

Metacognition and Multimodal Literacy: Adolescents Constructing  
Meaning from Multimodal Texts

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Department of Secondary Education  
University of Alberta

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## Abstract

Conventional wisdom holds that adolescents are somehow naturally adroit at the selection, navigation, consumption, and creation of online texts; that they are more likely to be engaged by multimodal and online texts than by printed material. School boards and the teaching profession are heavily invested in rhetorical celebrations of such technology as a means to improve student achievement based on assumptions about how teens read multimodal, online texts. This study explores how young people aged 12-18 engage with online multimodal texts, both familiar texts of their own choosing and novel titles presented by the researcher. Specifically, this study aims to understand which metacognitive strategies study participants demonstrated during three successive online reading sessions. To this end, this study undertook to answer the following research questions. *What is the level of metacognitive awareness exhibited by youth while engaging with multimodal texts? Which traditional print reading practices are identifiable in participants' reports of their metacognitive strategies? Which metacognitive skills are exhibited by young people while exploring "the semiotic landscape" (Kress & Van Leeuwen, 2005, p. 16)?* The research questions aim to shed light on how adolescents employ metacognitive awareness, knowledge, and control in their construction of subjective socially and culturally mediated meaning. Are adolescents effectively engaging with these texts? Are these texts helping or hindering student learning? A secondary interest pertains to the pedagogical environment in which students engage with online multimodal texts. Data generation occurred through think-aloud sessions. Data analysis was conducted through the 11-process Metacognitive Process Inventory (MPI) (Block, 2005). Results suggest that young people demonstrate confidence and metacognitive engagement with familiar online texts that often challenge traditional print literacy strategies. Nevertheless, their critical metacognitive

skills become less effective when they are presented with novel online multimodal texts. Participants also reported strong relationships with print reading that informed their online reading habits. A secondary focus of the study pertains to the experiences of participants while at school and the environment in which multimodal online reading is conducted in Alberta classrooms in the early 21<sup>st</sup> century.

Keywords: multimodal literacy, metacognition, online reading, classroom technology

## **Preface**

This thesis is an original work by Margaret Ann Shane. No part of this thesis has been previously published. The research project of which this thesis is a part received research ethics approval from the University of Alberta Ethics Board, Project name ADOLESCENTS' MULTIMEDIA LITERACY AND METACOGNITION, No. Pro00053798. This study was supported by a grant from the Social Sciences and Humanities Research Council (SHHRC) of Canada.

## Acknowledgments

I am at a loss to convey adequately my gratitude to my academic advisors Dr. Margaret Mackey of the School of Library and Information Studies and Dr. Jason Wallin of the Department of Secondary Education, both of the University of Alberta. Many thanks are due also to all the members of my candidacy and final defence committees including Drs. Elaine Simmt (Chair), Tami Oliphant, David Lewkowich, and Jan Jagodzinski, all of the University of Alberta Department of Secondary Education, and Dr. Jackie Marsh of the University of Sheffield School of Education. I must also gratefully acknowledge the support of the entire faculty, staff, and students of the University of Alberta's School of Library and Information Studies including Drs. Anna Altmann and Toni Samek. A debt of gratitude is owed also to the public school teachers of Alberta and The Alberta Teachers' Association for affording me a sabbatical to pursue this work. Deep and abiding love and thanks go out to my sisters, Anna Desrosiers and Mary Golab, my mother Patricia Shane, my son Patrick Cariou, and a dedicated cadre of supportive colleagues and friends. Most especially, I must celebrate with my deepest thanks and love the contributions of my husband Shaun Cariou to the completion of this work. Thank you, Husband, for your support, humour, generosity of spirit, wise counsel, and boundless patience in this and in all things.

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## Chapter 1 – Introduction

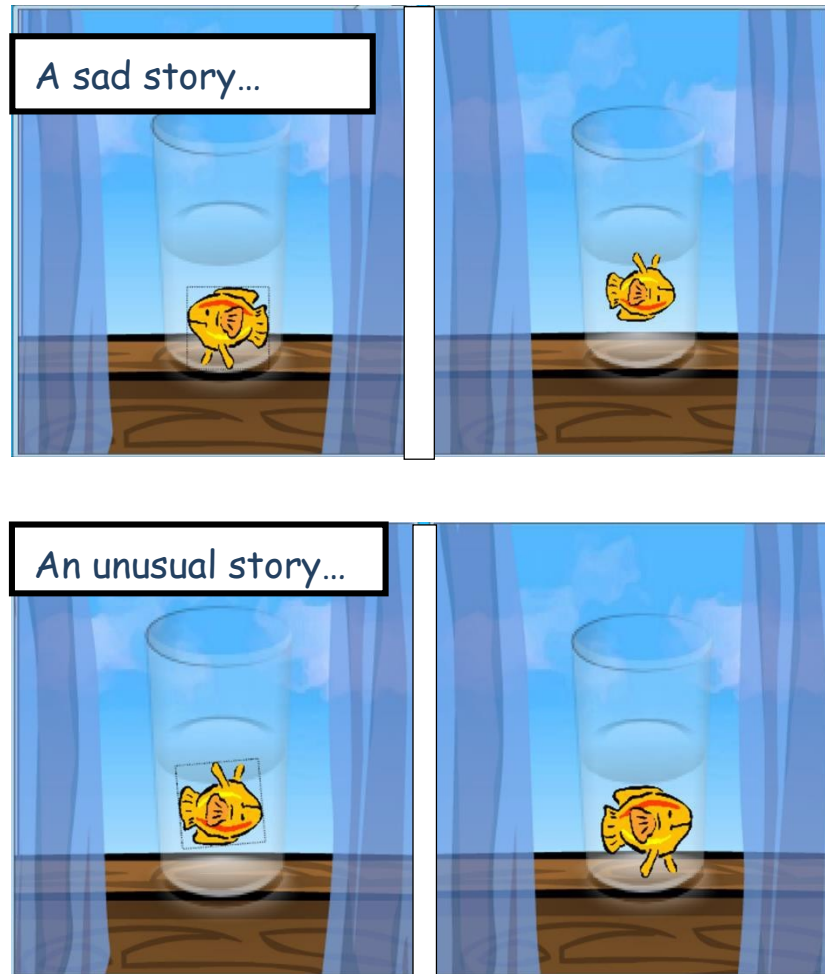


Figure 1.1 Opening cartoon (Shane, 2019).

How do readers bridge the space between the panels shown in Figure 1.1? Which resources, cues, conventions, and processes support the interpretive effort demanded by this meaning-making endeavour? Do readers springboard off the minimal printed text? The sequence of images? How do influences of culture, language, socio-economics, and visual design act upon readers' construction of meaning? How does the reader synthesize *aboutness* from the multiple representational modes (modalities) conveyed by the images alone, the printed text alone, and/or

the relationship between the two? Which modality might be primary and which secondary? Is the space between the panels, in fact, empty? Or is it alive with intertextual vibrations, readers' expectations, remediations, conventions, and representations? The cartoon invites readers to construct meaning using the visual conventions of the contemporary comic book, specifically the temporal progress of the image (McLeod, 1994). Modalities are dynamic even within the confines of established convention. They can work in concert or in opposition to each other in any given instance, either *inter-textually* or *intra-textually*, challenging, hindering, supporting or enriching readers' meaning making in innumerable and surprising ways (see Davis & Neitzel, 2012 for a discussion of collaborative meaning making).

*Betweenness*, the mystery of interstitial spaces, also informs my research interests. While my fascination with multimodal literacy lies between the panels, my interest in metacognition lies between the reader's ears. The goal is to understand readers' meaning-making processes and how readers bring into effective and executive action their subjective knowledge, awareness, and control over their own cognition. How do readers employ these skills in constructing meaning from complex multimodal texts? The challenge was to devise a research plan that elucidated the interplay between basic semiotic decoding and higher-level metacognitive knowledge, awareness, and control in adolescents engaged with digital, online multimodal texts. Multimodal texts are pervasive in Alberta classrooms accruing increasing influence and emphasis in reading acquisition, literacy instruction, and language arts. In addition, work in metacognition and learning continues to inform pedagogical practice and research. In this study, metacognitive theories are theories about cognition (Schraw & Moshman, 1995). This research is an exploratory study concerning instances of metacognitive awareness and skill reported by youth aged 12 to 18 years while engaged with online multimodal texts. The research aims to improve

our understanding of young people's cognition germane to the decoding, navigating, and meaning making of online multimodal texts. The metacognition under consideration is young people's ability to reflect upon, understand, and control those cognitive processes (Schraw & Dennison, 1994) in a saturated media-sphere that bombards them with content from sophisticated and ubiquitous sources (Potter, 2013, pp. 3-4).

### **The Researcher's *Weltbild* – Understanding of the World**

My early life passed in a state hyper-alertness likely familiar to other adult children of alcoholics. Much time passed in scanning the emotional and physical environment for potential threats, devising coping strategies, and holding myself in readiness to react. Reading signs became my *moda vida* because correct interpretation of that uncertain environment was key to survival. Books were lifeboats and I became a voracious and precocious reader with unsupervised and early access to adult content, ideas, and knowledge. I grew up bookish and academic. My internal, meaning-making, sign-reading dialogue emerged as avowedly skeptical by early adolescence. In high school and eventually university, I operated as an obsessively committed student enthralled by the newness and seemingly obvious interconnectivity of everything. My undergraduate studies, while thrilling, were unfocused and arcane. The activity of learning, the striving, and the understanding, were paramount. The specific subject was secondary. Such an approach accrued university course credits easily enough, but impeded my forming any serious commitment to a given discipline, perspective, tradition, or content area. Undergraduate academic success afforded me many options but my desire to go on swimming in interdisciplinary waters remained insistent and determinative. So I landed on the steps of the library school where I could be anything and everything continually and always (for about ten minutes at a time; the length of the average reference question).

Through library studies, I encountered new and exciting ideas about literacy, and specifically multimodal literacy, as complex and idiosyncratic. It was my first taste of the power of deconstruction and semiotics. I became fascinated with readers' meaning-making apparatuses and processes. Once I was off on the theory adventure, it was an easy tumble into philosophy and radical (the more radical the better) approaches to reality, the psyche, the irrational, representation, and subjectivity. My quest to understand meaning making in multimodal literacy endures. In graduate school, I came to accept that my research interests would likely be interdisciplinary and open.

My self-view of myself as a researcher is shaped by a deep appreciation for the accident of birth that affords me the privileged position of participating in the academy. At the same time, I also understand that graduate school is but one path to learning and contributing. My goal is to identify and replace systems that perpetuate violence upon the fulfillment of human potential. I see my research into meaning-making (in the present study) expanding into investigations into present conditions in public education and how those circumstances hinder student achievement, teacher retention, and the quality of life within school communities. What follows is a discussion of three tributaries flowing into the study's ecosystem: 1) reflections on, and commitments to the world; 2) ideologies and investments; and 3) intersections.

### *Reflections on and Commitments to the World*

Reading has been the root of my lifelong interest in exploring the inter-connective flux of ideas, artifacts, processes, ideologies, symbols, and systems. In 2001, while pursuing graduate work in librarianship, I came to understand reading's semiotic, aesthetic, intertextual, and ontological complexity through a close examination of Pixar Animation Studio's *Toy Story* (Arnold, 1995). How did young people make sense of such a text? How did the work circulate

and operate in a culture of consumption? What did the various adaptations and remediations of *Toy Story* - film, picture books, toys (so many toys), and other merchandise— *do*? How did these iterations of *Toy Story*'s text operate in what Rosenblatt (1938, 1978) termed the transactional exchange between the interpreter and the text and what Marsh and Bishop (2013) termed the “commercial culture”? Those interests inform this study exploring multimodal literacy and metacognition during adolescents' active engagement with polysemous online digital texts.

### *Ideologies and Investments*

Recent scholarship suggests a positive relationship between heightened metacognitive skill and improved student learning (Ozcan, 2014; Ocak & Yamac, 2013; Zimmerman & Schunk, 2001; Hartman, 2002; Hennessey, 2003; Mevarech & Kramarski, 2003; Wolters, 2004; Kriewaldt, 2006; Vrugt & Oort, 2008; Ozsoy, Memis & Temus, 2009; and Rahman, *et al.*, 2010). Deeper understanding of the relationship between metacognition and multimodal literacy has the potential to transform classroom practices, empower students across curricula, and encourage reconsideration of what it means to be literate and educated. Moreover, multimodal texts continue to proliferate and assert themselves ever earlier in young people's lives. In fact, various researchers over the last three decades have explored how improved metacognitive skill in students improves outcomes and learning (Pressley, Borkowski, & Scheider, 1987; Halpern, 1996; Nietfeld & Shraw, 2002; Thiede, Anderson, & Therriault, 2003; Thiede, *et al.*, 2009; Baker, 2008). As Garner (1987) writes, “young children and poor readers know less and have more misconceptions about important characteristics of cognition than do other children and good readers, respectively” (p. 67). van Kraayenoord's (2010) meta-analysis of recent research is an important resource in establishing the relationship between reading comprehension and metacognitive skill.



In homes and schools where children have access to multimodal texts, the rate of change is accelerating and affecting ever younger children, as babies and their parents discover that some digital forms call for less manual dexterity than turning book pages. The cognitive capacities of young children are remarkable, and new formats and tools may be actively designed to be baby-friendly. Even very young children register that they inhabit a world of representations (Mackey & Shane, 2013).

### *Intersections*

In this section, I will address the following intersecting categories: 1) intertextuality; 2) the hypertextual; and 3) remediation. Intertextuality is among the strongest and most versatile theoretical stream informing this research. Research focused on contemporary multimodal texts, such as O'Halloran, *et al* (2013), (digital or otherwise) invites consideration of semiotics and intertextuality. Graham Allen (2011) makes the salient argument that a reader arriving at their interpreted meaning of a text does so through their experience with antecedent texts. As touched upon above, Saussure also relates to intertextuality. For Saussure (1959) the classic sign consists of a *signifier* and the *signified*. Saussure (1959) explained the primacy of differential language in semiological thought in the *Course in General Linguistics*. He writes:

Everything that has been said up to this point boils down to this: in language there are only differences. Even more important: a difference generally implies positive terms between which the difference is set up; but in language there are only differences without positive terms. Whether we take the signified or the signifier, language has neither ideas nor sounds that existed before the linguistic system, but only conceptual and phonic difference that have issued from the system (p. 120).

Allen (2011) reminds us that Saussurean signs accrue their meaning only in relation to, and interaction with, other signs; no sign possesses a single, inherent, stable and unified meaning (p. 10). Saussure's influence, and the tradition of structuralism it inspired, are inescapable to anyone interested in better understanding how human beings determine meaning from any text. Saussure's models of semiology and linguistics underpins structuralism, which is further imbricated with contemporary theories of intertextuality. What resulted was a revolution in seeing the world in terms of sign systems with emphasis on the reader's local social, cultural, and psychological aspects of meaning making. Major theorists including Bakhtin (1981), Kristeva (1980), Barthes (1968, 1974, 1975, 1978, & 1981), and Derrida (2001) took up the matter of semiotics and intertextuality and wrested meaning away from traditional notions of a text's stable, unified meaning flowing from author to reader through a fixed, closed, and isolated text. These theorists elevated the reader as a creative agent in the dialogic production of profoundly unstable meanings that shift according to cultural, social, historical, and psychological currents. Barthes (1968) famously announced the "death of the author" in these terms:

We know now that a text is not a line of words releasing a single 'theological' meaning (the 'message' of the Author-God) but a multi-dimensional space in which a variety of writings, none of them original, blend and clash. The text is a tissue of quotations drawn from the innumerable centers of culture...the writer can only imitate a gesture that is always anterior, never original. His only power is to mix writings, to counter the ones with the others, in such a way as never to rest on any one of them. Did he wish to express himself, he ought at least to know that the inner 'thing' he thinks to 'translate' is only a ready-formed dictionary, its words only explainable through other words and so on indefinitely (p. 188).

I cannot, however, entirely abandon an author's communicative intent despite the influential arguments of adherents of New Criticism (Wimsatt & Beardsley, 1946). The fact is that a work exists to communicate something to someone even if that someone is the author. Moreover, in the multimodal texts examined for this study, authorial / designer intent is important at least in responding to the navigational cues required to engage with the online text. Nevertheless, I relegate authorial intent to relatively slight importance in this present study. The study is better informed by Barthes' notion of the shifting and unstable text.

Barthes affords us an early articulation of an intertextual view of language and reading: (Allen, 2011, p.14) the nature of communication is dialogic (be it spoken, written, or visual), and all utterances and expressions relate to all others. All utterances – past, present, and future – are interconnected and therefore the reader's cognitive, symbolic, and metacognitive interpretive load is foregrounded. Moreover, interpretation and the reader's choices in their construction of meaning are implicated in discourses of agency, access, and power (Charles, 2012). No text is ever neutral. As Allen (2011) writes:

The text is a practice and a productivity, its intertextual status represents its structuration of words and utterances that existed before, will go on after the moment of utterance, and so, are, in Bakhtin's terms 'double-voiced'. If texts are made up of bits and pieces of the social text, then the on-going ideological struggles and tensions which characterize language and discourse in society will continue to reverberate in the text itself. This is what Kristeva means by the words 'practice' and 'productivity'. Texts do not present clear and stable meanings; they embody society's conflict over the meaning of words (pp. 35-36).

The perception of a single, unified, fixed and closed textual meaning (an illusion historically perpetuated by the physicality of the print-bound monograph) is precisely what Barthes (1968, 1975) and others resist.

Barthes inverts the traditional definitions of *text* and *work* in a way foundational to this study. After Barthes (1981), *work* comes to mean stable, closed, meaning-conveying content; whereas *text* comes to represent the “radically plural” (1978, p. 159): the explosion of meanings produced by the socially and culturally situated reader free to explore the untethered text and its slippery semiotics. A note of caution, however, comes from Allen (2011), who explains that plurality is not merely the quality of multiple meanings:

To have several meanings is merely to exhibit an ambiguity, which, because each meaning involved in the ambiguity remains identifiable, ultimately can be resolved. The plural meaning of the text involves the play of signifiers, always leading on to other signifiers and the ‘trace’ (Derrida’s term) of signifying chains which disrupt and infinitely defer the meaning of each signifier. Every text depends on a language with which is inscribed vast histories of meaning (p. 64).

