

## CHAPTER 2

### THEORETICAL FRAMEWORK

*“Theory and methodology not only provide a structure for research ... but are themselves structuring.” (Harste, et al., 1984, p.49)*

#### Writing

Trying to

understand

others

myself

I move beyond

My own way

of thinking

to understand

what I have

learned

to share

with others

The most significant thing that my children have taught me is that literacy is not just reading and writing; it is every form of symbolic communication.

Literacies are understood in specific ways through what Gee refers to as Discourses (1996; 2000). Literacies are the way we understand and try to be understood by others; they are any type of symbolic communication we use.

Literacies are complex, but in an effort to tease out some of the finer details, I am going to break my discussion into four sub-categories. This is not to say that these elements exist on their own but that these are different facets of literacies and each gives us a different perspective of the same theoretical understanding of literacies. The four sub-categories in which I would like to frame my discussion of literacies are: 1) literacies as multimodal, semiotic and motivated; 2) literacies as involving specific social and cultural practices, which are different depending on site, community, and time; 3) literacies as social; 4) the literacies process as a complex system. Others have discussed each of these facets of literacies at length. What I am presenting here is what I have come to understand from my children, and what their literacies use seems to suggest - a convergence of these theories; literacies which are complex in their conception and use.

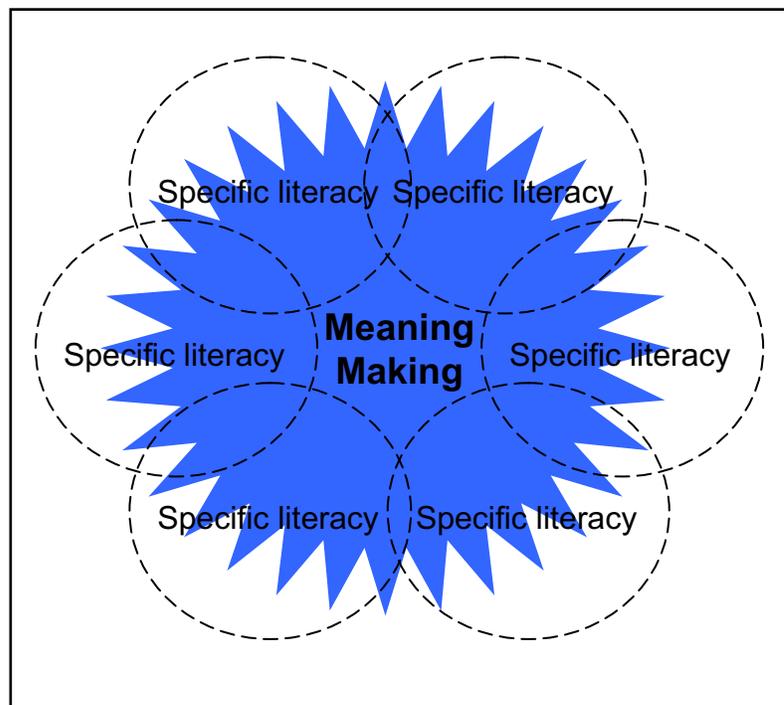
#### Literacies as Multimodal

One of the interesting directions my children have led me is to see that literacies are multiple and multimodal. They have taught me that my understanding of literacy as confined to reading and writing was oversimplified and inaccurate. In my effort to simplify theories of literacy for ease of use and understanding, I ignored elements which are vital to understanding how literacies are learned, used and understood. Literacies can be, and should be, thought of as any meaning making system: maths, science, dance, art, computer gaming, reading, writing, etc. and they are multimodal (Jewitt et al., 2001; Kress, 2003). That is, literacies are rarely found in isolation and in fact are often used together

to support the meaning making process as well as often having many modes for carrying their message. By mode I am referring to any “organised, regular, socially specific means of representation” (Jewitt, Kress, Ogborn & Tsatsarelis, 2001 p. 5); for example, language has four modes: speaking, listening, reading and writing. Rarely is communication done using only one mode.

