role of conscious will in voluntary action. *Behavioral & Brain Sciences*, 8, 529-566.

- Lodge, D. (2001). *Thinks . . .* New York: Penguin.
- Negretti, R., & Kuteeva, M. (2011). Fostering metacognitive genre awareness in L2 academic reading and writing: A case study of pre-service English teachers. *Journal of Second Language Writing, 20*, 95-110.
- O'Dair, S. (2003). Class work: Site of egalitarian activism or site of embourgeoisement? *College English, 65*, 593-606.
- Paré A. (2002). Genre and identity: Individuals, institutions, and ideology. In R. Coe, L. Lingard, & T. Teslenko (Eds.), *The rhetoric and ideology of genre: Strategies for stability and change* (pp. 57-71). Creskill, NJ: Hampton Press.
- Rogers, M. F., & Hoover, K. M. (2010). Outsiders/within and in/outside: Varieties of multiculturalism. *Journal of Educational Controversy, 5*(2), Article 5.
- Rose, M. (1989). *Lives on the boundary*: New York: Penguin Books.
- Rouault, G. (2014, March/April). Second language writing, genre, and identity: An interview with Ken Hyland. *Language Teacher, 38*(2) 13-17. Retrieved from <http://jalt-publications.org/tlt/articles/3655-second-language-writing-genre-and-identity-interview-ken-hyland>
- Satel, S., & Lilienfeld, S. O. (2013). *Brainwashed: The seductive appeal of mindless neuroscience*. New York: Basic Books.
- Schwartz, J. M., & Begley, S. (2002). *The mind and the brain*. New York: Harper Perennial.
- Seung, S. (2012). *Connectome: How the brain's wiring makes us how we are*. Boston: Houghton Mifflin Hartcourt.
- Snowdon, D. A., Kemper, S. J., Mortimer, J. A., Greiner, L. H., Wekstein, D. R., & Markesbery, W. R. (1996). Linguistic ability in early life and cognitive function and Alzheimer's disease in late life. *JAMA, 275*(7), 528-532.
- Taxi drivers' brains "grow" on the job. (2000, March 14). *BBC News*, Science/Nature. Retrieved from <http://news.bbc.co.uk/1/hi/677048.stm>
- Temple, E., Deutsch, G. K., Poldrack, R. A., Miller, S. L., Tallal, P., Merzenich, M. M., & Gabrieli, J. D. (2003, March 4). Neural deficits in children with dyslexia ameliorated by behavioral remediation: Evidence from functional MRI. *Proceedings of the National Academy of Sciences of the United States of America, 100*(5), 2860-2865.
- Thaiss, C., & Zawacki, T. M. (2006). *Engaged writers and dynamic disciplines*. Portsmouth, NH: Boynton/Cook Heinemann.
- Warren, J. D. (1999). Variations on the musical brain. *Journal of the Royal Society of Medicine, 92*, 571-575.
- Villanueva, V. (1993). *Bootstraps: From an American academic of color*. Urbana, IL: National Council of Teachers of English.
- Zull, J. E. (2004). The art of changing the brain. *Educational Leadership, Stylus, 62*(1), 68-72.