To be clear, theories of intertextuality reject the search for a text’s direct antecedents and sources, and attempts to divine a text’s singular meaning. Barthes, and others, instead emphasize the reader as the active generator of plural, intertextual meaning beginning with the perceived intention of the text. Barthes (1968) deposes the “author-god” (p. 188) and demotes that author to the mere sponsor or promoter of the bounded work. Readers are not the author’s ‘confidante’ but active agents constructing meaning from a text that is itself a creation out of the already-written and the already-read (Allen, 2001, p. 70). Barthes (1968) makes this point explicit:

...a text is made of multiple meanings, drawn from many cultures and entering into mutual relations of dialogue, parody, contestation, but there is one place where this multiplicity is focused, and that place is the reader, not as was hitherto said, the author. The reader is the space on which all the quotations that make up a writing are inscribed without any of them being lost; a text's unity lies not in its origin but in its destination (p. 189).

Barthes places texts in perpetual cycles of re-interpretation (Barthes' *déjà*) (Allen, 2001).

Consider how Barthes' emphasis on re-interpretation resonates when dealing with the highly viscous, instantly changeable online texts constituted on the World Wide Web. The printed text is perceived to be fixed and digital texts are perceived to be in flux.

...the printed page is the only place where words do have a rest. Everywhere else, they are moving: when you speak, when you see them on a screen, when you see them on the Net, words are moving. But a book is a restful place. The printed word is, and always was, still (de Kerckhove 1997, p.107).

However, no text, regardless of mode or format, remains in actual physical stasis. Digital texts corrupt in their code or through electron migration through spooled magnetic tape. Printed texts rot or fall to acidic dust.

## Chapter 2 – The Story of the Study

This chapter tells the story of the study and lays out the research route and experience (Gastalado, 2015). What follows is a summary of those elements supporting critical review of the study's data generation, interpretation, and results together with a discussion of the study's strengths and limitations.

### Framing the Study

This research is an exploratory study to investigate the level of metacognitive awareness and skill reported by youths aged 12 to 18 years while they are engaged with online multimodal texts. The research aims to improve our understanding of young people's metacognition while they work to construct meaning through online multimodal texts. Qualitative approaches best address research questions aimed at young peoples' strategies for constructing meaning from both familiar and novel online, multimodal texts. The metacognition under consideration is young people's ability to reflect upon, understand, and control those cognitive processes (Schraw & Dennison, 1994) in a saturated media-sphere bombarding them with content from sophisticated and ubiquitous sources (Potter, 2013, pp. 4-5). What follows relies upon a specific definition of *text* beyond the familiar, everyday sense of the word as opposed to print (e.g. images or audio). This study employs the term *text* in a more expansive technical sense related to theories of semiotics and intertextuality. Chandler (2002) explains that a text, in the present sense:

...can exist in any medium and may be verbal, non-verbal, or both, despite the logocentric bias of this distinction. The term text usually refers to a message, which has been recorded in some way... that it is physically independent of its sender or receiver. A text is an assemblage of signs (such as words, images, sounds and/or gestures) constructed (and interpreted) with a reference to the conventions associated with a genre

and in a particular medium of communication (p. 2). It remains to identify the research questions. What insights might emerge from a better understanding of adolescents' metacognitive awareness, knowledge, and control articulated during their active engagement with both informational and aesthetic multimodal texts?

## **Research Questions**

1.0 What is the nature of metacognitive awareness exhibited by youth while engaging with multimodal texts?

1.1 Which traditional print reading practices are identifiable in participants' reports of their metacognitive strategies?

1.2 Which metacognitive skills are exhibited by young people while exploring "the semiotic landscape" (Kress & Van Leeuwen, 2005, p. 16)?

The research questions aim to advance our understanding of how adolescents are employing metacognitive awareness, knowledge, and control in their construction of subjective socially and culturally mediated meaning. Are adolescents effectively engaging with these texts? Are these texts helping or hindering their learning at school? A secondary interest pertains to the pedagogical environment in which students are expected and directed to engage with online multimodal texts.

### ***Cui Bono? Who benefits? The rationale for the study.***

Many stakeholders invested in literacy, metacognition, and visual communications, including students, teachers, parents, librarians, curriculum developers, and researchers, will benefit from improved understanding of young people's application of metacognitive skills while constructing meaning of online multimodal texts. Multimodal texts are becoming standard elements of contemporary curriculum planning and assessment models. A concern over print-

literate students' (age 12 to 18) relative ability to employ metacognitive awareness, control, and skills across the curriculum is the foundation for this study.

In 1976, developmental psychologist John Flavell first proposed the concept of "metacognition," defining it as:

...one's knowledge concerning one's own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact (p. 232).

By 1979, Flavell had pioneered a model of metacognition based on an individual's personal and task knowledge (cognitive knowledge), strategy knowledge (cognitive knowledge), and cognitive experiences (cognitive regulation). Those new to metacognition will note Flavell's liberal use of the term "cognitive" in his definition. Metacognition ("meta" being the Greek prefix for "above") must rise higher than *something*. That something is cognition. It is, however, easier to maintain the distinction between cognition and metacognition on paper than in practice. For example, Bloom's taxonomy (1956), describes cognitive processes (Thomas, 2012): synthesis, evaluation, analysis, application, comprehension, and knowledge (Huitt, 2011). Cognition is foundational to much research related to literacy and multimodal literacies in particular.

When considering literacies in three dimensions, diSessa (2000) gives due attention to cognitive, material, and social considerations. She writes:

...the cognitive view [of literacy] asks the question, 'How can we see the advantages that competence with an external representational system – such as [printed] text, algebra, graphing, or computer-implemented systems – convey to individuals? (p. xii).



Looking at literacy through a material lens involves examining the characteristics of its “external forms” while the social view focuses on communities of readers (p. xii). These are characteristics and dimensions external to the participant readers. Metacognition, by contrast, refers to a person’s ability to direct such cognitive processes (Shraw & Dennison, 1994) or, put another way, metacognition involves our knowledge, awareness, and control of our cognition (Tarricone, 2011; Garner & Alexander, 1989; and Gunstone, 1991). Confusion arises when the same terms describe both cognitive and metacognitive processes. Is not “evaluation”, for example, metacognition? The answer is yes, but only when an individual is self-consciously and specifically evaluating an instance of their own cognition or thinking.

Educational research in metacognition originated four decades ago with Flavell (1976, 1979) and Brown (1978, 1987). As mentioned above, the literature suggests a positive relationship between heightened metacognition and improved student performance. For the purposes of this study, “metacognition” is defined according to Shraw and Dennison as “the ability to reflect upon, understand, and control one’s learning” (1994, p. 460). Shraw and Dennison’s model (1994) admits two subcomponents of metacognition: 1) knowledge of cognition; and 2) regulation of cognition. According to this model, knowledge of cognition has three components: declarative, procedural, and conditional knowledge. Regulation of cognition also has three components: planning, monitoring, and evaluation. This study is concerned with metacognition *in progressu* and looking at the participants’ verbal reports of same as close as possible to the metacognitive event.

The selection of the study’s theoretical frame was more problematic than arriving at working definitions. A constructivist or social constructivist theoretical framework underpins much of the metacognition research over the past decade (Ozgul & Topcu, 2010; Pang, 2008,

2010; Ahn & Class, 2011; Aydin, 2011; Akyol & Garrison, 2011; and Janjai, 2012) and for good reason. Constructivist approaches align with metacognition's emphasis on self-directed learners' construction of knowledge through experience and in social context (von Glaserfeld, 1995). This view also comports with the perspective expressed by Lankshear and Knobel (2007):

Understanding literacies from a sociocultural perspective means that reading and writing can only be understood in the context of social, cultural, political, economic, and historical practices to which they are integral, of which they are a part (p.1).

### **The Research Design**

Learning to centre the clay on the wheel is the potter's first concern if she wishes to avoid being pelted with mud. So too is the case with this study being centred on symbolic interactionism. What follows outlines the rationale supporting symbolic interactionism as the basis of the present study, it being well suited for research into adolescents' metacognitive decoding of multimodal texts. A theoretical frame, says Stryker (2008), differs fundamentally from a theory. A frame places fences around a specific set of assumptions that the researcher can rely upon as important while exploring social behaviour (p. 17). Erecting the fence gathers some concepts within and leaves others outside the frame. Therefore, although symbolic interactionism is a powerful explanatory tool, its use must not extend to claims that it is, in and of itself, a theory. Theories occupy different spaces and perform different work than do theoretical frames. Theories make use of the concepts gathered within the frame's fence perimeter to generate testable explanations of the relationships among those concepts (p. 17).

Symbolic interactionism is a theoretical frame drawn from mainstream sociology that concerns itself with semiotics, multiple realities, and both individual and socially mediated meaning making. Symbolic interactionism also concerns itself with the day-to-day and the

mundane; the ubiquitous and the routine. Symbolic interactionism effectively bears the analytical load presented by a metacognitively-aware, locally situated reader's complex relationship to both familiar and novel online, multimodal texts. As Prasad (2005) writes:

[Symbolic interactionism] is not exclusively concerned with the study of symbols as much as with the study of human meaning, which is seen as emerging out of symbolic realms and related meaningful action. The approach rests on the belief that object and events have no intrinsic meaning apart from those assigned to them by individuals in the course of everyday social interaction (p. 21).

Social interactionism has proven itself adaptable to various disciplines, from Prus's philosophical inquiries (2015 & 2017), to van Hoonaard's work on research ethics (2017) flowing from Herbert Blumer (1969), a proponent of George Herbert Mead's (1934) behaviorist psychological inquiry into the mind, self, and society. Blumer founded the interpretive tradition of symbolic interactionism upon Mead's work. Blumer based symbolic interactionism upon three foundational assumptions governing human engagement with meaningful objects, which he defined as "anything that can be indicated, anything that is pointed to or referred to...physical, social, or abstract" (1969, p.10). First, a person's behaviour towards an object flows from the meaning he or she assigns to that object. Second, people assign meanings to objects through socially mediated processes. Third, these meanings exhibit a morphology driven by the person's subjective diachronic interpretations (Blumer, 1969, p. 2). Process, the *how* of the behaviour under investigation, helps the researcher working in the symbolic interactionist tradition to better understand how socially and culturally situated roles and identities produce multiple and divergent realities (Prasad, 2005, p. 25-26). Symbolic interactionism focuses upon the life-up-

close experience of the reader rather than the life-at-a-distance spheres of curricula and education officialdom.

### **The Research Plan**

This study examined adolescents' metacognitive engagement with multimodal texts from within a social constructivist / constructionist framework through a symbolic interactionist perspective. Analysis of the extensive participants' interviews suggested answers to the research questions. Moreover, the interviews moved the study closer to establishing a better understanding of adolescents' metacognitive knowledge, skill, and awareness during engagement with complex, digital, and integrated online multimodal texts.

This study pursued real-time video capture of respondents' think-aloud sessions during engagement with both self-selected and assigned multimodal online texts. The study was conducted according to the two-phase protocol advocated by Ericsson & Simon (1996) and Branch (2000) and deployed by Schellings, *et al.* (2013), wherein researchers first capture real-time think-aloud data and pose follow-up questions aimed at clarification of any ambiguities arising therein. Schraw (1998) advises educators not to neglect the affective and motivational aspects of metacognition. Moreover, as Burnett (1995) suggests, should readers ignore the importance of imagination in the subjective experience of daydreams, intuition, and thought processes that flow into and out of the act of viewing. The multimodal qualities of these texts engage readers in ways that implicate socio-economic status, ethnicity, gender, and sexual orientation (Burnett, 1995). This observation is equally true of studies focussing on multimodal texts.

One type of online text well suited to multimodal and metacognitive investigation is represented by texts published by *Born Magazine* including *Outrances* (Croft, Ichikawa, &

Dvorak, 2009), *What Afterlife?* (Kuipers & Kostiuk, 2008), and *Skywriting* (Richardson, 2004) being accessible yet evocative, short yet thematically complex, and (in the case of *Skywriting*) minimally interactive. Another online text that includes, but does not privilege, the printed textual semiotic mode is Eric Whitacre's musically and visually compelling online Virtual Choirs performances of *Water Night* (2012), *Fly to Paradise* (2013), and *Sleep* (Whitacre, 2011), the latter being a collaborative effort by 3,746 participants situated in 73 countries. Moreover, these online texts are available without subscription and make no demand that readers possess any arcane technical skills.

### **Study Context and Location**

In this study, N = 15 participants (age 12 to 18). A participant's age is an important consideration whenever metacognition is under investigation. Kreutzer, Leonard, Flavell & Hagan (1975) conducted one of the earliest prototypic studies in the field. They established metacognitive developmental differences among groups of twenty students enrolled in Kindergarten and Grades 1, 3, and 5. They found that older students exhibited heightened conceptualizing memory; appreciation for transience of short term memory; use of categorization as a mnemonic aid; more advanced and rapidly deployed recall strategies; and deeper appreciation for connotative versus denotative meanings and nuances in voice and tone of language. Three years later a similar study by Myers & Paris (1978) examined students' cognitive knowledge at ages 8 and 12. This work suggested older students benefitted from their advanced knowledge of: reading as a specific skill; an appreciation of motivation and its relationship to reading behaviours; silent reading as more efficient; the privileged status of first and last sentences; verbatim retellings as less efficient than paraphrasing; how to skim printed text; and the importance of re-reading as an aid to understanding (Garner, 1987). Data generation and analysis aligned with symbolic interactionism's position that worlds exist for readers, and

the groups they belong to; worlds comprised of objects (an intersection with constructionism) that are themselves the “products of [social] symbolic interactions (Blumer, 1969, p. 10).

The research sessions took place in the late summer and fall of 2016 in the cities of Edmonton and Red Deer, Alberta. Participants self-selected in response to information provided to teachers and parents. In all, 15 participants aged 12 to 18 (with one prodigious reader aged 10) completed all three research sessions. All sessions were videotaped (screen only) and audio-recorded. This study employed the 11-process Metacognitive Process Inventory (MPI) introduced by Block (2005) and relied upon by Bauserman (2005) for the following reasons. The MPI focuses on deep reading processes that align with the think-aloud data generated by study participants (see Chapter 6.) The researcher transcribed the audio recordings and coded instances of participants’ metacognitive knowledge, awareness, and control during their engagement with multimodal, online digital texts. Coding proceeded according to the modified Metacognitive Process Inventory (MPI) (see below).

### **The Role of the Researcher**

In many qualitative inquiries, the researcher is the “main research instrument for data generation and analysis” (Gastaldo, 2015, n.p.); so too is the case in this study. In every instance, and in all three sessions, the researcher conducted the interviews and interacted with all participants and, where applicable, their attending parents or guardians. In four of 15 cases, the participant’s parent or guardian met briefly with and questioned the researcher with respect to session duration and mode of data generation. These parents or guardians remained nearby but outside the interview room during the research sessions.

The researcher acknowledges that there was a significant power differential between herself and the research participants. They were students being interrogated by a mature

professional librarian and academic. This differential was more pronounced with the younger junior high school students. Although it was necessary for the researcher to hold the reins, or remain at the steering wheel, and to direct the sessions, it was nevertheless vitally important that participants felt safe and uninhibited. Moreover, efforts were made to ensure participants were free from anxiety over any perceived negative consequences of quitting a session or the study either. Students were also assured that there were no “correct” answers to the researcher’s queries. The researcher made it a priority to partner with participants to establish an atmosphere of collaboration, safety, and respect for the participants’ contributions and opinions. Such an approach ran the risk of the interaction becoming too freewheeling or devolving into small talk. This risk was heightened given the researcher’s work as a professional librarian and her longstanding interest in online multimodal reading. The researcher was mindful of the need to remain friendly and open while encouraging adolescent participants to remain on task and to encourage them to sustain their talk-aloud reports.

Participants’ age was also important to the study in that it generally correlates, in the Alberta public school context, with at least 7 years of reading instruction, school-computer experience, familiarity with self-reporting, and ability to follow instructions with respect to the talk-aloud method. In all cases, participants hailed from affluent, well-equipped homes where computers, Internet-connected devices (e.g. smartphones, tablets, and e-readers) were commonplace and to which they had immediate and unfettered access or personal ownership. Similarly, participants attended well-equipped, urban schools boasting computers, smart-boards, and high capacity wireless connections and Internet service.

The field experience was a journey of discovery for both the researcher and participants. Working with adolescent students one-on-one was new to the researcher, and talking about

online favourites and multimodal online poetry was a novel experience for the students. The researcher came away profoundly impressed by the generosity of spirit demonstrated by these young people. They were enthusiastic and critical of the multimodal texts presented by and to them. Their willingness to share their personal experiences, opinions, hopes, personalities, challenges, and fears whetted the researcher's already strong desire to provide a positive and supportive research environment and experience. Challenges did arise. Some minor hiccups occurred but were easily overcome, such as scheduling conflicts and travel delays. One participant brought the most adorable puppy to the sessions (a potential distraction for both researcher and student) but the animal obligingly slept through most of the sessions. More consequential challenges involved helping participants to become comfortable with the demands of the talk-aloud method, as it is not an intuitive mode of communication. Many participants required in-session prompts to continue talking aloud, running the risk that participants might feel chastised or embarrassed. To mitigate this risk, all participants were reassured in advance that prompts were only reminders to "keep talking" and not at all a rebuke or reproach. Some enthusiastic and effusive participants were ready, willing, and able to move the conversation into unrelated, albeit fascinating, topics. In those instances, participants responded to gentle reminders to return to the online text at hand. In the end, all 15 participants completed all three research sessions.

### **Selection Criteria**

Qualitative research often involves generating rich data from relatively small participant groups. It is diving deep rather than wading. Study participants numbered 15 urban, public school students in two of Alberta's largest population centres (Edmonton, estimated population 932,500, and Red Deer, estimated population 100,400). Alberta is characterized by a sharp urban



/ rural divide. Just over half of Alberta students reside in the province's three major cities (approximately 56%). The study intentionally focused on urban students, aged 12 to 18, with proficient English language skills (the primary language of instruction in Alberta public schools), who had access to at least one Internet connected device at home and at school.

### **The Study's Selected Online Multimodal Texts**

What are the characteristics of online texts you present to tech-savvy, mature minors when you are interested in subverting their familiarity with online materials? When you are interested in introducing a level of disorientation and disrupting their decoding norms and habits? When you are looking to call upon their skills but also to engage and analyze their metacognitive knowledge, awareness, and control in their approaches to online multimodal texts? Put differently, which genre of multimodal texts has intertextual relationships with online texts young people are *consuming*, but for which they are not usually *searching*? One answer is online, multimodal poetry. Librarians have termed the present online era a poetry “renaissance,” pointing to a proliferation of sites with a self-publishing audience (Richey & Kratzert, 2005, p. 42). Not all online poetry sites, however, include multimodal works. Despite the renaissance, young people are not flocking to multimodal poetry. Even the most cursory review of “most popular” online search terms reveals “poetry” is conspicuous only by its absence (Google Trends, 2017). Locating a repository of multimodal online poetry was a challenge.