Literacies as a concept that has been around for a long time but has been referred to as ‘multiple ways of knowing’ (Berghoff, Egawa, Harste, & Hoonan, 2000), sign systems (Nöth, 1990; Danesi, 2004) and even Multiple Intelligences (Gardner, 1983). What my children have helped me to see is that all sign systems are literacies in their own right, and that literacies work together in a multimodal fashion, actively supporting the learning and understanding of other literacies (See figure 3). This is because all literacies are semiotic in nature and have parallel underlying

processes and structures (as will be discussed in detail in chapter 7). In the same way that when we learn more than one language both languages benefit from our learning (Cummins, 1994), there is an



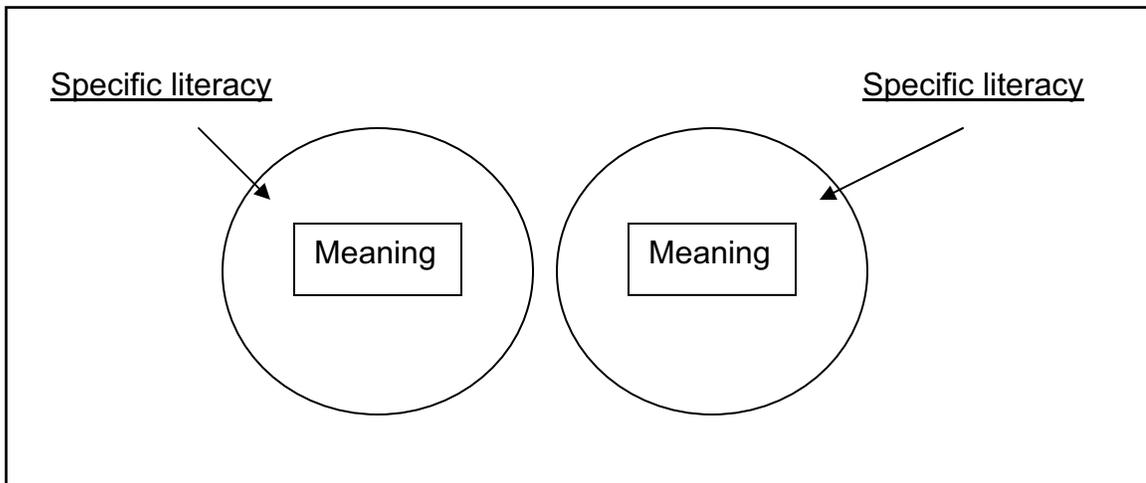
**Figure 3: Literacies as multiple and multimodal**

overlap. All spoken language shares syntax, grammars, similar sounds, and semantics; and so as we are learning one language our understanding of other languages improves.

This connection between literacies has long been noted and documented between reading and writing (see Berghoff et al., 2000; Harste et al., 1984; Short et al., 1996; Smith, 1988, for examples). As we write we become better readers; as we read we become better writers. These literacies support each other. Reading and writing are different aspects of language but share similar meaning making processes. It is this underlying process that creates this connection between reading and writing and allows for influential growth and learning. Likewise, all literacies share elements of the meaning making process and therefore support each other in the same way as reading and writing.

We use literacies in multimodal ways. It is rare that we ever use any literacy independently. The new literacies studies (see Barton and Hamilton, 2000; Gee, 2003; Kress, 2003; Knobel & Lankshear, 2007; Street, 1995; Willinsky, 1990) have shown us how digital literacies are almost always multimodal; hypertext documents are dense with images, sound, and text. It is easy to see videogames and web pages as multimodal, and that these reflect the world we live in and the new state of literacies in our society (see figure 3), but these studies also make evident the nature of 'old' literacies, such as writing this dissertation, which are also multimodal. It is rare that we ever engage in a single literacy, outside of school. When I write I always have a book at hand as I look up references, or distract myself; I use pictures to ground my thinking (though, oddly

enough, rarely do any end up in the papers I write) and I listen to music to help me focus as I write. It is only in school that we divide up literacies into separate parts (see Figure 4); maths, then reading, then writing, then social studies, then science, then phys. ed., then (if we have been good) art or music on Fridays (Berghoff et al., 2000). This pattern has been so ingrained into some of us it is



**Figure 4: Traditional approach to literacies understanding**

now the way we think we need to engage in literacies; we need absolute silence as we focus on reading a book (though even then this experience is typically multimodal as we create a 'movie in our heads' as we read). One only needs to watch young children to see how they use literacies as multimodal. The pictures that young children produce, sometimes accompanied by text, are stories to be told to anyone willing to listen; building in the blocks becomes a dance/drama with written invitation for friends. Children do not pay attention to the distinctions between different literacies which have been arbitrarily created by adults; they use them as needed, blending literacies for their own meaning making purpose.

