A Sociocultural, Semiotic, and Cognitive Model of Postsecondary Literacy

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ABSTRACT
Postsecondary academic literacy comprises multiple facets: the sociocultural, linguistic/semiotic, and cognitive dimensions. This article explores the nuances of postsecondary academic literacy through a new model building upon that of Steven B. Kucer (2014). This new model integrates the sociocultural milieu in which students exist and its influences on meaning-making processes alongside the linguistic/semiotic considerations such as modality and cognitive considerations like strategic reading. Through this multi-faceted lens, we can begin to make sense of the academic demands placed upon students as related to literacy practices. By integrating theory and research into Kucer's existing model of postsecondary academic literacy, a more nuanced picture of postsecondary literacy practices emerges, as does a new model of literacy practices and processes.

Academic literacy encompasses myriad facets (Alexander & Fox, 2013): the sociocultural, the semiotic/linguistic, and the cognitive (Kucer, 2014). This complexity inherently lends itself to a new model of literacy practices, one that resists the oversimplication of what postsecondary literacy comprises. Reflective of society and language, what it means to be academically literate fluctuates as cultural values shift (Alexander & Fox, 2013), although changes in literacy expectations placed upon postsecondary students straddle the line between the past and the present, meaning they are rooted in more traditional, standards-based pedagogy (like that focused on placement testing) alongside newer literacy considerations such as New Literacies. It is little wonder that so many students find academia overwhelming and not in line with the educational practices they have been exposed to prior to college. Not only do academic expectations exist in unfamiliar territory for new students, they also do not parallel the expectations they often find in secondary education, particularly in terms of domain-specific epistemology (Alexander & Fox, 2013). Some students may not anticipate the new cognitive demands being placed upon them as they enter academia. This is especially true when considering the amount and variety of literacy practices students are expected to engage in across their academic disciplines.

Considering all of the above, it is important that literacy practitioners become aware of the many dimensions of postsecondary literacy practices. To that end, I have constructed a new model based on that of Kucer (2014). My model (see Figure 1) of postsecondary academic literacy practices will address the complexities of the reading and writing tasks students encounter. Kucer's
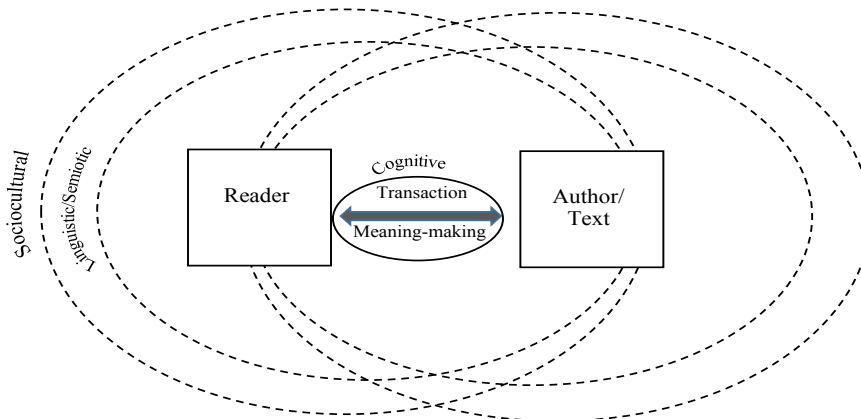
Figure 1. Model of Academic Literacy Dimensions

Figure 1. A model of academic literacy comprising the sociocultural, linguistic/semiotic, and cognitive dimensions. The outer rings represent the sociocultural dimension which subsumes all other literacy dimensions; everything related to literacy practices occurs within the sociocultural circles. The inner rings represent the linguistic/semiotic dimension comprising language and mode of communication which is influenced by sociocultural factors. Both sets of rings are dashed to represent the migration of aspects of each dimension from space to space, including between reader and author/text. The parts of the rings that are conjoined represent the shared sociocultural and linguistic/semiotic knowledge and experience of both reader and author/text. The innermost circle represents the cognitive dimension, influenced by both the sociocultural and linguistic/semiotic dimensions, where transaction and meaning-making occur between reader and author/text.

model provides a solid groundwork for the paradigm of postsecondary academic literacy practices and processes, but his model could be benefitted by some expansion and clarification of the interaction between literacy processes (i.e., the sociocultural, linguistic/semiotic, and cognitive). My new model emphasizes the nuances that emerge when considering Kucer's model alongside other important theoretical and research-based texts (e.g., Gee, 2013; Pawan & Honeyford, 2009; Smagorinsky, 2001). This new model is intended to inform classroom practices as well as how we conceive of literacy practices at the postsecondary level.

The difference between Kucer's (2014) model and this new model of postsecondary academic literacy lies in how Kucer situates the sociocultural and cognitive dimensions separately, not allowing for the potential that

as students develop their linguistic reservoirs, for example, they may begin to share more sociocultural aspects with the author/text. My new model allows for this transfer between dimensions, noting that students will develop their literacy skills and, as such, have knowledge and experience that can shift between literacy dimensions, such as the sociocultural and the cognitive.