Once that challenge was overcome through the discovery of *Born Magazine*, another presented itself: a need to identify online texts of appropriate length, content, and technical sophistication for study participants aged 12 to 18. The idea was to present study participants with texts that challenged their usual mode of decoding and interpreting online multimodal texts; habits of selection, notice, interpretation, and rejection that have served them well in their usual

online activities. Put differently, the aim was to subvert participants' expectations in ways afforded by the online multimodal poem. As Dobson (2007) writes, such texts "challenge conventional notions of literary structure by confounding reader expectations in terms of linearity, coherence, closure and so on" (p. 80). The research relied upon texts that would call forth Aarseth's (1997) participants' *nontrivial* effort described above as purposeful, deliberate, problem-solving work.

### **Session 1 – The Personal Online Tour**

Participants engaged in three sessions, all of which relied upon think-aloud protocols. In Session 1, participants guided the researcher through an unrestricted tour of the participant's favourite and usual online content. The tour included subscription services and / or multimedia sites such as Facebook or Twitter. The personal online tour, during which all participants exhibited enthusiasm and technical skill, provided an opportunity for participants to practice the data generating think-aloud protocols relied upon in Sessions 2 and 3. Participants were invited to visit the familiar and the usual as a means of putting themselves at ease and as a way of acknowledging and celebrating the importance of participants' knowledge, preferences, and skills. Moreover, Session 1 served as an icebreaker and aided researcher and participant in developing an early rapport. In the main, participants eagerly performed and demonstrated their skills and interests and, by the conclusion of Session 1, were able to provide think-aloud data with occasional prompting.

In Sessions 2 and 3, participants engaged with online, multimodal texts chosen by the researcher. Session 2 focused on 3 online multimodal poems selected from the archives of *Born Magazine* ([www.born.org](http://www.born.org)). Operating between 1996 (the rise of the modern Internet) and 2011, *Born Magazine* emerged as an influential online forum for collaborative work showcasing over

900 literary and multimedia artists ([www.born.org/about](http://www.born.org/about)). The *Born Magazine* online archive is extant and houses 400 multimodal literary and artistic works of staggering diversity, beauty, and innovation. It is a digital archeological record of the evolving affordances of online tools and the growing sophistication of their deployment by creative minds over the first 15 years of the World Wide Web.

In Session 2, participants were presented with three *Born Magazine* texts: *Outrances* (Croft, Ichikawa, & Dvorak, 2009), *What Afterlife?* (Kuipers & Kostiuk, 2008), and *Skywriting* (Richardson, 2004). Each online multimodal text challenges the “conventional notions of literary structure” (Dobson, 2007, p. 80) in innovative and unexpected ways. Participants first engaged with *Outrances* (Croft, Ichikawa, & Dvorak, 2009), a multimodal text of extraordinary disorientating potency. Upon launching the work, participants are bombarded by potentially sensory-overloading content. The landing page is a composite image evoking a spirit of youthful rebellion, popular culture, social semiotics, “street” design elements and juxtapositions. Making sense of *Outrances*’ landing page requires some understanding of visual grammar (Kress & van Leeuwen, 2006) and a familiarity with Serafini’s (2014) “multimodal ensembles... a type of text that combines written language, design elements, and visual images” (p. 2).

Session 3 moved participants’ attention to multimodal texts that put the audio mode forward for consideration as the privileged channel of information. Session 3 texts included RSA Animate lectures (delivered with a graphic notetaking technique) and the Eric Whitacre’s Virtual Choirs.

Chapter 4 describes these texts in more detail. For now, it remains to outline how symbolic interactionism and an understanding of reading address the challenges of the research. Moving from the general to the specific, these challenges are: the investigation of others’

thinking, the practical challenge of generating metacognitively-informed data; complications arising from the vagaries of memory and the variances of verbal ability; and the requirement to encourage young participants to think aloud. Generating quality data on a person's thinking requires a framework focused on that person's meaning-making apparatuses in their specific social context. Such a framework is symbolic interactionism. For the purposes of this study, however, there must also be a solid understanding of how readers go about constructing meaning-making based on reader-response theories such as those developed by Rosenblatt (1938, 1978) and Iser (1980) (see below).

### **Data Generation**

Data generation took place over three individual interview / talk aloud sessions with 15 participants. The “/” above indicates the following pattern of interaction. Participants (and their parent or guardian in four cases) were welcomed and given 10 to 15 minutes of friendly get-to-know-you talk to help participants relax, ask questions, or make requests. Participants were shown the computer station at which the sessions would be conducted. Participants were invited to sit at the station and to make any adjustments to seating, lighting, screen angle, or volume that ensured their physical comfort while the researcher explained how the audio and video recording of the sessions would progress (e.g. the camera would remain on the screen and not capture their image). The content and duration of the sessions were outlined. Participants were reassured that they could suspend or withdraw their participation from any particular online text or from the entire study at any time without any negative consequence or need for explanation. Moreover, they were reminded that, although some of the online texts selected by the researcher would likely differ from texts they themselves would choose, there would be no so-called “jump scares”

(video texts that insert sudden and unrelated horror content) or overtly frightening images. (See Appendix A, Session Guide.)

Data generation depended on the effective interaction between researcher and participant since data generation relied upon talk aloud reports. This study captured real-time audio and video of respondents' think-aloud sessions during engagement with both self-selected (Session 1) and assigned (Sessions 2 and 3) multimodal online texts. The study was conducted according to the two-phase protocol advocated by Ericsson & Simon (1996) and Branch (2000) and deployed by Schellings, *et al.*, (2013) wherein researchers first capture real-time think-aloud data and pose follow-up questions aimed at clarification of any ambiguities arising therein.

This method aimed to generate data on participants' metacognitive processes, opinions, and thoughts engendered by the experience of constructing meaning from multimodal, online digital texts. Which metacognitive strategies did the participants rely upon when working through both familiar and novel online texts that presented information simultaneously through various modes – audio, visual, print, moving, and static images?

Data generation occurred over three sessions with each participant.

- a. In the first session, participants were invited to navigate to any website they habitually visited for any reason be it entertainment, academic research, general interest, or the disposition of spare time.

Session 1, as mentioned above, was designed to provide the participant time to develop a rapport with the researcher by sharing their interests to the extent they were comfortable to do so. All participants engaged enthusiastically in providing the researcher with a “virtual tour” of their preferred online texts and sites. Session 2, involved participants engaging with multimodal, online poetry texts selected in advance by the research for their novel multimodal elements and

content that challenged conventional reading strategies (left-to-right progression, the use of imagery and audio track in conjunction with printed text, elements of emotionally provocative content). Session 3 also presented texts chosen by the researcher but this time, although the texts remained multimodal, each one privileged a single mode over the others. One text emphasized music, another imagery, still another relied upon the audio mode.

The second and third sessions aimed to challenge participants' expectations of online texts and to collect data on their ability to employ metacognitive strategies in order to cope with meaning making while experiencing sophisticated and surprising multimodal texts online.

### **Data Analysis**

Transcripts of the think-aloud sessions, interviews, and video footage supported data analysis. Symbolic interactionism does not mandate specific data generation and analysis methods. However, grounded theory, itself emerging from the pragmatic symbolic interactionism tradition of the late 1960s and 1970s, provided some guidance on that score through the work of Glaser & Strauss, 1967; Strauss & Corbin, 1990, and Charmaz, 2006. Think-alouds have proven effective in recent studies investigating metacognition and multimodal and digital reading (Ebner & Ehri, 2013; Kobra, 2013; Coiro, 2011; and van Someren, 1994).

Johnstone, *et al.*, (2006) draw upon the research literature of the 1990s in developing a definitive list of the pros and cons attending the collection, use, and analysis of the think-aloud approach.

All participant sessions were video recorded with the digital camera trained solely on the screen to capture the images prompting participants' think-aloud utterances. The video data files were preserved intact on encrypted hard drives, and copies of the videos converted to digital audio files (mp3 format) through an online conversion program (Transcribe.com, 2018). The researcher personally transcribed each session's audio data rather than contracting out that work.

Transcribing the data afforded the researcher close contact with the data over several months and produced consistently interpreted transcriptions. Transcriptions were subjected to several reviews and coded for instances of metacognitive knowledge, awareness, and/or control demonstrated by participants while engaged with online, multimodal texts. The transcriptions totalled more than 500 pages of printed text. Coding was calibrated to elements of the modified Metacognitive Process Inventory (MPI) (Block, 2005). (See Chapter 6). Coding clusters pointed to strategies (both effective and detrimental) employed by participants during the online sessions discussed in Chapter 5.

The analysis was conducted and shaped primarily through inductive reasoning processes, using the transcripts and researcher's observations as the starting point. From specific instances and observations, the analysis moves to more general concepts. Inductive reasoning, however, is delimited in important ways. Inductive reasoning does not produce widely generalizable results. At best it is incomplete albeit useful, when applied to rich qualitative evidence, in identifying fertile ground for future research and inquiry. The inductive approach is justified in an exploratory study of this size that seeks a better understanding of 15 English-speaking adolescents' metacognitive strategies while engaged with online, multimodal texts in urban public schools, in Alberta, Canada, at the close of the second decade of the 21<sup>st</sup> century. This approach also comports with the study's qualitative research design and the theoretical frame of symbolic interactionism, in that both explore open, exploratory questions. It may appear that the MPI (Block, 2005) is more prescriptive in its structure than might be expected in inductive reasoning approaches. Nevertheless, the MPI's use is inherently "informal" (Bauserman, 2005, p. 175) and, for all its structural weight, lends itself well to the informality and of-the-moment investigation of participants' think-aloud responses.

This study was not designed to make predictions but to explore adolescents' metacognitive knowledge, awareness, and control while engaged with online, multimodal texts and to investigate those strategies that helped or hindered their willingness and capacity to construct meaning from these works. As mentioned above, the transcripts, although rich in qualitative data, do not support generalized rules about adolescents' online reading but do grant parents, educators, and policy makers some insight into how students get on with the business of making sense of sophisticated, complex, multimodal online texts.

### **Social Interactionism within this Study**

Data generation and analysis aligned with symbolic interactionism's position that worlds exist for readers, and the groups they belong to; worlds comprised of objects (intersection with constructionism, see above) that are themselves the "products of [social] symbolic interactions (Blumer, 1969, p. 10).

### **Challenges of Data Analysis**

This study contended with the essential problem attending qualitative analysis articulated over a century ago by James (1890) and more recently explored by Fox & Riconscente (2008). That problem being how to effectively investigate "the thinking of others with any degree of certainty, validity, or generalizability, and of how our understanding of the activity of metacognition and the processes of self-regulation might be limited or enhanced by this restriction of perspective and scope" (Fox & Riconscente, 2008, p. 377). Fox & Riconscente (2008) question the difference between that which rises to the reader's conscious awareness and that which the reader chooses to report (p. 377). Moreover, Fox & Riconscente (2008) add:



The presentation of internal mental activity as a stream of consciousness, including the seamless interaction of and flow between feeling and thought, raises questions regarding the validity of descriptions that are too precise, too stable, or too focused (p. 377).

A practical research challenge involved generating participants' metacognitive processing data. Metacognition is not directly observable (Sperling, *et al.*, 2002). Additionally, Whitebread, Coltman, Paternak, and Sangster, *et al.* (2009) argue that self-report research instruments rely too heavily on verbal ability. Metacognition is a complex process, involving cognitive knowledge and regulation. Types of cognitive knowledge are multiple (declarative, procedural, conditional) as are types of cognitive regulation (planning, monitoring, and evaluating). Schraw & Moshman (1995) warn that such complexity can undermine confidence in research results' reliability.

Problems associated with the generation, use, and analysis of interview data are well established in the literature on metacognitive literacy studies going back to the late 1970s and early 1980s. This fact accounts for the need for the complex theoretical construct underpinning this study. According to Garner (1987), these problems include accessibility - whether or not human subjects are able consciously and cognitively to access their own internal mental processes. Moreover, human memory is subject to lapses. As far back as 1980, during the first generation of metacognitive research, White (1980) cautioned that the vagaries of memory represent a realm of peril for researchers who rely upon think-aloud, self-report interview data. "What teacher wants" is a colloquial phrase conveying a third potential interview / think-aloud pitfall. Participants may be apt to incorporate cues provided by the interviewer respecting effective strategies into their responses. Put differently, participants may be reporting on knowledge of strategies versus their habitual use of same (Garner, 1987, p. 64). These risks may be practically mitigated by working to maintain focus on metacognitive processes. Examples of

strategies include: having reporting quickly follow processing; triangulating methods; and checking for internal consistency of diachronic responses. Researchers are also advised to rely on think-aloud data gathering techniques as differentiated from traditional interviews (Garner, 1987, p. 64-72). Think-alouds are exactly that: participants' real-time self-report verbalization of their experience.

Think-alouds have proven effective in recent studies investigating metacognition and multimodal, digital reading (Ebner & Ehri, 2013; Kobra, 2013; Coiro, 2011; and van Someren, 1994). Johnstone, *et al.*, (2006) draw upon the research literature of the 1990s in developing a definitive list of the pros and cons attending the collection, use, and analysis of the think-aloud approach. The appeal of think-aloud data is their immediacy. Think-aloud sessions rely upon very short-term memory producing results considered immediate to the occurrence, as contemporaneous as possible with the processes under investigation. Think-aloud data avoid the tendency of long-term memory to incorporate perception, experience, error, doubt, inaccuracies, irrelevancies, and socio-psychological re-casting, denial, or revision (Charters, 2003). Nevertheless, think-aloud data are often fragmented and unfocused, replete with false starts, retractions, seeming non-sequiturs, and spontaneous lines of thought (Charters, 2003). Moreover, attending to an unfamiliar reading experience and articulating that experience might overwhelm some subjects. Where this problem occurred, it was overcome by seeking participants' immediate retrospective comments as an aid to the researcher's interpretation of the think-aloud data (Branch, 2000). During think-alouds, participants were instructed and encouraged to verbalize their thinking as they engaged with online multimodal tests. Think-aloud data results can resemble a stream of consciousness in that they report on whatever is occupying participants' thinking at the moment of engagement; what they were looking at, the choices

made, reactions, what they were thinking and feeling, including associations that may move beyond the task such as memories and personal experiences. Coiro (2007 & 2011) argues in favour of think-aloud methods particularly in studies of online, digital reading. She sees think-alouds as an effective means of accessing the internal, metacognitive processes involved in the decoding and interpretation of digital texts. These processes are based on print reading strategies since these will be among those skills (including image recognition and interpretation) drawn upon by participants engaging with multimodal texts (Afflerbach, 2002; Afflerbach & Cho, 2008; Afflerbach, *et al* 2013; Coiro, 2007; and Leu, Kinzer, Coiro, & Cammack, 2004). Coiro (2011) puts it this way:

So, what key processes do skilled readers consciously use when comprehending text?

Research has confirmed that proficient readers actively construct meaning from offline (or printed) text using a set of strategic processes such as previewing the text, setting goals, making predictions, asking questions, monitoring understanding, and making connections. ... As readers transition to Internet reading environments, emerging work suggests these traditional reading and thinking strategies are necessary, but not sufficient, to successfully navigate and make sense of online informational texts (p.108-109).

Although the foregoing claim is more apt to be evident during *efferent* reading of non-fiction, it could legitimately be expected to remain operative during an *aesthetic* reading of fiction excepting those instances when readers might simply allow their attention to float along in an aesthetic experience of the text after Rosenblatt (1938, 1978). Douglas and Hargadon (2000, 2004) made the important distinction between the aesthetics of engagement and immersion in readers' experiences of an early hypertext by drawing upon conventional analysis of printed text. In short, readers *engage* with a text but are *immersed* in a narrative (p. 153).

Relying on schema theory, Douglas and Hargadon (2004) frame these concepts according to the type of pleasure such readings afford. Immersive pleasure derives from the reader's "ability to take guided action and see the outcomes" (p. 153). Engagement pleasure stems from hypertext readers' knowledge of various schemas and their "attempts to discover congruencies between the hypertext and an array of often mutually exclusive schemas, and, ultimately, our ability to make sense of the work as a whole" (p. 153). Douglas and Hargadon's (2000) earlier work advanced the concept of *flow* as an important aspect of reading hypertext, *flow* being a "state in which readers are both immersed and engaged (p. 160). Seventeen years later, we can appreciate the prescience of their thoughts on flow:

Given the enhanced immersive possibilities of full-motion video, not to mention virtual reality, coupled with hypertext fiction's complex possibilities for engagement, future interactive narratives could easily enable casual readers to experience what Mihaly Csikszentmihalyi calls "flow," a condition where self-consciousness disappears, perceptions of time become distorted, and concentration become so intense that the game or task at hand completely absorbs us. Since flow involves extending our skills to cope with challenges, a sense that we are performing both well and effortlessly, it hovers on the continuum between immersion and engagement, drawing on the characteristics of both simultaneously (p. 158).

### **Study Rigour**

Interview strategies of restating interview questions and employing follow-up queries in real time aided the researcher in establishing clarity with participants with respect to their choice of words and the meaning of slang or colloquialisms. As stated above, the interaction between researcher and participants was characterized by a balance between authority and familiarity in order to establish a positive respectful rapport that encouraged the production of meaningful talk-

aloud data. In this way, the researcher remained reflexively mindful of her effect on the session's progress and context. As Malterud (2001) writes:

A researcher's background and position will affect what they choose to investigate, the angle of investigation, the methods judged most adequate for this purpose, the findings considered most appropriate, and the framing and communication of conclusions (483-484).

The researcher's background in librarianship, education, online literacy and other related subjects certainly affected the choice of research questions, the relationships established with participants, and the perspectives from which the research was undertaken.

### **Ethics**

All Research Ethics Board requirements mandated by the University of Alberta were met and participants' consent (those 18 years of age or older) or that of a parent or guardian (for minors) was secured in advance. All participants were reminded in advance of that their involvement in the study was voluntary and that they could suspend or withdraw their participation at any time simply by saying so or notifying the researcher after the fact without any adverse consequences. These documents appear in Appendix B.

Participants' confidentiality was protected through the use of pseudonyms (self-selected). Research data were housed on external hard drives and protected through encryption. All participants presented as being in good health and willing to engage. None of the participants exhibited any physical, emotional, or social distress before, during, or after the sessions.