When I discuss literacies as multiple I am referring to the fact that they are multimodal but also that literacies are multiple. In using the term multiple

literacies I am referring to the fact that there are more than one literacy and that literacies are locally and social determinant. Any literacy has different uses and meanings depending on the site and D/discourse group where it is being used (this will be discussed in more detail later in this chapter). Typically, when we use the term literacy we are referring to text-based literacies (i.e. reading and writing), but there are as many literacies as there are forms of symbolic communication: maths, science, dance, art, media, computer gaming, reading, writing, etc.

### Literacies as a Semiotic Process

We as human beings strive to make meaning and be understood. As was mentioned earlier, all literacies are sign systems. The term sign systems is derived from the field of Semiotics. Semiotics is an umbrella term used to represent a broad field of study (Nöth 1990, p.14) that includes the study of how people use, create and understand signs, that is the way we make meaning (Eco, 1976). As human beings, we are hardwired to make sense of and create meaning of the world in which we live. I am not saying that language or literacies are specifically premaped in the brain at or before birth, but that one of the primary functions we are born with is to make sense of the world around us. As such our understanding and creation of signs is always motivated to make meaning. Our motivated use of signs is considered by many to be one of the defining elements of our species (Chandler, 2001). Marcel Danesi (1999) has further refined this notion to state that our ability to preplan signs and then act on them is the defining element that makes us unique as a species.

Semiotics is a broad field with many definitions. It is considered by many to be an “architectonic discipline” (Berghoff & Harste, 2002) or a discipline “that covers the study of lots of things that “communicate” in some way” (Harste, personal communication 2007). My use and definition of semiotics is much more focused. I am using the term to specifically discuss the use of signs as communication systems; by signs I meaning anything we use to create meaning in the world, words, actions, objects, etc. but these things do not have meaning in and of themselves but only when we assign meaning to them (Chandler, 2001). The theorists I am relying on for my understanding of semiotics are Pierce (Chandler, 2001), Eco (1976), Derrida (1973), Berghoff (Berghoff & Harste, 2002; Berghoff et al., 2000; Berghoff, 1999; Berghoff & Cousin, 1998), and Danesi (2004; 1999; 1998). As such I am using the field of semiotics to help me understand the creation and understanding of signs in human culture and more specifically for my three children.

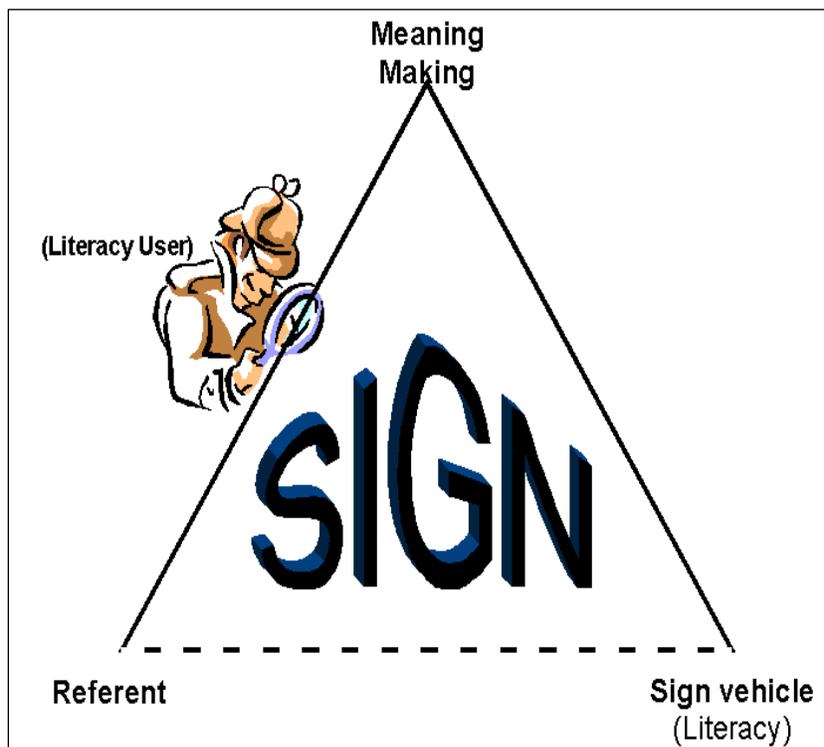
The signs we use are never quite exact and are created and understood using the referent, sign vehicle, and meaning making to make sense of signs. Semiotics refers to the cognitive processes we use to make sense of any sign as semiosis (Berghoff & Harste, 2002; Chandler, 2001). This is a complex, social and individually subjective process that for simplicity’s sake I am reducing to the term *meaning making*.