Kucer's (2014) model, although foundational in its recognition of the layered facets of literacy events, does not allow for as nuanced a picture of literacy as is desirable. This is where my new model of literacy comes in: to demonstrate the nuances of meaning that exist within the framework of Kucer's model that he has not explicated. My new model of postsecondary academic literacy, then, builds upon what Kucer has constructed and breaks down how each layer of literacy

practices interplays with the others. Kucer situates what he calls the literacy event at the center of four circles: development, sociocultural, linguistic and other sign systems, and cognitive. This new model includes aspects of Kucer's, such as the sociocultural, linguistic/semiotic, and cognitive dimensions, but also situates the author/text and reader slightly differently than Kucer does. Instead of existing at the center, where the literacy event lies, reader and author/text intersect with the sociocultural and linguistic/semiotic dimension; they are still placed within the cognitive dimension, but these dimensions play more of a role in the transactive meaning-making that occurs between the author/text and reader. The major difference between these two models is where the meanings and contexts become shared between author/text and reader as the nuances of meaning-making shift as the reader develops and author/text changes. This piece will explicate the dimensions and nuances of postsecondary academic literacy, including the sociocultural, linguistic/semiotic, and cognitive dimensions as well as their many facets alongside the need for such a model for instructive purposes.

Postsecondary Academic Literacy

Students entering college will be expected to produce and consume a wide variety of texts, including textbooks, essays, presentations, and lectures, something they may not have been prepared for during high school. A singular piece of evidence for this lack of connection between what students have come to expect from high school and what they face in college lies in the standardized testing students have become accustomed to before they enter higher education (Alexander & Fox, 2013; Smagorinsky, 2001); they must figure out how to navigate the drastic shift from learning at surface level for a test to learning in complex ways (Alexander & Fox, 2013; Spiro et al., 2013) which may be considered more

authentic than what they've encountered before college (Smagorinsky, 2001). In collegiate settings, students are more likely to be expected to both consume and produce texts without overt guidance in how to navigate these complex tasks compared to when they were in high school. Additionally, students must change literacy lenses from discipline to discipline (Shanahan, Shanahan, & Misischia, 2011), learn to situate themselves within the epistemological stances of each (Alexander & Fox, 2013; Shanahan et al., 2011), and determine how to access the deep structure—the underlying meanings—of a variety of texts such as those mentioned above (Alexander & Fox, 2013; Kucer, 2014; Spiro et al., 2013). Often, students are expected to accomplish this with little guidance (Gee & Edutopia, 2012). It is little wonder, then, that incoming students may struggle with the literacy demands placed upon them, especially considering the complex nature of postsecondary academic literacy.

Academic literacy has become a daunting task once students enter higher education. Although students might have been expected to do so in high school, making meaning from text now becomes more than memorizing facts or regurgitating a teacher's textual interpretation (Alexander & Fox, 2013; Smagorinsky, 2001; Spiro et al., 2013). In college, meaning-making involves activating appropriate background knowledge, accommodating and assimilating new information into existing schema, knowing when to pull from one's sociocultural experiences, unpacking and internalizing complex academic language, and switching or intermingling semiotic lenses to delve beyond the surface structure and into the rich ideas which lie beneath (Connors, 2013; Gee, 2013; Kucer, 2014; Nagy & Scott, 2013; Pawan & Honeyford, 2009; Paivio, as cited in Norman, 2012; Rosenblatt, 2013; Spiro et al., 2013). This points to the sheer complexity of how students effectively make meaning from text; these processes involve cognition, semiotics,

and the sociocultural nature of language, a rich intermingling of processes that may require special attention for students to access the deep meaning of text. Although researchers and theorists (Gee, 2013; Kucer, 2014; Matusitz, 2005; Pawan & Honeyford, 2009; Smagorinsky, 2001; Yu, 2014) explicate the value in allowing students' sociocultural backgrounds into the realm of academic literacy instruction, such implementation is far from universally accepted (Alexander & Fox, 2013). In this model of postsecondary literacy (see Figure 1), sociocultural influences subsume all other parts of the process; the sociocultural cannot be separated from the linguistic/semiotic or cognitive components of literacy. To overlook the sociocultural effects of students' literacy practices is to remove all context from consideration. This means one envisions academic literacy as devoid of influences from culture or society writ large, which is contrary to how language is constructed and used.

Great potential lies in tapping into students' sociocultural knowledge, as it contains pre-existing strategies students use to make meaning with text; they might not fit into the traditionally prescribed notion of being literate because these beliefs are heavily steeped in an idealization of past pedagogical practices. This, however, should not render illegitimate what they carry with them into the college experience (Gee, 2013; Rose, 2005). For example, students already know how to transact with a variety of modes, a complex cognitive process (Connors, 2013). Multimodal literacy may be viewed as a new practice (Alexander & Fox, 2013; Connors, 2013; Pawan & Honeyford, 2009), but students carry the knowledge and skills for engaging the requisite schema and semiotic lenses before entering a college classroom (Kucer, 2014). For example, students are already consuming a wide variety of texts in their everyday lives, particularly multimodal ones like social media platforms that intermingle text and image to create complex meaning. Students may enter college without

an awareness of their own capabilities, perhaps because of their epistemologies of literacy. What students and faculty view as valid literacy practices may overlook the multimodal texts students encounter regularly in their everyday, nonacademic lives, thus missing the opportunity to build on students' existing skills with shifting semiotic lenses to make meaning from text, whether producing or consuming it.

It seems rather than viewing students as deficient in literacy knowledge—deeming them illiterate, as Rose (2005) describes it—students at all levels bring literacy practices that can be tapped into to foster the construction of postsecondary academic literacy knowledge. It will certainly require guidance for students to internalize appropriate and effective literacy practices in this new setting, but they possess the potential within what academic literacy comprises: the sociocultural, linguistic, semiotic, and cognitive (Kucer, 2014).