### **Significance of the Research**

This study is significant given the mandatory use of technology (including multimodal texts) in Alberta classrooms and its rapidly expanding use in reading acquisition and literacy

instruction (McDougall, Readman, & Wilkinson, 2018; Medlock, Spires, & Kirkhoff, 2017; Alberta Education, 2013; Simpson, Walsh, & Roswell, 2013; Exley & Cottrell, 2012; and Alberta Initiative for School Improvement (AIS), (1999-2011).

Such research is timely and relevant because related research into metacognition and learning continues to inform pedagogical practice and research. Research aimed at improved understanding of adolescents' cognition, metacognition, and affective states – those literacy experiences that bring “intellectual and visceral engagement, pleasure and pride, and agentic recourse” (Lenters, 2016, p. 280) - while engaged in meaning-making through multimodal texts has the potential to enhance pedagogical practice and student learning. A decades-long tradition of research, for example, has shown a correlation between improved student learning and metacognitive awareness (Paris & Jacobs, 1984; Paris & Winograd, 1990; Dabarera, Renandya, & Zhang, 2014; Eker, 2014; Pacello, 2014; Taylor, 2014; Inceciy, 2013; Memis & Bozkurt, 2013; Negretti, 2013; Taylor, 2012; Clark, 2012; Roll, Holmes, Day, & Bonn, 2012; Belet, & Guven, 2011; Zulkipli, Kabit, & Ghani, 2009; Lenters & Winter, 2013, Mevarech & Kramarski, 2014; and Wise, 2009) as well as a positive relationship between metacognitive skill and satisfaction among teachers (Miranda, 2012; and Mair, 2012). More on this point appears below.

Therefore, this research investigates the level of metacognitive awareness and skill reported by adolescents aged 12 to 18 while engaged with selected online multimodal, digital texts. The research questions ask to what extent do young people exhibit metacognitive knowledge, awareness, and control while actively engaged in decoding multimodal digital texts? The study relies, in part, upon a long-established research method of restricting the participants' reactions to a set of specific texts in order to investigate internal and metacognitive processes. Recall that Session 1 invited participants to select and discuss online texts of interest to them.

Reading comprehension (and thus ability and level of student achievement) collates with metacognitive skill. The significance of research depends upon the extent to which it answers “so what?” Why is this research worthy of educators’ attention and consideration? Literacy education has moved beyond print reading to include decoding, interpreting, and constructing meaning from expanding sets of contextual (and in some cases arcane) complex semiotic systems. Today we commonly attach “literacy” as a suffix to an expanding set of neologisms such as *media-literacy*, *artefactual-literacy*, *computer-literacy*, *financial-literacy*, in addition to visual, emotional, mathematic, and scientific, etc. Moreover, the complexity of the digital multimodal texts involved in this study tasks metacognitive skill - awareness, knowledge, and control – being exercised by the reader. Improved understanding of how adolescents metacognitively construct meaning from these texts offers educators help in developing improved pedagogical practices to advance student engagement, self-directed learning, and improved metacognitive skill across ever-evolving curricula. All stakeholders invested in literacy, metacognition, and visual communications will benefit from improved understanding of young people’s strategic application of metacognitive skill in the decoding of multimodal texts, including: teachers, students, parents, librarians, curriculum developers, authors, and publishers. Scholars making the general case for undertaking multimodal literacy research include Knobel and Lankshear (2005):

...it is very important with respect to so-called “new” literacies to emphasize research that seeks to understand contemporary practices in their own right, on their own terms and, so far as possible, from the perspectives of insiders to those practices ... Research that provides rich accounts of new social practices mediated by new technologies and multimodal texts can help inform teachers and others involved in education about what

the world beyond the school gates that is mediated by these technologies and texts is like.

The more such knowledge and understanding educators have the better position they are in to judge how best to integrate (or not) new technologies into school work (p. 25).

Multimodal digital texts are becoming standard elements of contemporary curriculum planning and assessment models. The goal of the research is to improve our understanding of print-literate students' (age 12 to 18) ability to apply metacognitive awareness, control, and skills across emerging digital, online multimodal texts.

### **Working Definitions**

What follows is a series of working definitions germane to this study including: 1) multimodality; 2) participatory culture; 3) metacognition; 4) semiotics; and 5) subjectivity.

#### *Multimodality*

Multimodal is defined according to Jewitt & Kress (2003) as the range of representational tools that authors use to learn about, communicate, and shape knowledge in their social worlds, including the purpose and effect of that knowledge when used in and across social contexts. Böck & Pachler (2013) outline the importance and impact of Gunther Kress's work. Kress, a member of the New London Group (Cazden, *et al*, 1996), helped to found the *social semiotics* perspective (Hodge & Kress, 1988). Kress's prolific scholarly output includes multimodality (Kress, 2003, 2010a, 2010b, 2012; Jewitt & Kress, 2003), multimodal learning, and pedagogy (Kress, Jewitt, Ogborn, & Tsatsarelis, 2001). More recently, Albers & Sanders (2010) and Jewitt (2013, 2016, 2017) have provided updated definitions of multimodality as a scholarly approach to investigating and addressing interactions with multimodal texts. Jewitt (2003) writes:

Multimodality is an inter-disciplinary approach drawn from social semiotics that understands communication and representation as more than language and attends



systematically to the social interpretation of a range of forms of making meaning... (p. 250).

Multimodality is an approach that provides resources to support a complex, fine-grained analysis of meaning in relation to texts, artefacts, and as face-to-face interaction. From this perspective, meaning is understood as arising in the iterative connection between the meaning potential of a material semiotic text (e.g., a worksheet or website) or artefact (e.g., a tool); the meaning potential of the social and cultural environment where it is encountered (e.g., at home or in a museum); and the resources, intentions, and knowledge that people bring to that encounter (2016, p. 69)

Notions of modality are implicated in constructivist perspectives that place reality in contested space. According to Chandler (2002), realities “are the product of social definitions and as such far from equal in status”, they are “sites of struggle” determined, in part, by the mode of representation employed and its specifically delimited affordances (p. 60). Put differently, modes reflect socially and culturally normalized sets of truth-values. Hodge and Kress (1988) offer a clear definition of the root concept of modality. They write, “modality refers to the status, authority and reliability of a message, to its ontological status, or to its value as truth or fact” (p. 124). With respect to this study, Chandler (2002) has the following to say on the relationship between modalities as truth judgments and meaning making.

In making sense of a text, its interpreters make modality judgements about it, drawing on their knowledge of the world and of the medium. For instance, they assign it to fact or fiction, actuality or acting, live or recorded, and they assess the possibility or plausibility of the events depicted or the claims made in it. Modality judgements involve comparison of textual representations with models drawn from the everyday world and with models

based on the genre; they are therefore obviously dependent on the reader's relevant experience of both the world and the medium (p. 65).

The affordances of each mode of representation, and the socio-cultural milieu in which it operates, are of paramount concern in seeking a better understanding of how adolescents craft meaning from online multimodal texts.

The workaday view of multimodal texts becomes muddled when those texts appear online. One prevalent practice involves describing a website loosely as multimodal if, in fact, all it does is foster links to content in at least two different modes. The study's data is replete with references to examples of so-called multimodal websites that young people often visit and read such as BuzzFeed.com (Figures 5.1 & 5.8) or NHL.com (Figures 5.3 & 5.4). These sites are multimodal in that they gather links to discrete packets of content in various modes into one site. What appears to then take place, however, is that the participants grant notice to, and then decode and engage with, the content one mode at a time; an article, a video clip, bits of audio, etc. However, as we shall explore below, when the content is an integrated online multimodal text – delivering content simultaneously via the specific affordances of different modes – the students' metacognitive skills collapse and they appear to rely on any available printed text and the metacognitive strategy of interpreting from context asserts itself.

### *Participatory Culture*

Our contemporary age of “participatory culture” came to the notice of academics during the last decade as a fraternal twin to the so-called Web 2.0 tools that made possible new and compelling means of user-generated and user-distributed unique content online. Participatory culture has something of chameleon quality to it that helps it slip into the eco-systems of various complex theories, concepts, and practices such as the online democratization of discourse, the

phenomenon of self-publishing and self-broadcasting, live streaming, and mashups to name but a few. At its core, however, participatory culture is not about technology at all but rather about human interaction and the flows of knowledge within a community.

Jenkins, *et al*, writing for The McArthur Foundation (2006) defines participatory culture this way:

... is a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing creations, and some type of informal mentorship whereby experienced participants pass along knowledge to novices (p. 3).

From this perspective, a classroom is an example of a participatory culture as is a public library. So, too, are the deep and burgeoning *Lord of the Rings* (Tolkien, 2002), *Harry Potter* (Rowling, 1997), or *Star Wars* (Lucas, 1978) online fandoms.

New media literacies is an area of scholarship often conflated with popular characterizations of “participatory culture” as a novel organization of human life mediated and facilitated by new and emerging technologies. According to Li (2007), The American New Media Consortium positions “new media literacy” as an umbrella term for a skill set that enables readers / participants to comprehend and engage with information presented in multiple, simultaneous modes including audio, visual, digital, and print. These skills include: comprehension of visual and auditory power, the ability to identify and utilize that power, the ability to control and transform digital media, the ability of universal communication of digital contents as well as the ability to easily reproduce digital content (p. 479-481). Jenkins, *et al*. (2006) emphasize “participatory culture shifts the focus of literacy from individual expression to community involvement”.

The new literacies almost all involve social skills developed through collaboration and networking” (Jenkins, 2006, p. xi). These skills include:

<i>Play</i>	The capacity to experiment with the surroundings as a form of problem solving.
<i>Performance</i>	The ability to adopt alternative identities for the purpose of improvisation and discovery.
<i>Simulation</i>	The ability to interpret and construct dynamic models of real-world processes.
<i>Appropriation</i>	The ability to meaningfully sample and remix media content.
<i>Multitasking</i>	The ability to scan the environment and shift focus onto salient details.
<i>Distributed cognition</i>	The ability to interact meaningfully with tools that expand mental capacities.
<i>Collective intelligence</i>	The ability to pool knowledge and compare notes with others toward a common goal.
<i>Judgment</i>	The ability to evaluate the reliability and credibility of different information sources.
<i>Transmedia navigation</i>	The ability to follow the flow of stories and information across multiple modalities.
<i>Networking</i>	The ability to search for, synthesize, and disseminate information.
<i>Negotiation</i>	The ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative norms (xiv).

*Figure 2.1 Participatory culture skills (Jenkins, 2006, p. xi).*

While Jenkins (2006) is enthusiastic, Yin & Zhou (2015) sound a note of caution. They argue for developing skills in young people specifically to empower them, to help them cope with online multimodal texts, a social phenomenon in which “they are thrown to the edge of danger of over-entertainment and over-consumption” (p. 26).

## *Metacognition*

Weinert & Kluwe (1987) contributed to the metacognition lexicon by describing it as a person's awareness that their understanding is incomplete, a perspective likely familiar to educators of every speciality. Tobias and Everson (2002) describe metacognition as "knowing what you know and what you don't". For our purposes, however, the definition of "metacognition" has its antecedents in Flavell's (1976, 1979) foundational early work but is defined here according to Schraw's model (with Dennison, 1994; with Moshman, 1995; and with Crippen & Hartley, 2006) which admits two subcomponents of metacognition: 1) knowledge of; and 2) regulation of one's own cognition.

Each subcomponent is composed of constituent parts. When we study metacognitive knowledge we look for categories of knowledge: 1) declarative; 2) procedural; and 3) conditional. These correspond to knowing: 1) what (subjective learning processes); 2) how (applying learning skills and processes); and 3) when such strategies are best deployed. Similarly, metacognitive regulation is an umbrella term for three distinct processes: 1) planning; 2) monitoring; and 3) evaluation (Schraw, Crippen, & Hartley, 2006). In all cases, the processes are conscious, self-referencing, and rooted in culturally and socially mediated language. An example of what awareness and self-regulation looks like comes from Livingston (1997) who describes Flavell's (1979) three metacognitive variables this way:

I know that I (*person variable*) have difficulty with word problems (*task variable*), so I will answer the computational problems first and save the word problems for last (*strategy variable*) (n.p.).

Early print literacy researchers, including Wellman (with Flavell, 1977), Flavell (1985), and Garner (1987), were apt to emphasize the interactive, dynamic nature of metacognition operating

as “an intricately interwoven system of knowledge” (Wellman, 1983, p. 32) rather than as a catalogue of discrete cognitive processes. Flavell (1979, 1981 & 1985) was influential among early metacognition researchers (e.g. Brown, Bransford, Ferrara, & Campione, 1983) in issuing cautions against conflating cognitive and metacognitive processes, a caveat that continues to guide contemporary research. Garner (1987) paraphrases Baker & Brown (1984) thusly:

Metacognitive knowledge is relatively stable, usually *state-able* [easily articulated] information about cognition. This knowledge is about ourselves, the tasks we face, and the strategies we employ (p. 17).

Here we arrive at an important qualification: that which forms a potential statement (the *state-able*) is not always the *stated*.

Metacognition occurs at the level of consciousness and is expressible in language whether or not the subject chooses to actually articulate or give voice to that language. The affect, scope, duration, depth, and subjective elements of the metacognitive experience are also of interest in this study. Flavell (1979, 1981) reminds us that metacognitive experience can occur before, during, and/or after engagement with any given text. Within this study, metacognition is assumed to be operative and, to some extent, evoked by the complex and nuanced interplay (be it concordant or discordant) of concurrent and layered multimodal, polysemous elements – words, ambient noise, music, animation, colour, image, gesture, or intonation.

### *Semiotics*

The axiom that communication turns on the interpretation of signs underpins this study. Consider the complex array of cognitive, psychological, social, cultural, and biological processes upon which the seemingly simple, but profoundly complex, *this-means-that* operation relies. These interpretive operations are foundational to reading, interpretation, and remediation, and are

addressed most directly by semiotics. They are effectively considered through the symbolic interactionist framework. The foregoing is not intended to dismiss affect, as explored in studies of information seeking by Kuhlthau (2004 & 2008), or as discussed in historical semiotic terms by Henault (1996). Sensation and affect are perhaps the most potent involuntary responses to the act of reading as discussed by Lurz (2011) in his exploration of Proust. Indeed, the present study embraces the affective power of the sign and its impact upon reading. Study participants were motivated and powerfully engaged through their recognition, use, and interpretation of signs governed by their familiarity with the conventions and affordances of multiple modes of content.

Moreover, it is impossible to address questions of meaning making absent of semiotic theories governing how, in any given instance, *this signifier* might come to mean *that signified*. Eco (1979) succinctly articulates classic Saussurean semiology's binary system – a signifier and a signified. Put differently, the sign is a composite of its form (the signifier) and the meaning conveyed by that form (the signified). Both are rooted in the conventions of language, itself being culturally mediated. According to Eco (1979), those who consider “semiotics as a theory of communication rely basically on Saussure's linguistics” (p. 14). There is, however, no room for a self-aware autonomous and active agent to operate within Saussure's model. By comparison, Peirce's (1974) system of semiosis is a trinary system. He writes:

By semiosis, I mean an action, an influence, which is, or involves, a cooperation of three subjects, such as a sign, its object and its *interpretant*, this tri-relative influence not being in any way resolvable into actions between pairs (1974, p. 332). [Italics added.]

Peirce's semiosis permits the interpretants' executive action and admits the existence of both naturally generated and non-intentional signs (Eco, 1976, pp. 14-19). Peirce's interpretant is the arbiter of *this* stands for *that* and is therefore germane to the study of adolescents' decoding

and meaning making through online multimodal texts. This study generally adopts philosopher and semiotician Umberto Eco's (1976) position that semiotics investigates "everything that, on the grounds of a previously established social convention, can be taken as something standing for something else" (p. 16). In saying so, Eco emphasizes the arbitrary character of signs. Put differently, there is nothing essential about the relationship between a sign's form and a sign's meaning. The act of stopping one's vehicle has nothing inherently to do with a red octagon erected at a roadway intersection. It is only that all members of a given population have decided, by the social conventions of traffic regulations that a red octagon can be taken for the act of bringing a vehicle to a stop. Eco's "social convention" intersects with Lacan's transcendental signifier (S1). In Lacan's system of thought, individual human beings (the displaced subject represented by the symbol (\$) must contend with the capital-t Truth defined and deployed by power brokers including governing bodies, teachers, parents, financial interests (Johnston, 2018, n.p.). This process is governed by Lacan's super signifier that regulates the entire system of signs (McMahon, 1996, n.p.).

van Leeuwen's perspectives on social semiotics also support this study. Expanding on Halliday and Saussure, van Leeuwen (2005) distinguishes between the classic sign and the contemporary semiotic resource, the latter being:

...the actions and artefacts we use to communicate, whether they are produced physiologically – with our vocal apparatus; with the muscles we use to create facial expressions and gestures, etc. – or by means of technologies – with pen, ink, and paper; with computer hardware and software; with fabrics, scissors, and sewing machines, etc. ... In social semiotics the term 'resource' is preferred [to 'sign'] because it avoids the



impression that ‘what a sign stands for’ is somehow pre-given, and not affected by its use” (p. 3).

van Leeuwen is making the explicit distinction between “resource” and “sign” in order to work against the notion that a sign’s operation is immutable. Signs are susceptible to evolution and change by their very use. Working with young adults emphasizes the shifting and fluid nature of social semiotic resources. Some signs are unstable, being deployed, abandoned, absorbed, mutated, and redeployed within the space of a generation or even the duration of a high school career. Slang is one example of such shifting semiotics perennially associated with young people (Coupland & Jaworski, 2009). Sign systems as conveyances of meaning accrue to all human activities. Nevertheless, the impact of the online and digital technologies continues to drive scholarly interest in the proliferation of expanding and accelerating evolution of social semiotics in the Internet age (Mills, 2015). Semiotic theory is foundational to research concerned primarily with meaning making and how readers generate such by exercising metacognitive knowledge and awareness while engaged with multimodal texts.

### *Subjectivity*

How does the notion of subjectivity operate in this study? Authoritative definitions help at the outset. *The Oxford English Dictionary* defines subjectivity as the quality of being derived from one’s consciousness and experience existing exclusively in the mind. Alternatively, subjectivity might refer to one’s motivations and actions or to that aspect of art which expresses the artist’s individuality.