It is suggested by Derrida (1973) that as the interpretation of a sign is a cognitive act we never can have access to the original signifier, but only our understanding of the signifier. Even as the meaning creator, I never have access

to my own *true* meaning but only my understanding of that meaning. As I experience an object, the desk I am writing on for instance, I am experiencing my mental interpretation of the desk, not the desk itself, and even then I am only experiencing a specific perspective of the desk. Our reality then is not as concrete and fixed as we imagine it to be.

We create patterns and suppositions to fill in what we suppose ought to be, such as the underside and far edge of the desk I am working on right now. Signs are imprecise modes of communication, but through them we are able to make ourselves understood and understand others most of the time. Thus every interaction that we have with a sign requires an interpretation and that interpretation is never precise. We always understand a sign slightly differently than how it exists as a pure/exact signifier (Derrida, 1973) and also than how the originator of a sign

intended the sign to be understood, because all signs are mediated through our own experiences (see figure 5). The dotted line along the bottom of the diagram (see figure



**Figure 5: Semiotic Model -Adapted from Pierce as referred to in Eco, 1976**

5) reflects the imprecise nature between the referent and the sign vehicle used to convey meaning. The literacies user here is seen looking at the sign, but should be understood to be actively engaging with the referent, sign, and sign vehicle to make meaning.

Semiotics refers to all literacies (i.e. language, music, art, dance, maths, etc.) as sign systems, or ways of knowing (Berghoff, 1999; Berghoff et al., 2000; Berghoff & Harste, 2002). Each one of these systems is a way of knowing; each connected as meaning making processes, yet different from each other. It is for this reason I use literacies as plural instead of just expanding my definition of literacy to include reading, writing, maths, art, dance, etc.; each sign system is a distinct way of knowing (Berghoff et al., 2000; Burke, 2000); if they were not, there would be no need to distinguish them from each other. The way we know something or create meaning through music is different from the way we know the same thing through maths or writing. The concept of semiotics suggests that a sign, or symbol, does not transmit meaning, but prompts the individual to construct their own meaning (Berghoff, 1999; Berghoff & Cousin, 1998).

Each sign system is in fact a different way of knowing and creating. Sign systems have three attributes: they are a defined system, are comprised of interrelated subsystems, and generate unique types of meaning [in relation to other sign systems] (Burke, 2000). Each sign system is a defined system that is focused on process rather than product (Danesi, 2004; 1999). Sign systems give access to meaning but not necessarily the intended meaning itself. They have interrelated subsystems, or cueing systems (K. Goodman, 1967), which are

dependent upon each other for the creation of meaning; for example, reading has the subsystems of semantics, syntax, graphophonics, and pragmatics (Y. Goodman, Watson & Burke, 1987). Each subsystem is dependent on the others for the production of meaning, and the system fails to function with the loss of any one of the subsystems.

According to semiotic theory we are experiencing the world, or modelling what is around us, on three different levels (Danesi, 1998): a primary modeling system in which we use our bodies to learn and understand (Sumara, 1999), a secondary modeling system in which we use our minds, to understand, and a tertiary modeling system in which we use symbols to make meaning. It is this tertiary level that we often relate to reading and writing, while forgetting that we also relate to the world through the first two levels. It is true of all three modeling systems that we make meaning, and each sign system engages with these three modelling systems differently. We use these modelling systems to make meaning out of literacies. Our motivation in using literacies is to make meaning; this meaning is created with our bodies, language and symbols. Often this meaning making is done on all three levels, though we are usually only aware of the level being used primarily by the literacies we are using. In dance we are aware of the bodily movement of dance and the language of the music but rarely do we consider the symbolic nature of our dance, unless it challenges cultural norms. Videogames use all three levels in a very explicit manner (though admittedly the bodily interface usually requires little physical exertion).