Figure 1 shows the complex interactions between these facets of academic literacy. These dimensions converge when reader transacts with text. Literacy practices sit at the center of the model, where cognition occurs. Around that lies the linguistic/semiotic, including text design, vocabulary, D/discourse (Discourse entailing language with all its inherent values, belief systems, and power structures, and discourse representing the spoken/written word as a mode of communication without taking into account the aforementioned aspects of Discourse), and linguistic reservoirs either specific to or shared by reader and author/text (Gee, 2013; Kucer, 2014; New London Group, 1996; Rosenblatt, 2013). Encircling all is the sociocultural; literacy practices cannot be separated from the sociocultural milieu in which text, author, and reader are situated (Gee, 2013; Kucer, 2014; Rosenblatt, 2013; Smagorinsky, 2001).

The Sociocultural Dimension

The acknowledgement of literacy as a sociocultural act emerged around 1986, as mentioned by Alexander and Fox (2013) during a review of literacy movements, which resulted in a view of literacy comprising multiple knowledges reflective of the sociocultural backgrounds of learners, their D/discourses, epistemologies, and dialects (Gee, 2013; Smagorinsky, 2001). This acknowledges that literacy is not a simple or straightforward concept, but rather a complex one that faculty should be aware of to effectively guide students through becoming members of the academic Discourse community; Discourse is used here instead of discourse to indicate the values, beliefs, and power structures inherent within the particular Discourse community that students must acclimate themselves to and become aware of.

Alongside this emergent view of literacy came the idea that literacy engagement, intentional or not, begins in childhood; regardless of socioeconomic status or geographical location, children engage with literacies by existing within a society (Gee, 2013; Kucer, 2014; Smagorinsky, 2001). For example, as Kucer states, although traditional views of literacy hold interacting with print text as the literate act, even children who lack availability of books at home or in their communities encounter what have now become included as literacies (i.e., the multimodal). These New Literacies exist in the college classroom in forms as simple as PowerPoint presentations or graphics in a textbook. These may be familiar modes of text for both students and instructors, which may be a common misconception (that they are familiar) across academic disciplines and even within the field of postsecondary literacy instruction. Rendering these literacies illegitimate may lead students to feel as though they do not possess the requisite skills to successfully navigate academic texts. Instead of overlooking the role of shifting semiotic engagement with such texts, faculty can capitalize on the literacy capital students bring into the classroom.

Texts in the form of visuals, such as advertisements and signage, exist in all social realms. A push towards inclusion of these as legitimate forms of literacy dates back to 1996 with the work of the New London Group; the relevance of other-than-print texts in society has likewise been stressed by other theorists, researchers, and organizations (Alexander & Fox, 2013; Connors, 2013; Hull & Nelson, 2014; Matusitz, 2005; NCTE, 2005; New London Group, 1996; Norman, 2012; Pawan & Honeyford, 2009; Sung & Mayer, 2012; Yu, 2014). A multimodal view of literacy indirectly emphasizes how the sociocultural milieu in which students exist is the origin of literacy practices; without consideration of both student and text's sociocultural context, the layered processes of becoming literate may be overlooked (Gee, 2013; Smagorinsky, 2001). When literacy practices involve the sociocultural context, students may be able to better activate relevant background knowledge to make connections to the text, thus helping them internalize what they are reading. It stands to reason that if students can navigate multimodal texts in non-academic contexts, pulling upon their sociocultural resources and knowledge of the context surrounding the text, they can make this application in the academic realm. All that may be required is explicit instruction and making connections between students' everyday literacy practices and their academic ones.

Literacy is situated within the sociocultural milieu of both reader and text (Gee, 2013; Kucer, 2014; Rosenblatt, 2013; Smagorinsky, 2001). If literacy is a transactive process between reader and author, as Rosenblatt (2013) and Smagorinsky (2011) suggest, to ignore the context in which texts are created and read limits meaning-making potential. Both reader and author draw upon schema (Alexander & Fox, 2013; Spiro et al., 2013), background knowledge (Alexander & Fox, 2013; Shanahan et al., 2011; Smagorinsky, 2001), and linguistic reservoirs (Gee, 2013; Nagy & Scott, 2013; Rosenblatt, 2013;

Shanahan et al., 2011; Smagorinsky, 2001). Schema, the ways in which individuals cognitively organize information (Alexander & Fox, 2013), comprise background knowledge and linguistic reservoirs. The linguistic reservoir, as defined by Rosenblatt (2013), includes the language accessible to both reader and writer, extending to the language present in a text. In this way, language may be shared between reader and text if background knowledge, language, and sociocultural situations overlap (Gee, 2013; Smagorinsky, 2001).

As shown in Figure 1, author/text and reader may share sociocultural backgrounds, enhancing the ways in which students make meaning by transacting with text. This connection of the cognitive and sociocultural underlines the importance of the sociocultural nature of literacy: shared linguistic reservoirs, for example, can lead to stronger understanding of a text. The same holds true if the reader possesses background knowledge relevant to the author/text. In these ways, the sociocultural and cognitive aspects of literacy interact to begin creating a complex process for meaning-making.