Motivation is key to the act of reading. H. Bloom (2000) described this best when he wrote:

It matters, if individuals are to retain any capacity to form their own judgments and opinions, that they continue to read for themselves. How they read, well or badly, and what they read, cannot depend wholly upon themselves, but why they read must be for and in their own interest. You can read merely to pass the time, or you can read with an overt urgency, but eventually you will read against the clock. ... One of the uses of reading is to prepare ourselves for change, and the final change alas is universal (p. 21).

Bloom's "final change", is of course death and, as Giraldi (2013) remarks on Bloom's stark reminder, there is no better preparation for death than appreciating life through literature (p. 184). Subjectivity also signifies the condition of maintaining one's own individual view of reality. Finally, subjectivity is bound up with the condition of being rapt with one's internal systems, feeling, and thinking. This study's autonomous reader is a subjectivity – a socially, culturally, politically, environmentally, and cognitively mediated agent.

### *The Hypertextual*

Early commentators on digital texts such as Snyder (1996) worked to understand the literacy implications and impacts of an entirely new form of non-linear text (p. 17). Delany and Landow (1991) defined a hypertext as "a variable structure, composed of blocks of text and the electronic links that join them" (p. 3). They allude (albeit unintentionally) to the cognitive and metacognitive implications of the hypertext that emphasize the centrality of the socially, culturally, and linguistically situated reader. They write:

Because hypertext breaks down our habitual way of understanding and experiencing texts, it radically challenges students, teachers, and theorists of literature. But it can also provide a revelation, by making visible and explicit mental processes that have always been part of the total experience of reading. For the text as the reader imagined – as

opposed to the physical text objectified in the book – never had to be linear, bounded or fixed (p. 4).

Writing at about the same time, Holtzman (1997) has since been proved prescient. He grasped the revolutionary effect that digital hypertexts would have on the breakdown of linear reading when he wrote:

Today nonlinearity is permeating all parts of our culture. And as these new discontinuous media permeate our life, they are changing not only our way of thinking but even our perception of reality. Soon we will no longer expect a beginning, a middle, and end. Instead, we will expect the freedom to jump in a discontinuous fashion, from idea to idea, independent of the constraints of space and time (pp. 171-172). [Underscoring in original.]

### **Beyond the Act of Reading – Visual Interest and Experiential Setting**

The act of reading has always extended beyond the text (in any format) to embodied human experience. Contemporary acts of reading often occur within a pervasive visual culture. Two decades ago, Mirzoeff (1999) investigated visual culture as a “place” where meaning is “created and contested” (p. 6). Garrett-Petts & Lawrence (2000) describe this place as “a social space for resistance, negotiation, dialogue, visualization, and multiple border-crossing” (p. 26). Where, when, and how that reader’s spatial and temporal sense is called forth will shape their meaning making and engagement with the text (Mackey, 2014). So, too, will the reader’s experience of seeing – a process fraught with biological and cultural complexities - contribute to their acts of meaning making. The affective power of the image cannot be overstated, as Apkon (2013, p. 73) reminds us that our eyes and our brains co-evolved. We have evolved to quickly process images, which category must include multimodal texts as well as the printed word.

Images hit the brain in a shockingly brief sequence of events. Neuroscientists now know that the brain begins to categorize and make sense of an image within 150 milliseconds of the first glimpse. Patterns of light and shadow flow through the cornea and are refracted and then projected as an inverted image against the retina at the back of the eye. The image is translated into ganglionic cells, which transmit it directly, via the optic nerve into two regions of the brain: the ventral stream, which governs the recognition of objects; and the dorsal stream, which is responsible for comprehending their place in three-dimensional space (pp. 73-74).

The “effortless and mercurial” act of seeing is foundational to our mode of being in the world (Elkins, 1997). Mackey (2014) invokes Bakhtin’s concept of the chronotope to cast light on this oft-neglected aspect of reading, the chronotope being “the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature” (Bakhtin, 1981, p. 84). In 2007, Jacques Rancière (2007) moved theory beyond Bakhtin to consideration of the *sentenceimage*: a melding of the conceptual work conveyed by a sentence and the image representing an idea. As Anderson (2014) writes, the *sentenceimage* creates rhetorical meaning using very similar strategies” to discrete use of words and images (p. 16). As Rancière (2007) explains:

[The *sentenceimage* is] something different from the combination of a verbal sequence and a visual form...the sentence is not the sayable and the image is not the visible. By sentence-image I intended the combination of the two functions that are defined aesthetically, this is, by the way, in which *they undo the representative relationship between text and image* (pp. 45-46).

The philosophical and theoretical complexity of online, multimodal texts continues to advance in the “era of the wor(l)d picture ... Image and language have been combined together through the politico-economic system of what I call de(sign)er capitalism” (jagodzinski, 2013, p. 71).

Digital, multimodal texts – where bodies are oriented to face a screen - similarly mask the impact of the *in situ* environment on the efficacy, enjoyment, and experience of reading. Ironically, the significance of the *situ* both grows in significance and is further camouflaged in the era of the ubiquitous portable device upon which any text may be “played” (after Binder, 2014) where playing may manifest as navigating, displaying, or interactive gaming. Kaplan (2000, 2001) takes the view that reading conducted online can rise above the warnings of eroding skills and the end of deep reading where “deep” is understood as arriving at a full and satisfying understanding of the text; put differently, where “deep” is completing the excavation of the text described above. In fact, she has this to say regarding reading strategies and behaviours that survive the transition from print to online reading.

Ironically, empirical evidence suggests that readers control their encounters with printed texts in exactly the same way, shutting the book in which they no longer have an interest, staying up all night to finish one they obviously can’t put down, returning to some many times only to wonder, at last, what they ever saw in it, and so on. Readers of scientific articles regularly read out of order: it is in their interests to do so. To admit these things, however, is not to say that no one will be able to establish a standard of readerly competence, with hypertexts or with any other sort of text. That task is no harder than it ever was; it has always been a matter of power relations, of who is empowered to define such things (2000, p. 219).

## *Remediation*

Remediation has a specific meaning in the context of multimodal literacies distinct from its workaday definition having to do with redressing a deficiency. Were the word written *re-*mediation, it might better convey its relationship to *media*, or for our purposes, to representational modes. Reiss & Young (2013) remind us that it is important for content creators (and, by extension, readers) to:

...understand how each mode contributes to meaning making and representation, and how combinations of them can create unique meanings. To really understand the affordances of each mode, and the combinations as well, one must consider *semiotic remediation practice*, which involves understanding how performances are represented and reused across multiple modes of meaning making (p. 164).

As stated above, we define multimodal after Jewitt & Kress (2003) as that range of representational modes authors use to learn about, communicate, and shape knowledge in their social worlds. Multimodal representation is foundational to understanding meaning making, a priority for contemporary pedagogy. They write:

A multimodal approach to learning requires us to take seriously and attend to the whole range of modes involved in representation and communication. ... *mode* is used to refer to a regularized organized set of resources for meaning-making, including, image, gaze, gesture, movement, music, speech and sound-effect. Modes are broadly understood to be the effect of the work of culture in shaping material into resources for representation. (p. 1) [Italics in original.]

That range of modes may be delimited in any given text and yet the text remains multimodal. For example, text and image are the two obvious modes operating in the

conventional picture book or comic book. Less obvious, as Scott McLeod (1994) reminds us, is the set of design-mode conventions that communicate mood and action, and invite and aid engagement and interpretation. We must avoid, however, giving in to the temptation of setting up false print-versus-digital categories of multimodality whereby print is simplistic and dual-modal at best and digital texts are seen as complex and meaning-enriched simply because they are multimodal. Consider that picture books often extend beyond the dual modes of printed text and image into experiential, sensory modes. Some picture books include textile elements, raised characters (braille), or holography. Books like *Little Rabbit Goes Out to Play* (Brown, 2002) include finger holes to provide an interactive tactile experience (fingers become characters' limbs, or the trunk of an elephant). Innumerable pop-up books provide a wide array of interactive features albeit in a mechanical, singular range of motion where levers go up or down, shapes unfold or not.

Some print books blend text and artefact such as Bantok's fascinating *The Museum at Purgatory* (1999). Bantok provides readers with surreal physical artefacts - including letters "mailed" between various utopic heavens and dystopic hells. *The Museum at Purgatory* subverts traditional expectations of the book as a closed conveyance of meaning from author to reader. Other books, such as those of the choose-your-own-adventure variety, disrupt readers' strict adherence to a lockstep linear progress through a text. LeapFrog's early books occupied a hybrid space between print and digital formats by exhibiting physical, turn-able pages and elements of digital mediation such as an electronic docking station that audibly pronounced words or produced music or sound effects when certain words or pictures were tapped with a stylus. Another, more recent series of specialized picture books are Kainen and Kauffman's *Safari* (2012) and *Ocean* (2014) that deploy a visual process known variously as a Photicular (or

Lenticular or Integrated Photograph) to produce pictures that appear three-dimensional and that, when moved side-to-side, mimic moving images. The process originated in the late 17<sup>th</sup> century and the technology was popular as a novelty in the early 20<sup>th</sup> century (Kainen, 2017). Moreover, many digital texts are barely more than mono-modal with the slightest nod to image as necessary to a website, usually in the service of navigation. One such example is the University of California at Santa Barbara's *Voice of the Shuttle* (Figures 2.2 & 2.3) literary research site (1994-2017). Some aids to navigation are included through basic use of colour, layout, and content boxes. So far, paper can do everything this site does except support hyperlinks. Nevertheless, the site is packed with text both printed and hyperlinked. Here is the site as it appeared in June of 2018.



Figure 2.2 *Voice of the Shuttle* website, 2018.



The structure of the site has not changed since its launch. Below is how the site appeared on November 28, 2001 on the very day it presented its “new” website to the world.

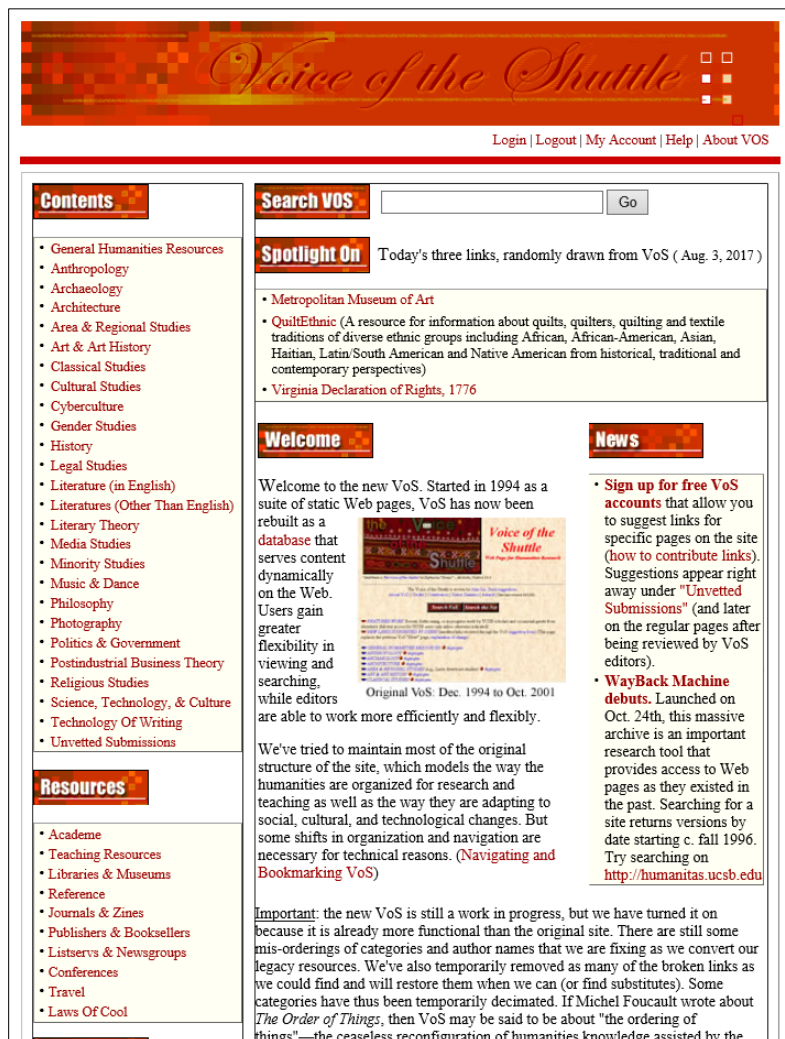


Figure 2.3 *Voice of the Shuttle* website, 2001, courtesy of *The Internet Archive* (2018).

Websites such as *Voice of the Shuttle* (Figures 2.2 & 2.3) are strong examples of replicated print-technology expectations in the electronic format, a topic explored by N. Katherine Hayles (2008). She writes,

Readers come to digital work with expectations formed by print, including extensive and deep tacit knowledge of letter forms, print conventions, and print literary modes. Of

necessity, electronic literature must build on these expectations even as it modifies and transforms them (p. 4).

It is this modification and transformation we see operating in the *Born Magazine* works presented to study participants.

Another example of print-heavy online content is the phenomenon of MUD games (multi-user domains or dungeons), originating in the mid-1970s and continuing to the present, wherein purely printed textual adventures are pursued collaboratively in an online environment (Townsend & Heron, 2013). Among the earliest pre-Internet games of this type were Trubshaw & Bartles' (1978) *Multi-User Dungeon* (Figure 2.4) (from which the genre takes its earlier name (later multi-user domains). Bartle (2003) defined MUDs' characteristics as text-based, multi-player, real-time virtual games that, in their modern iteration, rely on online chat systems where player interaction occurs through typed entries.

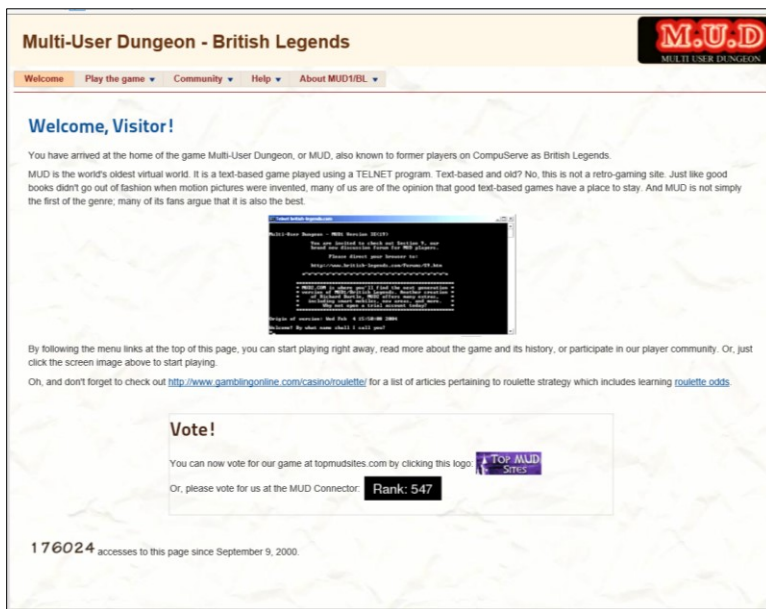


Figure 2.4 *British Legends, Trubshaw & Bartle (1999) MUD, 2017*

## **Chapter 3 – What the Literature Offers**

### **Past Research and Existing Literature**

Research into multimodal literacies and metacognition has proliferated over the past decade (by way of example, Pope, 2016; Danielsson & Selander, 2016; Mills, 2009; Mackey 2002, 2007, 2010, 2011a, 2011b, 2013; Jewitt, 2006, Jewitt & Kress, 2003; Sipe 2008a, 2008b; Daly & Unsworth, 2011; Schraw & Moshman, 1995; Schraw, *et al*, 2006; Veenman, *et al*, 2006). However, research mapping adolescents' metacognitive skill and awareness during engagement with multimodal texts is less advanced. There is some recent work on multimodality and metacognitive development in pre-school children, for example (Wolfe & Flewitt, 2010). In 2014, Shen, Qu, and Zhang examined multimodality in a multimedia environment for EFL (English as a foreign language) learners in China (pp. 125-129). Nevertheless, there has been little work on print-literate youths' (age 12 to 18) metacognitive skill and awareness as they navigate and construct meaning from multimodal texts.

### **Contemporary Multimodal Literacy and Metacognition Debates**

Multimodal literacy scholarship often examines children's response to multimodality (Mackey, 2002; Wohlwend, 2008 & 2009; Marsh, 2005; Marsh, *et al*, 2005; Pahl, 2005; Hackett, 2014; Marsh, Hannon, Lewis & Ritchie, 2017; Flewitt, Messer & Kucirkova, 2015; Sefton-Green, Marsh, Erstad & Flewitt, 2016). Still others assess the pedagogic value and affordances of multimodal versus print-only (mono-modal or dual-modal) literacy (Ganea, Bloom, Pickard & DeLoache, 2008). Metacognitive scholars debate young children's development of metacognitive skill (Whitebread, *et al.*, 2009; Sperling, *et al.*, 2002; Schneider, 1998 & 2008; Schneider & Lockl, 2002; and Perry, 1998). Others map out the boundaries of metacognitive research and its capacity to revolutionize classroom instruction (Thomas, 2002; Ozgul & Topcu,

2010; and Larkin, 2010). Research that primarily investigates *both* multimodal literacy and metacognition has only recently begun to emerge in specific contexts from photography to comic books (Wiseman, Mäkinen & Kupiainen, 2016; Lockyer, 2014; Brenna, 2013; Clary, Kogotho & Barros-Torning, 2013; Wolfe & Flewitt, 2010; Walsh, 2010; and Instrell, 2012). Multimodal approaches, however, are primarily concerned with the transmission and transformation of content via various modes (Mills, 2015).

### **Major Theoretical Frameworks**

This study relies upon two theoretical orientations - social *constructivism* and social *constructionism* – in its approach to the study of self-directed individuals constructing knowledge through their socially and culturally mediated experience (Lee, 2012; von Glaserfeld, 1996) of online multimodal texts.

#### *Constructivism*

The study adopts, in part, a Constructivist approach appropriate to investigations of metacognition's and multimodal literacy's shared emphasis on self-directed individuals constructing knowledge through experience (von Glaserfeld, 1995; Fox, 2001). A social constructivist theoretical framework underpins much of the recent metacognition research (Amin & Mariani, 2017; Krys & Eaton, 2017; Taber, 2017; Ozgul & Topcu, 2010; Pang, 2010; Ahn & Class, 2011; Aydin, 2011; Akyol & Garrison, 2011; and Janjai, 2012). Constructivism is also prevalent in recent work on multimodal literacies (McBride, 2012; Doering, Breach, & O'Brien, 2007).