In approaching literacies as a semiotic process the focus is on meaning;

not only specific meanings, but also the creation of meaning, and knowing; literacy that is tied to the creation of knowledge, and understanding as a process and not a product (Danesi, 1998). As each sign system creates knowledge in its own unique way, each sign system will position us differently in relation to our knowledge, allowing us to form new perspectives and causing us to reposition it differently. It is through this process, called transmediation (Harste, Woodward and Burke, 1984; Siegel, 1995), that we can make new connections, and see our own positions differently. Literacies as a semiotic process moves the concept of literacies beyond just reading and writing.

### Literacies as Social and Cultural Practice

Literacies are social and cultural activities. They are always social, in that they are socially motivated but also created within the bounds of specific cultural and social norms. The way we use literacies and what literacies we use differs and is dependent on the specific local context we are in. Different cultures and social groups use a specific set of literacies. These limitations and choices are then defined by the discourse group(s) one belongs to (Gee, 1996; 2000).

### Gee's D/discourse Theory

For Gee, Discourse with a capital <D>, is the sayings, doings, thinkings, feelings, and valuings within a specific group. Discourses can almost be thought of as specific 'clubs', in which there are certain rules which govern all aspects of a person's identity while they are members of that club. Discourses have five

defining points according to Gee: they are inherently ideological; are resistant to internal criticism and self-scrutiny; are incidentally related to the distribution of social power and hierarchical gestures and society; they own objects, concepts, viewpoints and values at the expense of others; and are defined positions from which to speak and behave. We each have a primary Discourse, the Discourse we are born into (through our families)<sup>1</sup>, and a secondary discourse, which we learn in order to interact with groups outside of our immediate community. This secondary discourse is typically an institutional discourse, or one that we learn at school or church. There are also dominant D/discourses and subjugated D/discourses.

Dominant discourses are those that are used by the group which has access to power or, as Gee terms it, 'social goods' (like status, worth and material goods). Subjugated discourses are those which are othered by the dominant discourse. For many people their secondary discourse often conflicts seriously with their primary Discourse; this is especially so when a person's primary Discourse is a subjugated discourse. Thinking about these discourses much like clubs, they have tacit rules about who is a member and who is not. These rules are constantly tested to decide who is an insider, who is an outsider, and who is colonized. A person who is colonized is a language user who has just enough access to a discourse to signal that he/she is not a full member of the discourse, and as such that person acts to reaffirm those in the dominant discourse, resulting in what we commonly term as hegemony.

The way I use D/discourse theory builds on primary and secondary, and

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<sup>1</sup> Primary Discourses are signified by the use of the <D> and all other discourses use <d>.

dominant and subjugated discourses. I see that there are many more layers to discourse; there are discourses which are embedded within discourses. Within any discourse there are multiple layers and gaining access to one layer of a discourse does not guarantee access to the other layers. An example of this would be access to the discourse of engineering; one gains access to engineering through the apprenticeship of the University but this does not mean that you have access to the discourse of electrical, mechanical, systems, or civil engineers. Each of these specific discourses have their own ways of saying, doing, feeling, thinking, and valuing, which are similar to the other discourses of this profession, but are at the same time quite different. A civil engineer would not last long in a technical discussion about electrical engineering; in the same way these two groups also behave differently when in a group, even in social settings, as can readily be observed on any university campus. As such, I would argue that there are at least tertiary discourses, if not more.

Becoming literate for Gee, then, is the critical acquisition of a secondary discourse to such a degree that one can critique both one's own primary Discourse and the secondary discourse; for, remember, inherent to any D/discourse is its own resistance to critique of itself. As such the language used in discourses does not just communicate information but also feelings, values, and thinking, and ultimately defines a person's identity. For a person to be fully fluent in a discourse it has to become subconscious so they no longer think about it. This leads to another problem, for if by definition a person who is an expert in a language, or discourse, no longer is meta-cognizant of how they use that

language, how can a language be explicitly taught? Additionally, anytime a language is learned, whether it is oral or written, a specific discourse is also being taught and valued. So the learning of a language or literacies now becomes incredibly complex, for it can no longer be thought of as just learning a language but it is the learning of a specific discourse.