Difficulty for students arises when sociocultural influences and the language used therein do not overlap. As Smagorinsky (2001) asserts, signs—whether letters, words, or images—do not carry universal meanings for all readers; thus, if text is composed of signs foreign to the reader, such as disciplinary language, decoding texts becomes a challenge for students. This is further complicated when considering the hegemonic structures inherent in academic language: what is valued and what is not reflects sociocultural values, beliefs, and discourses, among other things (Gee, 2013; Kucer, 2014; Smagorinsky, 2001). "Traditional" notions of being literate, such as those present in how literacy is measured via standardized testing or rooted in more traditional conceptions of literacy (e.g., New Literacies versus traditional, print-based text), may hold primacy and render illegitimate the critical literacy valued in postsecondary settings that moves beyond mere memorization of print-based textual information (Gee, 2013; Kucer, 2014; Smagorinsky, 2001). In other words, high-stakes testing evaluates students' ability to identify meaning viewed as existing solely in the text (Alexander & Fox, 2013), which "dismiss[es] as incorrect or irrelevant" other potential interpretations beyond "an officially sanctioned meaning" (Smagorinsky, 2001, p. 137). This notion undermines the goals of postsecondary academic literacy: teaching students to find deep meaning in texts and delve beyond the surface structure to make meaning independently, perhaps with little guidance from the instructor. The demands of postsecondary academic literacy require that students move beyond memorization of prescribed textual meaning to analysis and application of concepts, a goal of the academic experience.

Although postsecondary literacy encourages critical thinking and shifting epistemic beliefs towards multiplicity of meanings within a single text (Alexander & Fox, 2013; Gee, 2013; Kucer, 2014; Pawan & Honeyford, 2009; Rosenblatt, 2013; Shanahan et al., 2011; Smagorinsky, 2001; Spiro et al., 2013), even this setting holds hegemonic structures (Gee, 2013; Kucer, 2014). Regardless of the discipline in which students are making meaning from texts, there is an underlying power structure that includes values and ideologies of that discipline. These are often tacit, not overt, characteristics of disciplinary literacy. Students must, often without guidance, learn to navigate these Discourse communities and understand their unique values and ideologies. Furthermore, certain types of literacy practices hold greater value in different settings than in others, even within academia because of the multiplicity of discourse communities with specific epistemologies of literacy (Kucer, 2014; Shanahan et al., 2011). Not all disciplines share the same values related to literacy practices, making it challenging for students to navigate the shifting epistemologies of

literacy they encounter in each class. To effectively engage with texts in these different contexts, students may need to develop an awareness of the characteristics of each Discourse community. This harkens back to the inherently sociocultural nature of literacy—the context influences the values related to literacy practices. Induction into these diverse Discourse communities requires learning to navigate ways of meaning-making that shift from discipline to discipline (Shanahan et al., 2011). As Gee (2013) states, becoming literate in different disciplines requires developing a social identity for each domain. Becoming literate within disciplines builds schema specific to those disciplines, concurrently inculcating students with the values within those Discourses. Regardless of the literacy situation, sociocultural values and ways of knowing pervade and cannot be removed from how literacy practices occur.

The Linguistic/Semiotic Dimension

Sociocultural values and preferred ways of communication exist within how text is constructed by authors and deconstructed by readers. How the linguistic/semiotic dimension of literacy interacts with the sociocultural and cognitive dimensions can be seen in Figure 1. Note how the sociocultural may influence the linguistic/semiotic dimension, as text does not exist in isolation but within a rich context. Furthermore, the linguistic/semiotic dimension comprises the ways texts are structured—their linguistic or semiotic design as well as how this relates to meaning-making potential. Literacy practices that hold sway within academia encompass this linguistic/semiotic aspect of literacy (Smagorinsky, 2001; Kucer, 2014). Certain modes of communication—ranging from text design to vocabulary—carry more value in academic literacy practices than others (Connors, 2013; Matusitz, 2005). For example, primacy tends to be given to print text, an oversight that misses the many opportunities for meaning-making within a variety of modes

that may be more easily consumed by students. Although students are familiar with the textbook format, for example, they may not have the tools to unpack the complex meaning therein. If students could apply what they know about language, perhaps via multimodal texts, they may experience more success in navigating their academic readings.

Traditional notions view language as static (Gee, 2013), give preference to print texts (Connors, 2013), and value certain dialects over others (Kucer, 2014). The difficulties of these expectations, much like those that arise from teaching literacy practices for high-stakes testing purposes (Alexander & Fox, 2005), lie in how they may devalue students' sociocultural discourses, rendering becoming academically literate an even more difficult process when students must learn to code switch when entering into academic Discourse (Kucer, 2014).

This code-switching process is requisite for all aspects of students' academic literacy experiences and even extends into their non-academic daily lives. What makes code switching problematic is when students are not given the necessary guidance in how to switch from the Discourse of their everyday lives to the Discourse of a given classroom. Students already possess the ability to switch Discourses based on their circumstances, say when speaking to a teacher versus speaking to a friend, but may not see how this transfers into the academic realm. This renders becoming academically literate challenging, as students' sociocultural backgrounds could be capitalized upon to help them gain academic literacy skills, but these backgrounds may be devalued or undervalued once students enter the classroom. This makes clear the connection between the sociocultural and the linguistic/semiotic: students' cultural capital related to literacy includes not only their contexts for literacy practices, but also the function text design plays within this process because students inherently have the skills to make meaning effectively from a variety of textual modes (Connors, 2013). This

disconnect between the sociocultural and linguistic/semiotic can lead to a lack of understanding of how text structure relates to function, perhaps posing difficulties to students effectively making meaning from the deep structure of text.