Drawing from classical sociology theory, social constructivism turns its attention to the collaborative, socially constructed production of knowledge learned and shared among those cognitively participating in the culture. Constructivism refers to a set of views about how

individuals learn and about how those who help them to learn ought to teach. A constructivist approach reflects the complexity of the socially and culturally mediated act of reading that can be said to drive learning and cognitive development (Vygotsky, 1978, 1986, & 1987). Vygotsky (1978, 1986, & 1987) argued that children develop cognitive skill through culturally mediated practical experience. In his early work, Vygotsky looked to the semiotics of the prevailing culture and language as contributing to that cognitive development. Social constructivism's emphasis on the social, the cognitive, and the production of knowledge are directly on point for this research. Social constructivist theoretical frameworks are evident in much of the recent metacognition research (Thomas, 2002; Thomas & McRobbie, 2013; Ozgul & Topcu, 2010; Pang, 2010; Ahn & Class, 2011; Aydin, 2011; Akyol & Garrison, 2011; Janjai, 2012; and Breed, Mentz & van der Westhuizen, 2014). Constructivism also intersects with recent work on multimodal literacies (McBride, 2012; Doering, Breach, & O'Brien, 2007; Hill, 2014; and Naraian & Surabian, 2014). Therefore, pedagogy must develop strategies to empower students to participate in a range of conversations and to acquire the skills that allow them to take persuasive positions within these conversations. Collaborative and student-centered learning are vigorously to be pursued.

This study also owes a theoretical debt to Bruner's (1947, 1966, 1983, 1986, 1990, & 1991) work that positions sensation and perception as active, rather than autonomic, processes. Bruner (1947 and with Postman, 1949) concluded that research participants' perceptions of objects are linked to socially mediated value and need. Bruner called attention to the importance of individuals' personal and idiosyncratic cognitive interpretations of perception. Bruner's work is often placed within the social constructivist school – a system of thought wherein communal shared meaning is the product of individuals engaged in social communication exchanges and

collaborative meaning making. Collaborative meaning making is a mainstay activity among adolescents, and in the digital age, often conducted by and through online connectivity. Much of Bruner's work contributed to educational psychology out of which emerged the concept of "scaffolding", being the additive learning processes by which human beings base new learning on previous experience. A short review of Bruner's conclusions illustrates those elements that inform the proposed study.

In *Towards a Theory of Instruction* (1966), Bruner tackles the perennial psychological and philosophical problem of representation. In Bruner's system of thought, representation(s) result(s) from the interplay of: language (symbolic representation); action (enactive representation); and image (iconic representation) with an expected sequence from action to image to language. Bruner privileges learners' spontaneous categorical organization of codes and so speaks to my librarian sensibilities moving from the general to the specific as learning progresses and as scaffolding produces increasingly granular categories. Bruner expanded upon this work in *Child's Talk: Learning to Use Language* (1983).

Where an understanding of Bruner becomes essential to this study is in his primarily ontological theory of narrative construction: narratives as substrate of subjective reality. The literature reports that Bruner's *Actual Minds, Possible Worlds* (1983) remains important and influential. As Bruner (1991) writes elsewhere on his theory:

... we organize our experience and our memory of human happenings mainly in the form of narrative – stories, excuses, myths, reasons for doing and not doing, and so on.

Narrative is a conventional form, transmitted culturally and constrained by each individual's level of mastery and by his conglomerate of prosthetic devices, colleagues, and mentors. Unlike the constructions generated by logical and scientific procedures that

can be weeded out by falsification, narrative constructions can only achieve ‘verisimilitude’. Narratives, then, are a version of reality whose acceptability is governed by convention and ‘narrative necessity’ rather than by empirical verification and logical requiredness, although ironically we have no compunction about calling stories true or false (pp. 4-5).

In Bruner we find a nexus of ideas about being, knowledge, thinking, and narrative that shapes this study.

### **Constructionism**

Social constructionism emphasizes the cultural and social mediation of knowledge, the collaborative production and exchange of artifacts (multimodal online texts) group participation (online connectivity) and their cumulative impact on cognitive and metacognitive processing where, as stated above, there are at least two minds at work, the creator and the reader. Social constructionism stems from symbolic interactionism and seeks to understand the construction of shared social understandings, the construction of shared models of social activity communicated through language (Leeds-Hurwitz, 2009). Of central concern to social constructionism are the so-called taken-for-granted meanings assigned to members of a social group. How do readers engage in the work of building their take-for-granted? How are these views entrenched and institutionalized in schools? By students? By teachers? By administrators and power-brokers within the educational system? Multimodal literacy cannot be divorced from the artefacts acted upon by the reader regardless of format (see Rowsell, 2014) whether websites, hypertexts, music, sound (see Shanahan, 2012 & 2013) or digital texts. Social constructivism represents, according to Jewitt (2006), one “way of thinking about the relationship between semiotic resources and people’s meaning-making” (p. 16). Constructionism has a specific character in the educational

context. For Kenneth Gergen, educational social constructionist researchers reject all models of teaching and learning that stem from the false notion that knowledge resides within individual minds. These models, Gergen (2001) claims, all favor a sharp distinction between teacher and student - one who knows and the other who does not. Moreover, the so-called “unknowing” student is treated simply as an empty vessel wherein the teacher deposits “contents or rationalities” “mind to be filled with the contents or rationalities” (pp. 134-135).

Metacognition must operate in response to *something*. For that reason, this study also looks to constructionism (as it operates in communication theory) as a supplemental theoretical orientation. Leeds-Hurwitz (2009) underscores the relevance of social constructionism to the research at hand.

...it is through communication that we *construct the social world and our understandings of it*. We create the social world through our words, our actions, and our media products. Interaction is no less a social accomplishment than is the creation of a film: both require considerable creativity and coordination on the part of participants (p. 894). [Italics added.]

Social *constructivism* and social *constructionism* thrive in a shared habitat – that of the collaborative social animal. However, where the former is concerned in the main with individual participants’ learning while engaged in social activity, the latter emphasizes the importance of the media products or artefacts that result from their socially mediated collaboration. Honeyford’s (2013) study, for example, illustrates the importance of the artefactual in digital storytelling. Moreover, social constructionism makes room for intentionality, for acts of volition, for successive choices and interpretations made by the actively engaged participant as they create and participate in a social reality. For all this, we must not lose sight of the pressures exerted in



both directions – from text to reader and reader to text – nor allow the presence of the author to be effaced. All acts of reading involve at least two minds – author and reader - although their points of contact may be asynchronous. Of course, in texts of any mode or format, there are potentially several others performing intellectual labour including editors, designers, programmers, network administrators, and artists. Each encounter, even between the same reader and text, will exhibit successive, transient, and irreplicable haecceities: the totality of qualities (i.e. temporal, spatial, and affective) that produce a unique *thisness* to a reading event. We must resist degrading the text-before-the-reader to the status of static object, as this habit of thought casts a shadow of unsupportable neutrality over the text and its author. We can detect here Barthes' distinction between the apparent straightforward delivery and acceptance of meaning from author to reader of a *readerly* text from the *writerly* text that assumes an active reader engaged in determining for themselves the subjective meaning of the work. As Barthes (1974) wrote:

There may be nothing to say about writerly texts. First of all, where can we find them? ... the writerly text is not a thing, we would have a hard time finding it in a bookstore. Further, its model being a productive (and no longer a representative) one, it demolishes any criticism, which, once produced, would mix with it: to rewrite the writerly text would consist only in disseminating it, in dispersing it within the field of infinite difference (p. 4).

All texts are crafted works of human communication working to attract and hold the reader's attention; they are acts of volition, of intentionality. Even automated text-generating software executes the programmer's intention. Reader and text act upon each other. Ackermann's (2001) advocacy for adopting a blended constructivist / constructionist perspective

is helpful in the present instance. Contrasting Piaget's (1970) constructivist theory of genetic epistemology (developmental theory of knowledge) and Papert's (1972, 1980) constructionist thinking, she writes:

Piaget's constructivism offers a window into what children are interested in, and able to achieve, at different stages of their development. The theory describes how children's ways of doing and thinking evolve over time, and under which circumstance children are more likely to let go of—or hold onto—their currently held views. Piaget suggests that children have very good reasons not to abandon their worldviews just because someone else, be it an expert, tells them they're wrong. Papert's constructionism, in contrast, focuses more on the art of learning, or 'learning to learn', and on the significance of making things in learning. Papert is interested in how learners engage in a conversation with [their own or other people's] artefacts, and how these conversations boost self-directed learning, and ultimately facilitate the construction of new knowledge. He stresses the importance of tools, media, and context in human development. Integrating both perspectives illuminates the processes by which individuals come to make sense of their experience, gradually optimizing their interactions with the world (n.p.).

Papert's emphasis on the importance of competency with online and multimodal tools, for both students and teachers (Walsh, 2010; Erstad, 2016) is especially germane to the matter of online reading. It is a perspective shared by contemporary scholars such as Luke (2007), Beach (2009), Lievrouw (2011), Carlson, Share & Lee (2013), Duggan (2013), Share (2015), and Hawley-Turner & Hicks (2015). Much of the focus on tools intersects with metacognitive processes and awareness governing the tool's capacities, potential uses, means of exploitation, and modes of expression.

One further *bona fide* legitimizing a constructionist perspective in a study involving online multimodal texts rests in its focus on the intentionality of the digital text. Morgan and Kynigos (2014) describe that intentionality as embedding:

... one or more powerful ideas. At the same time, in a constructionist setting, representations are not seen simply as objects to which some kind of meaning may be attached but ... as a base or a building block to create more complex structures, or simply considering it as a base from which to build something different” (p. 360).

Constructing meaning from an online multimodal text - interpreting and integrating shifting modality judgments - is a pragmatic socially mediated learning experience. Here we come upon an intersection between multimodal online texts and their relationship to participatory culture. According to Jenkins, *et al.* (2006), a participatory culture is characterized by low barriers to artistic expression and civic engagement, strong community support, and encouragement for sharing and informal mentorship relationships. Moreover, those engaged in a participatory culture are convinced their contributions are important. They demonstrate a fealty to the group and an interest in their peers’ opinions (pp. 5-6). Students who develop pragmatic metacognitive interpretive skill with multimodal content may be better equipped to learn, and to learn continually. They may have an advantage whenever they engage with multimodal content in any number of life or work situations be they creative, analytic, simulation, artistic, economic, social, or recreational.

### **Symbolic Interactionism: Blumer’s “Barbaric Neologism”**

What follows outlines the rationale underpinning symbolic interactionism being well suited for research into young people’s metacognitive decoding of multimodal texts. Symbolic interactionism draws from mainstream sociology and concerns itself with semiotics, multiple

realities, individual sense making, and socially mediated meaning. Symbolic interactionism concerns itself with the day-to-day and the mundane; the ubiquitous and the routine. Symbolic interactionism embraces and can carry the analytical load represented by the metacognitively aware, specifically situated reader's complex relationship to a decentred text. As Prasad (2005 writes):

[Symbolic interactionism] is not exclusively concerned with the study of symbols as much as with the study of human meaning, which is seen as emerging out of symbolic realms and related meaningful action. The approach rests on the belief that object and events have no intrinsic meaning apart from those assigned to them by individuals in the course of everyday social interaction (p. 21).

George Herbert Mead's (1934) behaviourist psychological inquiry into the mind, self, and society influenced Herbert Blumer (1969). Blumer founded the new interpretive tradition of symbolic interactionism (a term Blumer himself described as a 'barbaric neologism', 1) upon three foundational assumptions governing human engagement with meaningful objects, which he defined as "anything that can be indicated, anything that is pointed to or referred to...physical, social, or abstract" (p.10). First, a person's behavior towards an object flows from the meaning he or she assigns to that object. Second, the meaning the person assigns to an object is socially mediated. Third, these meanings exhibit a morphology driven by the person's subjective diachronic interpretations (Blumer, 1969, p. 2). Process, the *how* of the behaviour under investigation, helps the researcher working in the symbolic interactionist tradition to better understand how socially, culturally, and situated roles and identities produce multiple and divergent realities (Prasad, 2005, pp. 25-26). Symbolic interactionism tends to concern itself with the life-up-close experience of the reader rather than the life-at-a-distance spheres of curricula

and education officialdom. Kaustuv Roy (2005) makes a useful contrast between of “up close” and “tactile” (haptic) and “far away” (optic) philosophical spaces. These two philosophical spaces operate according to specific logics and imperatives. Summoning two technological metaphors helps to guide the discussion. A microscope represents up-close and a telescope represents *far away*. When considering the characteristics of far-away space, picture a telescope, even a particularly powerful one, like the Hubble space orbital observatory telescope. Hubble produces images of the ultra-deep field of distant galaxies such as image STScI-PRC14-05a (NASA, n.d., Figure 3.1) below.



*Figure 3.1 Hubble Telescope Deep Field Image (NASA, n.d.)*

In some experiences of the far-away - phenomena at a distance - all difference is effaced. The unique characteristics of each galaxy, within which exist limitless diversity of form, cosmic and orbital mechanics, organic and elemental chemistry, appear from this immense distance as simple points of light. The visual evidence alone cannot convey the complexity of the reality; imagining that complexity is an act of will. It sets our visual experience against our intellect. This is the space occupied by ministries and departments of education, school boards, and

curriculum working groups. This is the space within which all readers, regardless of their individuality, are relegated to the category “Students”... This space is all about the literal “big picture” (very big in this example). Distance affords a wide perspective and a specific mode of understanding. By contrast, life-up-close is a riot of difference, of the tactile, of sensory evidence. Life up-close is the view of the microscope. Consider this image of ocean sand magnified to a power of 250 (Greenberg, 2008) (Figure 3.2). The metaphor is imperfect as it suggests an artificial dichotomy based on the relative distance of the subject / viewer from the objects. For our purposes, the distance here is precisely the point. Distance generates the illusion of undifferentiated space and effaces our notice (let alone appreciation) of a complex system’s granular details. It allows us to formulate false equivalences and to advance facile, and often futile, solutions to complicated problems. Put in terms of this study, we will recognize the tendency of school administrators, districts, and authors of official curricula to operate in the far-away (from classrooms) space that allows them to set assessment policies as if all students of a certain age are fully-fledged experts at online activity including literacy, whereas we might be very familiar with the close-up space as a riot of difference, replete with special needs, differentiated learning, multiple-grade classrooms, and a wide range of language, reading, and social skills.



*Figure 3.2 Sand magnified (Greenberg, 2008)*

The smooth space of familiar ocean sand is shattered by the riot of difference made visible through magnification (Figure 3.2). This is the view of sand as it slips through your fingers, as it is shaped with buckets and spades, as it is moulded, dug out, heaped, and scattered. The *up close* is an unpredictable, rough space. It is the realm of *this* reader in *this* moment engaging manually *and* cognitively *and* metacognitively with *this* text. In the context of public pedagogy, life-up-close is beyond the *far away's* immediate influence. And, as shall be argued hereafter, in terms of online literacy, it is a space claimed by this study's readers: beyond the curriculum, and the classroom.

Centrally important to this study is Blumer's (1969) treatment of the process of interpretation in which we can detect what we might term metacognitive activities. He writes:

This process has two distinct steps. First, the actor indicates to himself the things toward which he is acting; he has to point out to himself the things that have meaning. The making of such indications is an internalized social process in that the actor is interacting with himself. This interaction with himself is something other than an interplay of elements; it is an instance of the person engaging in a process of communication with himself, interpretation becomes a matter of handling meanings. The actor selects, checks,

suspends, regroupes, and transforms the meanings in the light of the situation in which he is placed and the direction of his action. ...It is necessary to see that meanings play their part in action through a process of self-interaction (p. 5).

Charon (2010) outlines the central nodes of symbolic interactionism that drive data generation and analysis methods. Namely, human beings are social animals, and that fact determines our behavior. Therefore, symbolic interactionism examines interactions. Moreover, human beings think constantly and therefore we are perpetually in conversation with others and with ourselves. Additionally, human beings define the situations they experience, and that definition arises from thinking mediated by social interactions. Symbolic interactionism gives primacy to the active agent and eschews descriptions of human behavior that rely upon passive reactions to external stimuli (pp. 28-29). Symbolic interactionist studies rely heavily upon participative observation. Researchers work in concert with the participants to gain access to an understanding of their roles and identities in their world-as-lived. Interviews focused on participants' meaning making and experience feature prominently in this tradition. Researcher and participant share responsibility for the interview's progress. Data analysis is an inductive process that attempts to sideline prescriptive theoretical frameworks; theoretical insight emerges from the data. The foregoing rightly places symbolic interactionism in the same genus as grounded theory (Prasad, 2005).

Prasad (2005), however, draws an important distinction between the two traditions. She writes, "with all of its openness to empirical situations, symbolic interactionism remains strongly committed to social construction from the standpoint of multiple roles, self-images, and identities (p. 26). Blumer (1969) points to symbolic interactionists' interest in the seat or source of meaning to further distinguish this approach from related methodologies. If, in a realist tradition,



meaning adheres immutably to the thing in question (an object, a concept, or a historical event), then inquiry need only catalogue that meaning through observation and description (pp. 3-4). Alternatively, if meaning is the product of psychological and affective processes and therefore the product of a human mind that engages in those processes (attitudes, emotions, morals, taboos), then the meaning a thing holds for a given human being may be understood through forensic psychological investigation (Blumer, 1969, p.4). As Blumer (1969) puts it:

This lodging of the meaning of things in psychological elements limits the processes of the formation of meaning to whatever processes are involved in arousing and bringing together the given psychological elements that produce the meaning. Such processes are psychological in nature, and include perception, cognition, repression, transfer or feelings and association of ideas (pp. 3-4).

Symbolic interactionists see meaning as arising out of acts of communication among people, or indeed with oneself, and giving high priority to reactions and indications of others with respect to the thing in question (Blumer, 1969, p. 4). “Thus,” writes Blumer (1969), “symbolic interactionism sees meanings as social products...formed in and through the defining activities of people as they interact” (p. 5).

### **How is Metacognition Important to the Study of Multimodal Literacy?**

As was outlined briefly above, Flavell (1979) pioneered a model of metacognition based on an individual's: 1) personal and task knowledge (cognitive awareness); 2) strategy knowledge (cognitive knowledge); and 3) cognitive experiences (cognitive regulation). Students new to metacognition often notice Flavell's liberal use of the term “cognitive” in his definition. Metacognition – *meta* being the Greek prefix for *above* - must have something over which to ascend. That something is cognition. The distinction between cognition and metacognition is

more easily maintained on paper than in practice; a state of affairs that complicates its study and assessment. Bloom's taxonomy (1956), for example, describes cognitive processes (Thomas, 2002): synthesis, evaluation, analysis, application, comprehension, and knowledge (Huitt, 2011). Metacognition, by contrast, refers to a person's knowledge, awareness, and control of their own cognitive processes. Put differently, as a rule of thumb, if the activity is listed in Bloom's taxonomy (1956), it is not metacognition.