This naturally leads to the question of how can one teach without colonizing or alienating our students if once we have mastered a discourse we are no longer meta-cognizant of its nuances, making the discourse impossible to teach explicitly? Gee suggests that language, or a particular discourse, can only be "taught" effectively through apprenticeship. The only way to enter into an apprenticeship relationship is when both parties truly accept and celebrate each other's primary Discourse. It is through apprenticeship that the primary Discourse is learned in the home. It is impossible to explicitly teach any D/discourse effectively since it is an impossibility to explicitly teach all the nuances of a discourse.

Gee argues that literacies can be used as a tool to empower subjugated discourses so that they can influence the dominant discourses and ultimately alter them. Like Freire (1970/1995), Gee believes that literacies only empower when people become active questioners of the social reality around them. The way this happens is through the teaching and learning of secondary discourses through a critical lens. This teaching is done through apprenticeship, but apprenticeships that are tacit and critical of both the primary and secondary D/discourses.

In Gee's vision of literacy we must reconsider all that we believe about what it is, and how it is learned. We must view literacies as multiple and social. We can no longer talk about literacy as just reading and writing, for any time we are talking about literacy we are also talking about a particular way of saying, doing, thinking, feeling, and valuing of a specific group. As such anytime anyone learns a language or literacy, s/he is also learning a discourse.

Therefore, for Gee the literacies uses and understandings of my children is also heavily influenced and embedded with specific discourses and to understand these I also needed to examine our primary Discourses used at home, secondary and tertiary discourses used in the many social settings the children engage in, and also the dominant discourses within our societies.

This was an extremely complicated task as we lived in many cities and two countries during the time period of this study. My understanding of the children's literacies use and understanding became incredibly complex. Our family Discourses are relatively stable but can only be examined in a superficial manner, as most practices are tacit and therefore difficult to examine; secondary discourses were in flux as they changed when we moved, the discourses found at church, school, the YMCA, and various other community based centres changed from place to place; the dominant discourse changed as we moved from Canada to the United States of America and back to Canada.

Some of the social practices Christine and I used in our home that facilitate literacies were examined because they were explicit choices which we were constantly negotiating and working on to put into practice, but the tacit

practices and beliefs at work in our home needed close analysis to be seen and understood; even then it is likely that many of these practices went unnoticed and unanalyzed.

One of the more obvious practices that supported literacies in our home was the intentional valuing of all literacies attempts by our children; Christine and I valued attempts at symbolic meaning making as a literacy and not as a precursor to something else. We emphasized and focused on the meaning being made either by Tristan, Emily, or Simon, not accuracy or convention. Meaning making was then seen by the children as something that we valued and as such something our children came to understand as important.

We also saturated our home with literacies. We used our dining room as an art/writing/reading centre, and made a point of keeping and displaying much of the children's work. All of the children took dance lessons, swimming lessons, engaged in at least one sport, and there were various musical instruments found throughout the house, though Emily is the only one who chose to take formal music lessons during this study. There was a large space, usually the basement or living room, dedicated for the children's play. We had many costumes, props and toys specifically to encourage the children's dramatic play.

Our house was also saturated with books. Christine and I intentionally placed the children's large library, comprised of a large variety of fiction and non-fiction texts in various formats, throughout the house and books could be found in almost every room. Christine took the children to the library multiple times a week and each child had their own library card. Christine is an avid reader and read

whenever she had free time, often reading where the children could see her and she read to/with the children multiple times in a day. She also edited several newsletters so the children often saw her writing on paper and on the computer. I, as a consequence of my jobs as a kindergarten teacher, graduate student, and university instructor, was constantly reading and writing and made a conscious choice to do this often within sight of the children. I also read bedtime stories to each of the children most nights. These are some of the more obvious practices employed in our home but these will be explored in greater detail in other chapters to unpack some of the tacit sayings, doings, thinkings, feelings, and valuings within our family Discourse.

### Literacies as Critical

The children have used literacies in a way that is best described through a critical literacies framework. The approach that Christine and I had when discussing literacies with Emily, Tristan, and Simon can also be understood through this framework. In critical literacies the social world of children is the context for literacies use, learning, and understanding (Vasquez, 2004). As such, it deals with key issues in the children's lives and allows them to see literacies as empowering. Literacies are inherently social, cultural and political.