Upon entering postsecondary education, students are expected to navigate texts of varying structures (such as expository, argumentative, or multimodal) and understand—often without explicit instruction—how the form of text relates to its function (Kucer, 2014). The layout of a text, considering both print and image, drives how the author intends the reader to move through the text and make meaning from it (Kucer, 2014; New London Group, 1996). Added to the expectation that students enter college sufficiently "literate" to negotiate increasingly complex modes of text is how students must learn other ways of making meaning via academic Discourse. Such academic language is a specialized way of expressing meaning often unique to each academic discipline; each has its own epistemology and subsequent ways of reading for surface and deep structure (Kucer, 2014; Pawan & Honeyford, 2009; Shanahan, et al., 2011).

If one considers each discipline a society with values, beliefs, goals, and ways of acting in the world, comprehension and meaning to be constructed from texts are inextricably tied, as well as specific, to students' functioning in that particular domain (Gee, 2013). This expectation alone places significant demands on college students; becoming a member of academia necessitates becoming literate in various discourses simultaneously, recognizing the differences in epistemologies and acceptable literacy practices across domains. This is a complex process that places high demands on students who may be expected to figure out what it means to be literate across discourse communities, a particular problem facing students who are new to college. Again, explicit instruction about introduction into a Discourse community would be desirable to

avoid potential for student confusion or inability to navigate this code switching.

For students entering college, being literate no longer equates to reading for a singular Truth (Alexander & Fox, 2013); students are expected to become literate in finding multiple truths via multiple meaning-making practices (Shanahan, et al., 2011). This expectation is often accompanied by a lack of explicit modeling or instruction in finding a multiplicity of truths using a variety of meaning-making practices, which is problematic because students new to college may not understand the differences between high school literacy expectations and postsecondary literacy expectations, which are often more demanding. This gap in instruction leads to the possibility that students will feel lost when engaging in their homework assignments or with in-class literacy activities (e.g., lectures), something that would be desirable to avoid.

Dialects in Academic Literacy
In light of its highly specialized, contextual nature and how students are initiated into each discipline's Discourse community (Gee, 2013)—again, not necessarily with explicit instruction of disciplinary literacy practices—academic Discourse becomes a series of dialects students must learn. This likely requires them to code switch between their personal dialect and that of varied academic situations (Kucer, 2014). As Alexander and Fox (2013) mention, dialects relate "to social roles" (p. 9). The sociocultural, and the hegemonic practices within it, pervade the very language of academia. This can pose problems to students when they do not recognize that these underlying power structures influence the dialects of the different disciplines. These tacit values and ideologies may not be evident to students, rendering it difficult for them to enter into these Discourse communities, thus making it challenging for students to effectively engage in literacy practices across disciplines.

Although academic Discourse in general has specific standards, such as the preference for Standard English, "conflict can occur [between] different discourse communities [within academia] because [they] hold different preferences for how language is to be used" (Kucer, 2014, p. 240). Between the social groups of academic disciplines (e.g., chemistry, history, education) exist different valued practices, ways of making meaning, ways of communicating, and ways of determining truth (Pawan & Honeyford, 2009; Shanahan et al., 2011). Each group, then, possesses its unique dialect reflecting its beliefs and goals, much like Gee (2013) describes the action and identity embedded in discourses. That postsecondary students must learn to internalize these situational literacy roles may contribute to what makes academia, including academic literacy, foreign to many students. They may need to learn new languages to successfully comprehend academic texts and communicate within disciplinary Discourse; if students have not been previously exposed to the expectations of academic literacy, including its preference for so-called Standard English, their personal dialects become illegitimate (Rose, 2005; Kucer, 2014).

There may be one-way students can bring valued dialects to academic literacy without leaving behind their nonacademic experiences: engaging with multimodal texts. This is another aspect of the linguistic/semiotic dimension of the literacy model (see Figure 1); text design relates to how students make meaning during their literacy experiences. As students progress through schooling, they encounter more of such texts, often in the form of textbooks with graphics such as figures, tables, and charts (Kucer, 2014), something Kucer does not acknowledge as dialect. Although their existing skills in reading multimodal texts may not transfer into academic literacy, students often enter higher education with a wealth of experience in this dialect (Gee, 2013; NCTE, 2005; Kucer, 2014; Pawan & Honeyford, 2009;

Matusitz, 2005; Yu, 2014). This form of specialized language lies both in college students' academic and nonacademic literacy practices (Kucer, 2014; NCTE, 2005; Pawan & Honeyford, 2009; Matusitz, 2005; Yu, 2014). As Gee (2013) argues, even experiences are retained in images, not in words.

Students are already part of discourse communities including multimodal texts from childhood, thus they are not learning a new dialect or how to enter into this type of discourse when entering college. Although some explicit instruction in multimodal literacy practices might be desirable, it is not as necessary as may be the case with print-only text. Again, the sociocultural influences the linguistic/semiotic: students' background knowledge from nonacademic contexts can be capitalized upon in the classroom when students encounter texts of unfamiliar modes or organizations. Multimodal texts offer students a way into academic Discourse if they are strategically used.