A careful reading of the literature reveals metacognition's importance to multimodal literacy research.

[Students'] making of everyday meaning has always been a complex exercise for children, involving many forms of sensory input. Over the past thirty years, the making of textual meaning has steadily become a more elaborate enterprise for young learners, who must learn to orchestrate an increasing variety of information channels. And the development of critical understanding must take place in the context of very sophisticated aesthetic, ideological, and commercial manipulation of multimodal options for young people (Mackey & Shane, 2013, p. 15).

It is difficult to imagine students successfully developing robust critical understanding and skills without metacognitive knowledge, awareness, and control. We can appreciate metacognition's importance by considering the consequences of its absence from the multimodal reading event and how that absence might reinforce the myth of the author-god's monological, singular, stable, authoritative meaning. Put differently, if the reader is not metacognitively and critically engaged with a digital multimodal text, then the reading adheres to and reinforces habits of thought (Masny, 2012) which may preclude new expressions of culture, art, and democracy (Gainer, 2012).

What instances of metacognitive awareness do adolescents exhibit while traversing the multimodal texts' "semiotic landscape" (Kress & van Leeuwen, 2006)? At this juncture it is appropriate to return to the notion of *between-ness* introduced earlier (not related to the Deleuzeguattarian sense of the term): the idea of meaning-making as a readers' rope bridge fashioned from their own resources and experiences to move that experience forward, across an expanse.

### **Other Theoretical Influences**

Dewey's thinking also contributes to the research design and structure of this study. Dewey's thinking is now a century in the past. Nevertheless, his influence endures. Over several seminal texts (1897, 1900, 1902, 1916, and 1938), Dewey emphasizes education as a social process; that the locus of education – the school – is a site for social change and reconstruction. In *The Child and the Curriculum* (1902), Dewey outlines his concern over students' lack of engagement in a curriculum-driven pedagogy, a theme that asserts itself in this study. Student experiences are paramount in successfully creating engaging and relevant curriculum, he argued. That being said, it is clear that Dewey had little time for education devoid of rigour or focused instruction. He sought a balance whereby teachers and students collaborated in the learning potential of the students' experience (1938). One quote especially resonated with me in the development of a research plan. Dewey (1916) wrote:

... if knowledge comes from the impressions made upon us by natural objects, it is impossible to procure knowledge without the use of objects which impress the mind (pp. 217-218).

In this study, those objects are multimodal, online, complex, virtual, dynamic texts that defy established print text conventions.

The notion of *multiple* influences this study. Prominent among theorists concerned with multiplicities is Howard Gardner (2006) the originator of multiple intelligence theory (MIT). MIT argues that students learn in varied and more or less independent ways. All of these routes to learning are implicated in this study of how adolescents' employ metacognitive strategies (or not) while engaged with multimodal online texts. Might a multimodal text appeal to an idiosyncratic spectrum of intelligences for one individual differently from the next? Or would the experience work upon different intelligences for the same reader after initial experience of the text and perhaps in the wake of new learning, social experiences, new skill development, or even changes in perception? The fluidity of such experiences hold potential implications for curriculum design, the classroom and beyond, especially in classrooms responding to digital environments and official policy demanding that learning take place within such environments. Gardner's influence among researchers investigating multimodal texts has been ongoing since 2006. The research trio of Sankey, Birch, and Gardiner (2010, 2011), for example, examine the relationship between multiple intelligences and multimedia (multimodal texts) and their impact on learning outcomes.

Also rising in the theoretical brume that infuses this study is Vygotsky's work in the interdependent relationship between thought and language and the development of silent inner speech as differing from the spoken word (1986). Vygotsky argued that maturing inner speech becomes increasingly idiosyncratic to the thinker as a product of his or her unique socially mediated cognitive processes. Eventually the thinker develops self-directed knowledge, awareness, and control of the inner dialogue and that is the intersection with metacognitive models developed by Flavell (1976) and Schraw & Moshman (1995) – involved in this study.

This aspect of Vygotsky's thought informs the research design element of the "talk aloud" method.

Additionally, this study also benefits from considering Vygotsky's Zone of Proximal Development (1978) – a zone determined by the learner's previous experience and his or her access to effective instruction (Poehner, 2012, van Compernell & Williams, 2012). Vygotsky (1978) positions learning as a priori to development, ideally through the intervention of a more-knowledgeable third-party agent (pp. 79-91). What happens when, in the digital era, that third-party agent is supplanted by technologies with far-reaching repercussions and effects on both development and learning? Effects we are still in the first decades of investigating.

### **Readers and the Reading Experience - Iser and Rosenblatt**

This study will consider various aspects of reading explored by influential theorists beginning with Iser (1980) who considered affect-as-feeling as central to understanding readers' experience. He compared the reader's pre-reading emotional state and post-reading emotional satisfaction in terms of affective qualities. Iser (1980) dismissed the contemporary wisdom that research investigating reader response was "open to the criticism that it is a form of uncontrolled subjectivism" (p. 23). It is that very reader-centred orientation (shared with Barthes and Kristeva) upon which this study relies. Similarly, Rosenblatt's (1938, 1978) ground-breaking work on transactional reading responses exerts a powerful theoretical influence over this study. Influential for her work in individual reader responses to literature, Rosenblatt (1978) developed a concept of reading as transaction between text and reader. She considered readings (and re-readings) to be a recursive system in which text and reader act and are acted upon by each other. Rosenblatt developed the idea of reading *stances* along a continuum poled by *aesthetic* and *effereent* readings (1987). Rosenblatt's reader-response work recalls Heraclitus's river: you

cannot step in the same text twice. There can be no single, universal interpretation of a text's pure authorial intention. Each reader and text is a ceaseless flow of experiences, beliefs, conditions, contexts, shifting environments, and psychological processes. Mary Daniels-Brown (2000) summarizes the influence of Rosenblatt's foundational works *Literature as Exploration* (1938) and *The Reader, the Text, the Poem: The Transactional Theory of the Literary Work* (1978) exerted on the next generation of scholars.

Rosenblatt is one of the proponents of the reader-response theory of literary criticism, a concept that emerged in the U.S. in the 1960s and 1970s as a reaction to New Criticism, which treated a literary work as an object that should be considered without reference to the reader's experience of it. Reader-response criticism emphasizes the reader's reaction while reading a literary work in what Rosenblatt in the preface of this book calls "the reader's contribution in the two-way, 'transactional' relationship with the text" (p. ix). In reaction to the New Critics, Rosenblatt tells us, "I rejected the notion of the poem-as-object, and the neglect of both author and reader" (p. xii).

Many of Rosenblatt's concepts operate in the back, mid, and foreground of this study. Her argument against privileging authors' intentions over readers' responses harmonizes with the thrust of Barthes' and Kristeva's philosophical work and has influenced this research. Readers are central and the construction of meaning is of paramount importance. Rosenblatt's appreciation for the temporal nature of reading resonates with the notion that the reader / text assemblage in any given instance (even all subsequent conjoinings of the same reader and text) are unique. In fact, Rosenblatt (1978) writes that the text:

...must be thought of as an event in time. It is not an object or an ideal entity. It happens during a coming-together, a compenetration, of a reader and a text. The reader brings to

the text his past experience and present personality. Under the magnetism of the ordered symbols of the text, he marshals his resources and crystallizes out from the stuff of memory, thought, and feeling a new order, a new experience, which he sees as the poem (p. 12).

Rosenblatt's use of the term *poem* refers specifically to a work of literary art regardless of format or genre. Each encounter with a poem is transactional in the sense that neither text nor reader enter into, nor emerge from, the text unchanged. The event of the encounter is of the moment and never repeatable. Even if the reader begins the text anew, the moment following completion the transaction will be unique. That next reading will be informed by a reader changed in understanding or wrestling with confusion, motivation, duress or excitement or even by shifting responses to the reading environment (e.g. being pressed for time, improved or diminished lighting) and their physical and emotional state (e.g. hunger or discomfort; or elation and increased curiosity.) No two transactions can ever be identical.

A further, and enduring, inheritance from Rosenblatt (1978) involves her definitions of *efferent* and *aesthetic* readings describing the reader's active awareness of his or her conscious expectations of the dividend that the text will remit for their investment of time and energy. Being aware of any given reading event as largely *aesthetic* or *efferent* (but never entirely one or the other) shaped my relationship with literacy. Rosenblatt (1978) describes the processes implicated in this study. She writes:

[The reader]...is immersed in a creative process that goes on largely below the threshold of awareness... [that] imposes the delicate task of sorting the relevant from the irrelevant in a continuing process of selection, revision, and expansion (pp. 52-53).

Selecting, revising, and expanding, if occurring without the readers' awareness, is cognition.

Selecting, revising, and expanding with awareness is metacognition - a mode of thinking that subjects cognition to self-regulation and control.

### **Understanding Reading**

Contemporary multimodal literacy scholarship began at a famous 1994 meeting of the scholars who would later publish as the New London Group in 1996 (Cazden, Cope, Fairclough & Gee, *et al*). The New London Group introduced the concept of multiliteracies to theorize the emerging communication affordances of nascent online digital multimedia texts. In due course, *multiliteracies* gave way to *multimodal literacy* as the preferred term. Nevertheless, none of the foregoing was actually “new”; a fact that harkens back to Barthes' notion of the already-written and the already-read relational nature of all texts. Polysemous texts for young people date back at least to the mid-17th century with Comenius' (1685) *Orbis Sensualium Pictus* (“the visible world”), and have persisted as the familiar text/image/design assemblage we recognize today. The power of the image presented by comic books, or what McCloud (1994) termed “sequential art”, prompted alarm in the 1940s that resulted in state-sponsored censorship in the form of the Comic Code of the 1950s.

In the late 20th century, the rapid proliferation of digital online texts facilitated by Internet connectivity and, in particular, the software revolution of the World Wide Web, spurred widespread interest in re-examining the concept of literacy within the new electronic systems. The pioneering scholars of the New London Group (Cazden, *et al*, 1996) began a decades-long examination of these issues from diverse perspectives that continues to the present day. Perspectives range from classroom discourse (Cazden, 1996) to the pedagogy of new literacies (Cope & Kalantzis, 2001, 2009, 2012, and 2015), from social education (Kalantzis 1989) to



critical discourse analysis (Mills 2009 & 2015) and language and literacy (Gee, 1990, 2000, 2007, and 2014). Scholars worked to advance the pedagogical and sociological potential proffered by this entirely new way of creating, sharing, and reading texts. The implications were wide-ranging and revolutionary.

The Internet, like the comic books of 50 years previous, sparked moral panic among parents and educators. Sequential art had been troubling enough, but here was something other. Grave concerns were voiced over the “addictive” (both literal and figurative) allure of online multimodal texts (Freed, 2015; Donawa & Fowler (2013); Young & Nabuco de Abreu, 2010; Roberts, 2010; Shaw, 2008; Gonzalez, 2002; Greenfield, 1999). Hypermedia and the hypertext as we currently conceive it – Snyder’s (1996, p. 3) “electronic writing space” - was born. Words and pictures, together with video and audio content, were being brought together as never before and the results exhibited a new ergodic character (Aarseth, 1997). Recall from the discussion above that Aarseth (1997) used the term *ergodic literature* as to describe the “nontrivial effort” of the reader in their efforts to “traverse” these new online texts (p. 1). In the present context of this study “nontrivial” effort encompasses purposeful, deliberate, problem-solving work. Ergodic literature contrasts cybertexts (a term since superseded by digital text) with traditional print reading in a way that is fundamental to the present research.

The concept of cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centers attention on the consumer, or user, of the text, as a more integrated figure than even reader-response theorists would claim. The performance of their reader takes place all in his head, while the user of cybertext also performs in an extranoematic sense. During the cybertextual process, the user will have effectuated a semiotic sequence, and

this selective movement is a work of physical construction that the various concepts of “reading” do not account for (Aarseth, 1997. p. 1).

Twenty years later, such cybertexts, remain a defining characteristic of many online multimodal texts. They also inform many readers’ expectations and their taken-for-granted about reading online.

It is helpful at this point to draw distinctions between three closely related terms: hypertext, multimodal, and hypermedia. *Hypertext* may be thought of as analogous to print reading and writing but on a screen (Moss & Marroquin, 2010, p. 265) with added functionality allowing the reader to determine his or her own ergodic reading paths independent from those imposed or suggested by an author or publisher (Kress, 2003). The reader of digital texts must perform Aarseth’s ergodic action, mouse clicking or “swiping” their path through the digital or online text via links embedded in it. Hypertexts exhibit specific hallmarks described by Landow (2006) including: openness, decentrality, multivocality, and a rhizomic structure. *Multimodal*, on the other hand, refers to a text employing at least two distinct modes of communicating meaning (each with their own limits and affordances). *Hypermedia* describes texts that exhibit non-linear design and multiple representational modes (Moss & Morroquin, 2013, p. 265). Landow and Delany (1995) made an early contrast between hypertext and hypermedia and their relationship to consciousness and embodied meaning making:

Hypertext provides a better model for the mind’s ability to re-order the elements of experience by changing the links of association of determination between them. But hypertext, like the traditional text from which it derives, is still a radical reduction – to a schematic visual code – of what was originally a complex physical and intellectual experience, engaging with all the five senses. *Hypermedia* takes us even closer to the

complex inter-relatedness of every day consciousness; it extends hypertext by re-integration our visual and auditory faculties into textual experience, linking graphic images, sound and video to verbal signs. Hypermedia seeks to approximate the way our waking minds always make a synthesis of information received from all five senses.

Integrating or (reintegrating) touch, taste and smell seems the inevitable consummation of the hypermedia concept (p. 7).

Educators, librarians, students, and parents have all wrestled with the powerful and far-reaching implications of these radically new and unstable reading experiences. In these digital texts, the reader enjoys independence in constructing meaning from an increasingly labile text; one that has become both more multiple in its potential meaning to diverse readers and more singular in its constructed meaning to one reader. Many contemporary authors continue to grapple with the impacts to reading, pedagogy, learning, and meaning making of these newly mediated experiences. Burnett and Davies' (2013) "Making sense of the multimodal, multimedia landscape?" and Dalton's (2013; & with Smith, 2012) work on students' close reading of multimodal texts are representative examples. So, too, is Jaleel & Premachandran's (2016) recent work by identifying several metacognitive skills exhibited by secondary school students germane to this study.

*Knowing your limits* - knowing the limits of one's own memory for a particular task and creating a means of external support.

*Self-monitoring* – self-monitoring one's learning strategy, such as concept mapping, and then adapting the strategy if it is not effective.

*Modifying* – noticing whether one comprehends something one just read and then modifying approach if one did not comprehend it.

*Skimming* – choosing to skim subheadings of unimportant information to get to the information one needs.

*Rehearsing* – repeatedly rehearsing a skill in order to gain proficiency.

*Self-testing* – periodically doing self-tests to see how well you learned something (p. 166).

The New London Group (1996) argued persuasively that students should gain proficiency in both decoding and producing polysemous texts through situated practice, overt instruction, critical framing, and transformed pedagogy. Academia has been off to the multimodal races ever since and, given this origin of this scholarship, it is not surprising that contemporary educational research often emphasizes the technological affordances of multimodal literacy (Cazden, Cope, Fairclough & Gee, *et al.*, 1996; Lai, 2011; Cobbett, Kempster, Santella & Wood, K., 2011; and Mackey & Shane, 2013). Indeed, my own initial conceptions of multimodal literacy and metacognition were dominated by a technology-centric perspective and so this study will be enriched by intertextual theory.

### **Expanding Notions of Literacy - Rabinowitz, Bloom, Gee, & Pahl**

Also underpinning this study are Peter Rabinowitz's Rules of Reading (1998). Rabinowitz outlines those conventions governing the aspects of a text's organization and the content that readers are apt to privilege. Rabinowitz (1998) categorizes these rules as: notice, signification, configuration, and coherence. The Rules of Notice outline how readers determine that some sources of information are more important than others. Readers will pay close attention to titles, first lines, last lines, and single-sentence paragraphs, for example. Genre-specific elements insist upon our notice as well, such as setting in works of romance or science fiction. Readers will generally notice italics, repeated words and phrases, and language or elements that produce dissonance or sudden ruptures in the flow of the text.

From Rabinowitz we learn to consider socially and culturally mediated hierarchies of semiotics that aid readers in navigation and meaning making. From Wolf (2008 & 2010) and Hofman & Falk (2012) we learn to consider carefully the development of the teenage reading brain. Crucially, these studies stand at the intersection of metacognition and neuroscientific perspectives on adolescent reading. Armstrong (2016, p. 120) specifically maps Piaget's concept of *formal operational thinking* on to Flavell's (1976) ideas governing *metacognition* and argues that formal operational thinking coincides with dramatic increases in grey matter development in the adolescent brain. He asserts that strengthening adolescents' metacognitive skill may be more advantageous to learning than retention of content. Moreover, metacognitive skill can be advanced through critical thinking, mindful use of metacognitive strategies, goal setting, recognition and effective monitoring of affective states. Finally, Armstrong (2016) makes the case that:

A frequently neglected area of metacognition involves adolescents' capacity to break out of conventional thought processes to inquire more deeply into fundamental issues like justice, spirituality, time and space, and the nature of being (p. 120).

Theorists drawn from the wider fields of educational psychology and philosophy similarly underpin this study including Bloom's (1956) eponymous taxonomy of cognition – and to a lesser extent the affective elements thereof. The taxonomy is helpful in furnishing a framework through which to identify and then examine the cognition upon which metacognition operates. The relationship between the taxonomy's higher cognitive functions and the navigation, decoding, and creation of online multimodal texts was recently explored by Kress & Selander (2012), and earlier by Paul & Elder (2004), and Cazden, Cope, Fairclough, & Gee, *et al.* [The New London Group] (1996).