At the core of literacies are their use, learning, and teaching which are always political acts (Freire, 1970/1995; Shannon, 1998; Taylor, 1998); as such they are critical in their nature. Any literate act either works to support the dominant discourse or acts to broaden, or undermine, that discourse (Gee, 1996,

2000). It works either to reinforce or resist hegemonic structures present within the culture in which it is produced (Cherryholmes, 1988); this is the case for subjugated discourses as well as the dominant discourse within a culture. Critical literacies (Comber & Kalmer, 1997; Luke & Freebody, 1997; Vasquez, 2004) treats the language of any discourse group or institutional discourse as arbitrary, and values the language, discourses and literacies children use, not only using the child's lived experiences, but validating them. Using critical literacies as a lens, we interrogate the discourses we use across lines of culture, gender, race, class, and power. As such, my analysis of the data also looked closely at issues of power as did the definition of literacies that emerged out of that examination. Critical literacy theorists also treat literacies as specific sets of locally situated social practice (Barton, Hamilton & Ivanil, 2000; Comber & Kalmer, 1997; Street, 1995). It was the way that we used literacies and the practices we had as a family that were the focus as I considered literacies through this lens.

We as a family often use books and literacies activities as a springboard for dialogue (Shannon, 2002; Vasquez, 2004), helping the children to become conscious, not only of how they act upon texts (Rosenblatt, 1989), but of how texts act upon them (Simpson, 1996). Not only did we read books and engage in literate activities with our children, but these often dealt with issues that were affecting the lives of the children in critical ways (Leland et al, 1999) and led to deep conversations. These discussions engaged the lived experiences of the children and were as such inherently meaningful, and at the same time usually examined critically the world around us. These discussions often led to acts of

social justice, effecting change in the life of our family and community. Through these experiences the children's interest in literacies have been furthered and they have developed a desire to use literacies in meaningful ways.

### Literacies as Multiple

Within Gee's D/discourse theory literacies are created within a particular discourse and are influenced by normative factors set out in that discourse, the dominant discourse, and the intended audience which may be trying to access the meaning of the sign from yet another discourse. Thus there are multiple discourse layers embedded within any generated sign and that sign is interpreted differently by members of different discourses. For example graffiti may be considered destruction of property by one discourse, art by another, statement by another, territory marker by another, or a provocation by yet another discourse group.

This is not to say that it could not be more than one of these things to any one discourse group or interpreter of the sign, but that different discourses will understand and create the same sign differently. This is the basic underlying principal to how literacies as multiple is currently used and understood. There are different literacies in different discourse groups, these literacies are valued differently within different groups, and each discourse group has different literacies practices (Heath, 1983; Taylor, 1997).

When I use the term multiple literacies though, I am expanding this definition of multiple literacies to include the concept of specific literacies as

being multiple, not just the practices and meanings. All sign systems have similar underlying processes and should be considered literacies. All these systems use symbolic representation to create meaning. Each carries its own set of patterns and practices, and is used differently by different discourses. Thus literacies are multiple in that they are comprised of more literacies than linguistic literacy and literacies are multiple in their use and understanding across discourse use and specific settings.

### Literacies as Social

The implication suggested by both discourse theory and semiotics is that literacies are always socially constructed and understood. In fact some semioticians prefer to use the term socio-semiotics (Berghoff & Harste, 2002) to better define semiotics as a social structural phenomenon. Signs are created and interpreted within a social context and social purposes. They are either the expression of meaning or the interpretation of meaning; engaging the concept that our ideas, emotions and experiences can be transmitted beyond ourselves, and beyond the moment. Literacies would not have developed as a human construct had there only been one human (Gee, 1996; K. Goodman, 1996). They are always used as an act of communication, either with others or with ourselves, through language as a medium. The way in which meaning is constructed is not only defined by the medium (McLuhan, 1964/1994), but also by the groups one affiliates with. None of us lives or learns in a vacuum, but within a certain set of D/discourses. As such the children are learning and responding from each other

and to Christine and me, not to mention friends, family members, media, and members of the various groups we interact with.