Potential difficulties and successes in multimodal literacy practices. Even though most students enter—or are expected to enter—college with knowledge of multimodal literacies (Gee, 2013; Kucer, 2014; Matusitz, 2005; NCTE, 2005; Pawan & Honeyford, 2009; Yu, 2014**),** how students have learned to navigate these texts may provide challenges. Making meaning from multimodal texts involves complex interweaving of semiotic lenses, heightened cognitive processing, and awareness of intertextuality (Connors, 2013; Hull & Nelson, 2014; Kucer, 2014; New London Group, 1996; Paivio, as cited in Norman, 2012; Pawan & Honeyford, 2009; Sung & Mayer, 2012). Here, the linguistic/semiotic dimension begins to interact with the cognitive dimension (see Figure 1). The text's design, particularly when considering multimodal texts, influences the cognitive processes the student engages in. What's clear from research is that the more complex the text, in terms of its linguistic/semiotic design, the more complex

the cognitive processes involved in the literacy practice. Student interactions with more complex texts like multimodal ones involve deeper processing skills than their interactions with less complex or unimodal texts, making the former preferable in terms of building student skills and learning.

One kind of awareness of advanced cognitive processing, intertextuality, is key to making meaning from multimodal texts (Hull & Nelson, 2014; Kucer, 2014; New London Group, 1996; Pawan & Honeyford, 2009). This kind of cognitive flexibility applies across academic literacy, as students must learn to create meanings between different disciplines (Kucer, 2014; Spiro et al., 2013). Thus, if skills can be successfully transferred, learning to transact with multimodal texts can benefit students across domains of academic literacy. A type of multimodal text students typically have been acquainted with prior to higher education is hypertext—reading on the internet (Kucer, 2014; Pawan & Honeyford, 2009). Hypertext literacy involves, according to Pawan and Honeyford, two overarching ways of reading: hierarchical and heterarchical. Students reading such texts must decide how to navigate them, either from the top down or moving between information sources via links (Kucer, 2014; Pawan & Honeyford, 2009).

A danger that lies in such texts are the seductive details that do not relate, in terms of relevant information, to the text; while it has been shown that reading texts with informational graphics can increase students' comprehension and retention, seductive graphics interfere on the cognitive level, leading to less success in text processing (Sung & Mayer, 2012). Although these findings relate solely to graphics, the concept may transfer to hypertext, as some links within a text can draw the reader away from his/her original purpose much like Kucer (2014) discussed. Given the exposure students have to such texts in everyday life, learning to strategically read them seems crucial (Kucer, 2014; Pawan & Honeyford, 2009; Matusitz, 2005), particularly if considering the

connections that can be built between students' nonacademic and academic literacy practices.

If students are acquainted with reading multimodal texts successfully, there stands potential for deep learning. Research has demonstrated the complex cognitive demands of reading such texts which lead to increased comprehension and retention of information (Hull & Nelson, 2014; Kucer, 2014; New London Group, 1996; Paivio, as cited in Norman, 2012; Sung & Mayer, 2012). Because of the increased cognitive demands of collegiate learning (Spiro et al., 2013), the inclusion of other-than-text modes within literacy practices holds promise for students' learning. For example, graphics may serve to strengthen how ideas are organized within a text (Norman, 2012), and "people learn better from words and pictures than from words alone" (Sung & Mayer, 2012, p. 1618).

Learning the dialect of multimodal literacy may pose challenges to postsecondary students, much like the dialects of academic Discourse, but the possibility remains that students entering college may have prior knowledge with processing such texts. Often, without realizing it, students engaging with multimodal texts use complex literacy practices (Connors, 2013). This may be attributable to their previous experience in nonacademic settings with other-than-print texts; as Kucer (2014) states, before students enter elementary school, they already have vast exposure to these kinds of literacies and the practices associated with them. Once more, students' sociocultural backgrounds can influence their academic literacy engagement, particularly given the increased call for (and current use of) multimodal texts in postsecondary education (Alexander & Fox, 2013; Matusitz, 2005; NCTE, 2005; Pawan & Honeyford, 2009). Part of why multimodal texts may be so effective in student learning is because they require code switching; for example, when reading a graphic novel, students must move between text and image to make meaning from both in conjunction.

In this case, students are using intertextuality to make meaning from the two semiotic elements of the text. If these skills can be transferred into other literacy settings, students may have greater success in their literacy practices across contexts. This, in turn, could lead students to more effectively navigate the multiple discourse communities to which they belong, particularly if they understand the need to switch dialects when moving from discipline to discipline. This would allow them easier entry into the dominant Discourse of each classroom.

The Cognitive Dimension

At the center of academic literacy lies the cognitive dimension: the act of making meaning with a text. In this space, transaction occurs between student and text. This is where the sociocultural and linguistic/semiotic experiences of readers and authors engage. In the transactive literacy practice, students pull upon their schema, background knowledge, life and literacy experiences, and their linguistic reservoirs as they read (Kucer, 2014; Rosenblatt, 2013; Smagorinsky, 2001). As exists in the sociocultural and linguistic/semiotic dimensions of literacy, readers and authors may share some of these components (see Figure 1); in the case of academic literacy, however, this may not always be the case.

In terms of academic Discourse, students need to become acquainted with ways of processing "foreign" language structures in order to make meaning when reading. For example, students in the sciences must be familiar with long noun phrases such as pathogen-associated molecular patterns, a specialized disciplinary language (J. Holschuh, personal communication, October 29, 2014). Without sufficient or appropriate background knowledge, schema, strategies, and epistemologies, students may find it difficult to pinpoint the author's intended meaning (Kucer, 2014). Even though a text contains possibilities of meaning as opposed to one

absolute Truth, some are more fitting than others (Rosenblatt, 2013). Helping students understand the difference between absolutism and relativism, as well as the stances in between, again requires explicit instruction; students will naturally develop their epistemologies as they progress through college, most likely, but may not perceive their epistemologies as interfering with the efficacy of their literacy practices. One example of this would be reading to memorize facts versus reading to connect ideas and construct new knowledge. Additionally, students will need to know how to activate appropriate background knowledge, including what parts of their linguistic reservoirs to pull upon, to be able to effectively make meaning from a text.

Academic literacy becomes, then, more than reading text: it becomes a complex process involving tailored strategies and purposes (Kucer, 2014; Shanahan et al., 2011), internalized specialized vocabulary (Gee, 2013; Nagy & Scott, 2013; Shanahan et al., 2011), and developing interconnected schema (Kucer, 2014; Spiro et al., 2013). When these skills are applied, students may effectively transact with academic texts across disciplines. Then a heightened level of transaction can occur in which students may begin to share more knowledge, experience, and language with an author than before reading (Kucer, 2014). This is crucial for students' development of literacy practices: the more they are able to share with the author/text, the more likely students are to have deep, effective transactions with text. This, in turn, should lead to increased learning.

The Role of Background Knowledge and Schema

Background knowledge and the associated schema are significantly tied to learning (Kucer, 2014; Spiro et al., 2013); they are also tied to sociocultural experience (Kucer, 2014). What students bring to a text reflects their previous experiences in the world, in educational settings, and in literacy acts (Gee, 2013; Kucer, 2014; Smagorinsky, 2001).

Depending on the sociocultural influences a reader carries when reading, connections may be made with the author if all parties share similar sociocultural experiences and/or backgrounds. This does not always occur, however. Students need to strategically activate relevant background knowledge and schema when making meaning with a text lest they project information onto the text that is not there (Kucer, 2014). Even though students should be moving away from an absolutist stance into a more relativistic stance in their epistemic beliefs as they (the epistemic beliefs) develop, there may be resistance to making meaning with text without being told what the Truth of the text is. This is to say that students whose epistemic beliefs are not grounded in the relative nature of knowledge but rather in one, absolute Truth may not readily engage in the meaning-making process with text because they may be relying on the instructor to tell them the Truth of the text. The better students can understand the connections between the sociocultural, linguistic/semiotic, and cognitive dimensions of literacy, the more likely it seems they would develop more expert-like epistemologies (i.e., relativistic) and have more meaningful interactions with text, making them more prepared to read academic texts across a variety of genres and discipines. This would also lead to deeper learning.

Using schema effectively involves cognitive flexibility: knowing when to use particular schema and building connections between ideas (Kucer, 2014; Spiro et al., 2013). When such flexibility is applied, students' retention of information increases due to creating structured, interrelated knowledge in the long-term memory (Kucer, 2014). Activating the appropriate schemata at the appropriate times will help students in their meaning-making endeavors. When this does not occur, however, learning still may take place depending on how the student views knowledge. Here lies potential for growth through dissonance—when reading academic texts, students may encounter information contrary to their beliefs, values, epistemologies, and associated existing schema (Kucer, 2014). Through cognitive dissonance such as this, students may either accommodate this new information, revising their schema to fit what they have learned, or resist accommodation, holding onto their existing schema (Kucer, 2014). This is a stronger strategy for learning and will lead students to having more effective literacy practices in terms of learning. This can lead students to either have meaningful transactions with text or to miss an opportunity for learning. Accommodation occurs in another iteration during literacy practices. As students transact with texts, new possibilities of meaning may arise, causing students to revise their perception of what the text means while still reading (Kucer, 2014; Tierney & Pearson, 1983).

The role of schema has the potential to change students' epistemic beliefs, which may be essential as they move from the role of novices to that of experts in different academic disciplines (Shanahan et al., 2011). Academic literacy involves such cognitive shifts—to successfully make meaning from complex texts in varying disciplines (e.g., biology and history), students need the cognitive flexibility to accommodate and assimilate new ideas into their existing schema and beliefs about how knowledge is constructed (Kucer, 2014; Shanahan et al., 2011; Spiro et al., 2013).

This circles back to the change in conceptions of literacy from secondary to postsecondary education as mentioned by Alexander and Fox (2013), the move from reading for Truth to reading for possible truths. Even moving towards making meaning in a more relativistic than absolutist way requires students to change their schema for reading itself (Pawan & Honeyford, 2009). Entering into a postsecondary setting with new literacy demands and expectations, students will be required to revise how they conceptualize the process of reading; not only will they need to build new schema, they will

also need to develop awareness of their purpose(s) for engaging with a text and how to effectively do so (Kucer, 2014; Rosenblatt, 2013).

The Role of Purpose and Strategic Reading

Reading with a clear purpose in mind is key to cognitive engagement: it drives how a student makes meaning from a text by directing attention to textual features such as structure and function, among other things (Kucer, 2014). As Rosenblatt (2013) describes literacy practices, readers may choose a stance towards a text when making meaning. Although new postsecondary students often transact with text using a stance from either end of the spectrum—aesthetic or efferent—academic literacy does not necessarily require a dichotomous view of purpose, much like it does not necessarily involve the dichotomy of true versus incorrect meaning (Rosenblatt, 2013; Pawan & Honeyford, 2009). This is part of building more expert-like epistemologies and acknowledging that there may not be one correct meaning. Danger lies here if students come to the conclusion that all meanings are equally valid (i.e., if they take too aesthetic a stance to the reading). Students have to learn how to transact with text in a way that allows them to make meaning in a way the author intended. This process involves an awareness of the author/text's sociocultural context, the linguistic/semiotic characteristics of the text, and aspects of the cognitive dimension such as schemata.