It is this social nature of literacies that makes it impossible to define without also talking about its use. For example writing is a semiotic process whereby meaning is constructed through the transaction between author, audience, reader, and text (Rosenblatt, 1989). It is through this transaction that meaning is created, and only once this transaction occurs. Without some level of interpretation there can be no meaning. All meaning is socially constructed: it is created from the history a person brings with them when they use a particular literacy, and socially constructed through its use. To understand the meaning someone else is trying to convey, or to be understood ourselves, requires that our meanings are to some degree agreed upon by the discourse group we are part of or trying to communicate with; for it is only the meanings which are agreed upon which are useful (Fleck, 1979). These meanings will shift and be different depending upon the community in practice from which they are used (Wenger, 1998), and are closely associated with particular discourses (Gee, 1996).

In our family we read every night. This reading values reading out-loud over silent reading, specific types of texts and content; it is a time where the children and Christine and I expect to interrupt the reading and discuss it, commenting on text or making connections to our lives. As another example, it surprises many to learn that we generally did not read nursery rhymes and fairytales in our family; this is largely because of the portrayal of women and the violence in these tales. We are valuing a family norm, of non-violence and

valuing women/girls as strong and valuable, over the dominant discourse norm that states that children need the shared knowledge of fairytales to be fully literate (Bennet, 1995).

The way in which literacies are used, or not used, signifies the user as a member of a particular group (Gee, 1996). This goes beyond accent, gestures, language, and word usage, but also defines how meaning is constructed. Epistemology and etymology are not universal, but D/discourse dependant, and thus it is the community of practice which defines what meaning can be derived from a particular literate act. It is for this reason that I can talk about literacies as including music, drama, dance, maths, art, reading, writing, speech, listening or anything else we can use to symbolically convey meaning, and other groups define literacies as reading and writing (and maybe art for young children), while still others would reject my use of the word literacies instead of literacy. How literacy is defined greatly influences how one sees literacies, for the theorist as well as for the literacy user. Regardless of how literacies are defined and viewed they are the way in which we communicate with each other. Literacies are social, and as such they are complex.

### Literacies as Complex Systems

I understand literacies as a complex system and as such I am also using knowledge from the field of complex systems (see Camazine, 2003; Heylighen, Bollen, & Riegler, 1999; Wolfram, 1988) to get a better understanding. Literacies are irreducibly complex and to understand them the interactions among the

subunits, or cueing systems and other factors which influence literacies, must be taken into account as a whole. The field of complex systems argues that many complex, seemingly random, patterns found in nature can be easily understood and are often defined by a subset of simple rules, when considered as a whole and complete system, that leads to self-organization. As literacies are a complex system, the analysis of any one of the subset systems will give little information about or allow reproduction of the system because the patterns, or in this case meanings, are only created in the interaction between subsystems.

Those processes are characterized by simple "rules" that depend solely on local interactions among the subunits of the system.

Yet despite their simplicity and the local range of their immediate effects, the rules and their actions on the subunits give rise to the spontaneous emergence of pattern, order, and structure on a global, system-wide scale... The patterns that arise are emergent properties, properties that cannot be predicted simply by examining the subunits in isolation. To understand them, the dynamic and often remarkably complex interactions among the subunits must be taken into account (Camazine, 2003, p.39).

I have come to a better understanding of literacies through the use of complex systems to help me understand how my children are learning, using and understanding literacies. Complex systems have several features which I believe describe literacies. All complex systems have certain features that apply to and help explain literacies, in their use, understanding and learning. In attempting to

analyze the whole of literacies for my children I hope to be able to see the complex interactions among its subunits and better understand literacies as a process. We need to think of literacies as complex while simultaneously treating literacies as multimodal, semiotic, social, discourse dependant, and imbedded in specific practices.

People are complex. Literacies are complex. Theories need to simplify this complexity so that we can understand them and use them, but simple theories obscure this complexity. Theories are necessary so that we can understand the subject in question, but I believe we often see only the theory and forget the complexity the theory is trying to describe. We should always try to adopt the theory which is the most complex yet is still practical. We need to take a close look at the interactions between the subunits that make up a literacies event, looking beyond the subunits themselves and grappling with the complexity inherent in literacies and the meaning making process.

### Summary

Literacies are multimodal, semiotic and motivated; they involve specific social and cultural practices, and these practices are different depending on site, community, and time; they are social; and they are complex. The definition of literacy needs to be expanded to include all literacies: art, dance, reading, writing, maths, science, videogaming, etc. We need to start to deal with literacies as a complex system.