According to Rosenblatt (2013), students often approach text either for information or for enjoyment (the efferent and aesthetic stances, respectively) with a preset stance regarding how to read it. They do not perceive this as a spectrum on which they can fall between the two stances, something Rosenblatt argues tends to be based on discipline, not text structure. This may be reflective of students' epistemologies, particularly those for the purpose of reading. Another important consideration here is

students' epistemologies specific to different academic disciplines; this also influences the stances students choose when reading texts. Students need not apply an aesthetic stance when reading a science textbook, but it remains important that they actively decide to take the efferent stance (Kucer, 2014). The sense of purpose readers carry into text may help them activate relevant background knowledge and schema as well as select appropriate strategies for making meaning (Kucer, 2014), hence the importance of explicit instruction in how to go about these processes.

Discerning features of a text can assist students in determining its function; that is, text design relates to the author's purpose (Kucer, 2014; New London Group, 1996). Knowing what an author wishes to convey through text can help readers select an approach to reading conducive to comprehension and retention (Kucer, 2014). For example, if reading a novel for an English class, a student may decide the author's purpose is to entertain; the reader then might take an aesthetic stance and read without any strategies. It is also possible that student might decide the author's purpose is to teach; then an efferent stance and reading strategies such as critical reading for important ideas and an overarching theme might be suitable. Another possibility would be the student reading from a stance between the strictly efferent and strictly aesthetic, in which case s/he might elect to vacillate between reading for enjoyment and reading strategically for information. Regardless of how a student perceives the function of the text, selecting the appropriate strategy (or strategies) for reading can support the meaning-making process, additionally increasing information processing and retention (Kucer, 2014). Strategic reading is particularly requisite in postsecondary academic literacy because of the multitude of academic Discourses and related epistemologies, text designs, and authorial purposes (Gee, 2013; Kucer, 2014; Rosenblatt, 2013; Shanahan et al., 2011). The

complexity of postsecondary academic literacy is clear: students must consider the implications of the sociocultural background of both themselves and author/text, the linguistic/semiotic characteristics of the text, and the cognitive processes to engage when transacting with the text to make meaning.

Conclusions

Postsecondary academic literacy can be complex and difficult to untangle because of the interaction of multiple dimensions that permeate every step of the meaning-making process. At the cognitive level, sociocultural influences on reader, text, author, and academic discipline play a role in each part of strategic reading because of all it involves. The same is true of linguistics and semiotics. Both the sociocultural and linguistic/semiotic dimensions of literacy influence how meaning-making occurs (Connors, 2013; Gee, 2013; Kucer, 2014; New London Group, 1996; Smagorinsky, 2001). As shown in Figure 1, all of these dimensions converge when a reader transacts with text.

Because of its complex nature, academic literacy cannot be boiled down to a linear or simple process (or series of processes). It is little wonder, then, that the gap between secondary and postsecondary literacy expectations occurs (Alexander & Fox, 2013; Kucer, 2014). The walls which separate these practices from one another should, as Kucer (2014) asserts, be broken down to facilitate effective transition into the academic Discourse of college for new students. This ultimately requires taking a new stance on what postsecondary academic literacy comprises: it is a complex interaction of the sociocultural, linguistic/semiotic, and cognitive. Taking away one piece causes a breakdown in effective literacy practices, as all are necessary for students when making meaning from the texts they encounter in the college classroom.

The implications for instruction are clear—students may require explicit instruction in how to access the sociocultural aspects of author/text and their own lives and make effective connections between the two to bridge potential gaps between author/text and student. It also requires attention to the linguistic/semiotic features of literacy and how these may be influenced by the sociocultural milieu of the literacy act. Students should experience some guidance in becoming members of diverse academic Discourse communities, as this facet of postsecondary academic literacy may be overlooked. Finally, students may require instruction in effective activation of the cognitive processes involved in making meaning from text, from activating schema to taking an appropriate stance when reading a text. Postsecondary academic literacy is not a straightforward process; my new model is designed to highlight its nuances.

In practice, one should be aware of the many sociocultural influences on the reader-text transaction and make these as explicit to the student as possible. One way of implementing this model could be to use a culturally-rich visual literacy activity with students in which they are required to use multiple semiotic lenses, pull on their background knowledge and schema, and use their sociocultural awareness to make meaning from a text. One way I have implemented this in the classroom is via use of graphic novels: these require students to use different semiotic lenses (the visual and textual) to make meaning of multiple modes of representation. When engaging in such an activity, it would be beneficial to pull upon what students already know about reading visuals such as graphic novels by activating their background knowledge prior to an activity with reading the graphic novel. Then, the instructor can make explicit how students' prior sociocultural experiences may influence how they make meaning of the text by asking students how they think their unique perspectives shape their textual interpretation. One can also ask students to consider authorial intent—what the author wanted

readers to take away from the text—and how that might differ from their interpretations as well as the reasons why. This is only one example of utilizing this model for literacy instruction; there are a myriad of ways it can be implemented, and these activities should be tailored to the student audience as well as the instructor's sociocultural background.

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