Few New Literacy theorists are as influential as James Paul Gee (1990, 2000, 2007 & 2014). His work on socially- mediated, perspective-driven discourse analysis is seminal to studies of multimodal literacy. A discourse analysis examines how social and cultural identities are shaped by spoken and written language in context. Gee (1990) makes a distinction between capital letter “D” Discourse and lower case “d” discourse. *Discourse* is the term reserved for language intersecting with other wide and deep social flows discernable within a group such as social norms, food, custom, ritual, and perspective. Lower case *discourse* is language in the moment of use. Gee (2007) exhorts us to pry open our tightly packed definitions of literacy to include a wide range of multimodal texts, including videogames. In his semiotic investigation of videogames and their multimodal textual and visual affordances, Gee (2007) positioned literacy squarely as a socially, culturally, and politically mediated phenomenon. Gee (2007) holds a very specific perspective on semiotics, one linked intrinsically with multimodal literacies, as “any set of practices that recruits one or more modalities (e.g., oral or written language, images, equations, symbols, sounds, gestures, graphs, artifacts, etc.) to communicate distinctive types of meanings” (p. 18). Gee’s argues that social and cultural semiotics ceaselessly and relentlessly emerge, evolve, persist, and at some point, perish. Moreover, Gee’s (2000) interest in culturally and socially mediated subjectivities (or identities) as active collaborators in learning offers an important perspective on the confluence among multimodality, metacognition, and semiotics. He writes:

Being recognized as a certain "kind of person," in a given context, is what I mean here by "identity." In this sense of the term, all people have multiple identities connected not to their "internal states" but to their performances in society (p. 99).

Gee’s taxonomy of identities is summarized below.

Letter	Identity Characteristics
N	Culturally and socially mediated identities or elements thereof imparted by nature and therefore outside one's control.
I	Institutional identities imposed upon individuals through cultural or social forces.
D	A character trait shaped through social engagement.
A	Identity shaped or imparted through group affinity.

The foregoing is not meant to suggest that there is no room for the readers' personal and idiosyncratic meaning-making responses arising out of personal memory, only that identities are a blend of the inherent and the performative. Of course, there are limits to what anyone can observe about research participants' identities.

Pahl's (1999, 2005, 2009, 2011, & with Rowsell, 2010 & 2012) work centres on multimodal literacies in the context of digital storytelling. Her work informs this research through its exploration of identity and digital representation. Pahl (2009) looks at affordances of various "modal choices" as they are deployed in digital storytelling which she claims represent "traces of identity in practice" (p. 18). Pahl & Burnett (2016)'s introduction to the field provide a useful overview of many of the most important ethnographic New Literacy Studies and interdisciplinary scholarship of the last two decades exploring literacy in homes and communities (p. 4).

### **The Place of Popular Culture**

The work of Marsh and Millard (2000) specifically informs this study. In *Literacy and Popular Culture: Using Children's Culture in the Classroom* (2000) the authors address a significant gap between literacies of the home and those of the school. Marsh and Millard (2000) were among the earliest scholars to be inclusive in their consideration of young peoples'

experience of popular culture through various multimodal texts including, for example, video games, television, and music (p. 95). The authors argued persuasively for the importance of popular culture texts in the lives of young people and the potential of these texts to enhance student motivation and engagement with curricula. Educators ignore students' sophisticated popular culture literacies at their peril. "If," Marsh and Millar (2000) write, "schools focus on increasingly outmoded forms of literacy, then children's motivation toward the literacy diet offered in the classroom will be affected further" (p. 186). Marsh and Millard's warning informs many of the study participants' experiences of school-based online literacies. The gap remains.

Vygotsky's (1978 & 1987) research sought to understand the development of higher cognition including language comprehension, executive decision-making, attention, and memory (Gredler, 2009). His work emphasized the interdependent relationship among thought and language acquisition and development. In articulating the speech/cognitive development complex, Vygotsky (1987) argued that silent inner speech differs from the spoken word. Children gradually internalize socially mandated spoken speech into an inner dialogue; a process continuing until approximately age 5 or 6. According to Vygotsky (1987), spoken language progresses through socially-mediated and culturally reinforced interactions that lead to the development of inner speech. Both spoken and inner speech are shaped by prevailing semiotic systems. Language is the semiotic system through which thought operates and therefore this study must take into account semiotics and readers' idiosyncratic processing of social semiotic resources. Lacan's (2004) psychic registers furnish a helpful framework for consideration of both. Lacan (2004) developed a model of the psyche based on three registers: the real, the imaginary, and the symbolic (language). We do not develop language so much as we are "installed" in its system (Zizek, 2004). Moreover, any consideration of the symbolic order in the



context of technologically-mediated thinking, reading, and speaking should pay attention to the flows of biopower (Foucault, 1980) through these systems where biopower is understood to mean: "an explosion of numerous and diverse techniques for achieving the subjugations of bodies and the control of populations" (p. 140). All of this developmental activity is socially and culturally mediated. Generally, there are rules to be followed governing play, desires, decisions, and actions. Once a child acquires speech, these actions and internal processes are mediated by language and Lacan's symbolic order (2004). There is, however, a strong element of play in the exploration, navigation, decoding, and metacognitive processing of digital, multimodal texts. The satisfying psychological and emotional motivation for learning arising from play may hold the potential to reshape classroom learning and pedagogy; a potential educators and scholars are only beginning to investigate and better understand.

More recently, Kaminski-Sanders (2016), Rogers & Winters (2016), and Joaquin (2016) have explored digital literacies in multimodal popular culture texts in the contexts of fanfiction, online (maga)zines, and hip hop music respectively. Kaminski-Sanders (2016), like Marsh, draws our attention to the "academic disconnect" (p. 77) regarding the power and influence of popular culture and multimodal literacies that occur outside school, finding common ground with the field of public pedagogy in interests if not always by name. For example Clary, Kogotho & Barros-Torning's (2013) work with junior high school students investigated their use of mobile, connected technologies in "out-of-school environments and the implications for new technologies for literacy learning and practice" (p. 49). Teachers and librarians who fail to address this disconnect risk eroding student and reader engagement and impoverishing learning opportunities. Kaminski-Sanders (2016) writes:

Because of this disconnect, students enter an environment that does not allow for the growth of individual creativity. ... If the school neither understands nor attempts to address the needs of the student, then why would students engage? (p. 78).

Giroux observed this phenomenon as early as 1998 and advocated a cautious approach.

Teens and other youth learn how to define themselves outside of the traditional sites of instruction, such as the home and the school. Learning in the post-modern age is located elsewhere – in popular spheres that shape their identities, through forms of knowledge and desire that appear absent from what is taught in schools. The literacies of the post-modern age are electronic, aural, and image based (p. 49).

Indeed, the status of the “text” itself is shaped and remediated by the relationship between technology, youth, and literacy. As Alexander (2006) writes:

Increasingly, I think, such “new discourse forms” include a variety of network-enabled texts, such as Web texts and other innovative electronic media. E-mail and Instant Messaging, not to mention the emerging use of “texting” via cell phones, have their own developing “traditions” of communication and literate practice – “traditions” that digital youth and e-savvy students are often at the forefront of constructing and disseminating. (p. 59).

Alexander’s point that online connectivity and communication modes are developing communication “traditions” is well taken. The ensuing decade has borne out his prediction. In 2014, for example, 350 billion text messages were sent and received each month (Open University, 2014, n.p.). The commentary and data provided by this study’s participants, however, leads me to disagree with Alexander’s second claim. Print-intensive reading, as discussed below, retains a privileged place in young people’s online reading experiences. It bears

mentioning at this point that many participants consistently raised an issue central to recent scholarship in the field of public pedagogy (International Centre for Public Pedagogy, 2017; Rogers, Schroeter, Wagner & Hague, 2014; Wohlwend & Lewis, 2011; Gounari, 2009; Giroux, 2004a & 2004b). Public pedagogy looks at “the development of educational theory beyond formal schooling” in “public space, popular culture, and political struggle” (International Centre for Public Pedagogy, 2018). There exists a disconnect between the participants online reading, commentary, and engagement at school (acknowledging schools’ varying ability to provide hardware, software, and online systems) and that which takes place at home or in public. This work is seminal to my interest in multimodal literacies as it touches upon the commercial flows of commercial popular culture and bio-power inundating adolescents’ lives in this contemporary late-capitalist moment.

## Chapter 4 – The Online Multimodal Texts, Sessions 2 and 3



Figure 4.1 *Outrances* landing page (Croft, Ichikawa, & Dvorak (2009))

Session 1 began and ended with participants demonstrating to the researcher their preferred online reading sites and texts. In this way, participants and researcher established a rapport; the participant had time to relax and generate think-aloud data concerning metacognitive strategies governing selection, access to online systems and texts, and their individual experiences, thoughts, and opinions on the content of their choices.

### Session 2

Session 2 moved the participants' attention to online, multimodal poetry texts selected by the researcher, including *Outrances* (Croft, Ichikawa, & Dvorak (2009)) (Figures 4.1, 4.2, & 4.3), *What Afterlife?* (Kuipers & Kostiuk, 2008) (Figures 4.4 & 6.4), and *Skywriting* (Richardson, A. (2004) (Figures 4.5 & 4.6).

## *Outrances*

*Outrances*'s (Figures 4.1, 4.2, & 4.3) audio track consists of an ambient conversational racket of a type commonly experienced in crowded restaurants; indistinct voices creating an ever-present background of aggregate noises impossible to distinguish and impossible to ignore. Impossible, that is, unless the viewer notices the “pause / play” controls and volume mute icon tucked into the top right corner of the screen.

In rapid succession, slides presenting the printed text of the poem appear as if one had serendipitously encountered the text as fragments on concert posters randomly pasted to telephone poles, billboards, and alley dumpsters throughout an urban streetscape. Every image is composite, complex, deliberate, and semiotically charged. Participants were often disoriented and unsure how to proceed and distracted by the audio track. They are seemingly at the mercy of the artists' pace for slide progression and zooming camera treatment for the duration of the piece unless they immediately discover the top right corner “pause/play”.

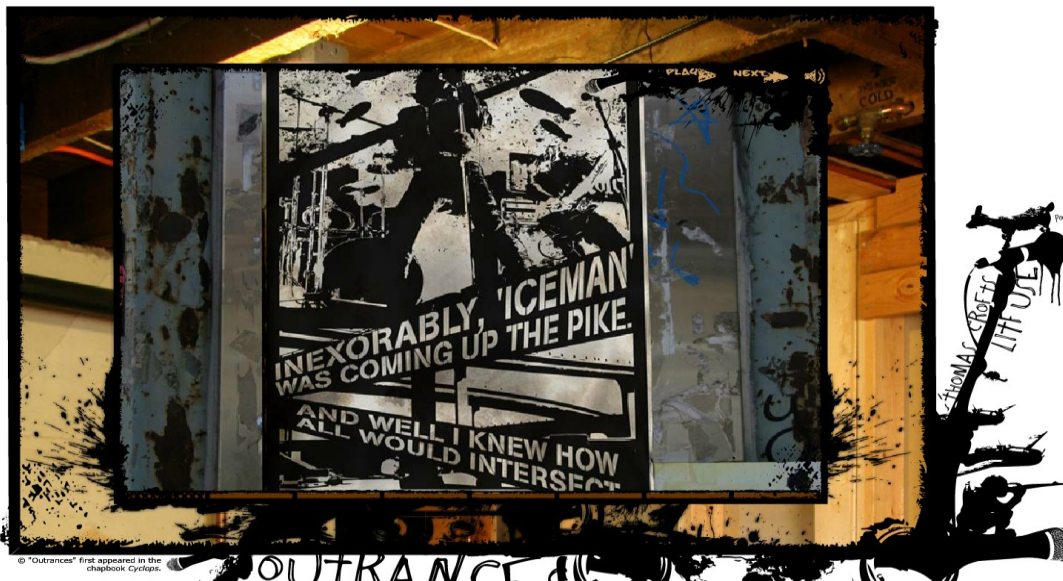


Figure 4.2 *Outrances* second image (Croft, Ichikawa, & Dvorak (2009))

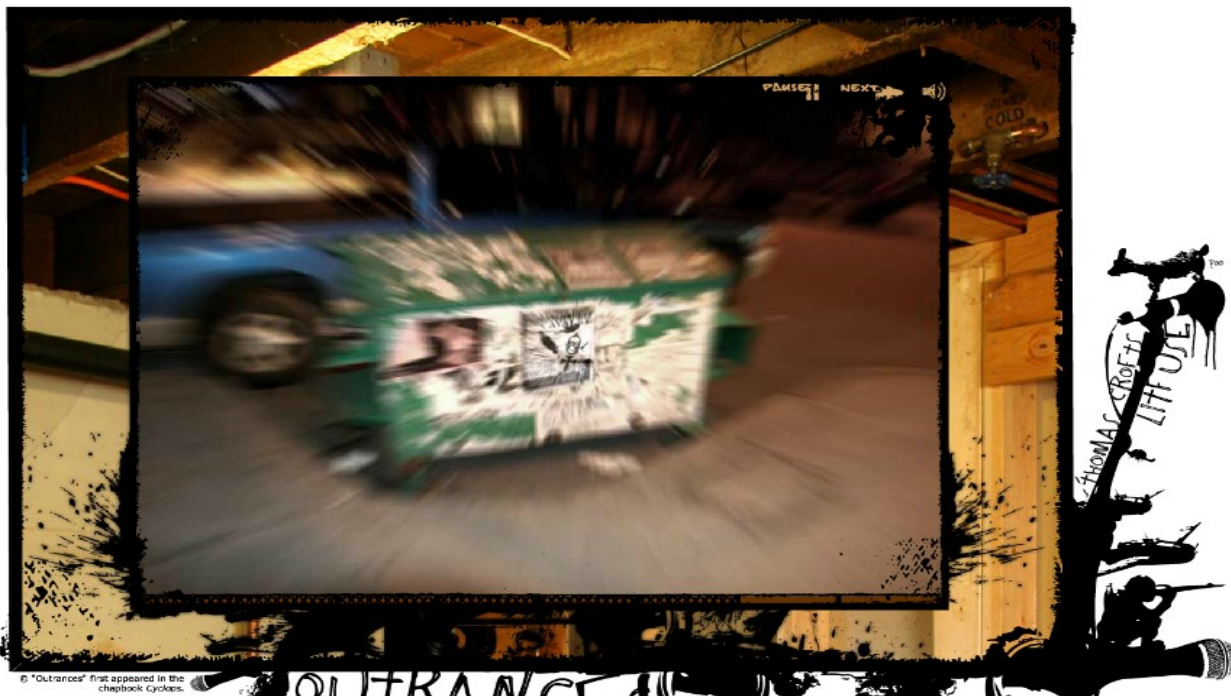


Figure 4.3 *Outrances* sample slide (Croft, Ichikawa, & Dvorak (2009))

*Outrances*'s effect is one of dynamic movement. Its embodied affect is frustration and disorientation and it brings to mind Dipple's (1988) title for *The Unresolvable Plot*. The viewer is hurried and harried through the composite images, hardly at liberty to settle their focus long enough to decipher the printed text at hand before the camera zooms out and then in to the next image. The work sets in motion a cycle of landing – notice – disorientation – confusion – and sudden take-off. The viewer/ reader/ participant is left breathless by this rapid-fire design and must soon learn to deploy some emergency metacognitive “sense making” strategy if they are to construct meaning from the text's raw materials. Visual grammar, social semiotics, and image are privileged here over the fragmented printed text and distracting audio track.

### ***What Afterlife?***

By contrast, *What Afterlife?* (Kuipers & Kostiuk, 2008) is characterized less by the dynamism of image than it is about the power of a single image to enhance meaning and produce

an affective emotional and embodied response. *What Afterlife?* (Figures 4.4 & 6.4) relies upon a single composite image which draws heavily upon the aesthetics of black and white cinema and horror film audio signs to produce a work of a hair-raising, otherworldly affective quality. Participants have a choice, to experience or study the poem as a discrete printed text by choosing the static over the interactive presentation. Whereas the pacing of *Outrances* (Figures 4.1, 4.2, & 4.3) defaulted to the artists' rapidly shifting timing scheme, *What Afterlife?* (Figures 4.4 & 6.4) encourages the viewer to adopt a complete-and-click progress through the poem with a "continue" button appearing in the lower right corner of the central image of an antique television ostensibly connected to the world of the poem. The printed text appears on the screen but is also read aloud to the viewer by a hoarse, whispering, *sotto voce* narrator. See figure 4.4 below.



*Figure 4.4 What Afterlife?* (Kuipers & Kostiuk, 2008) Main page.

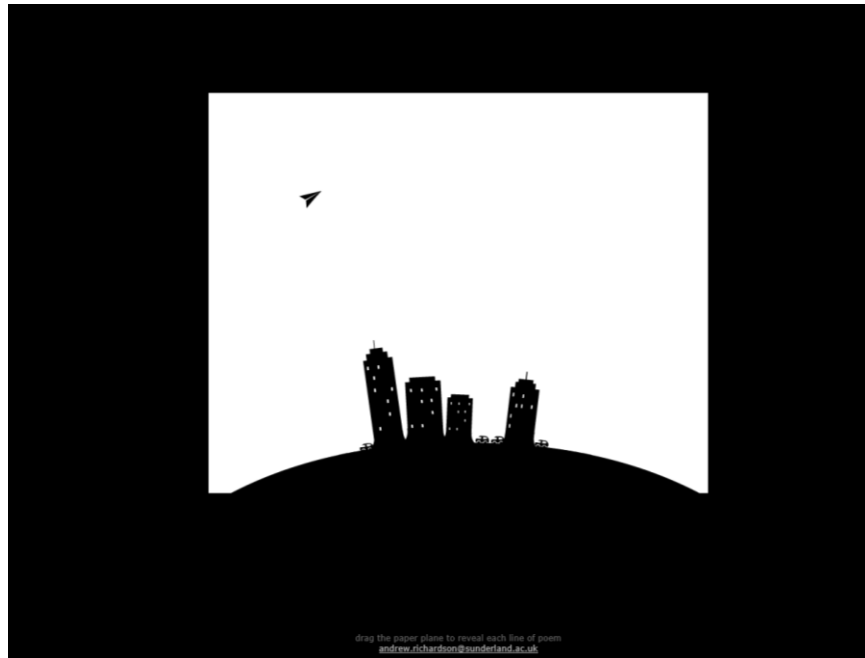
The television screen is set within an eclectic set of objects suggesting the accumulation of personal artifacts over several decades or generations. The television is of a design popular in the 1970s but it is surrounded by photographs, wallpaper, and other materials from different

periods, including a late 19<sup>th</sup> century cash register and a 21<sup>st</sup> century car key. Some of the objects are referenced by the poem, such as the Mason jar (for catching fireflies). Close examination of the image reveals that all visible printed text is in mirror image, excepting that of the poem appearing on the television screen. This detail produces a through-the-looking-glass effect that positions the reader in a different space than the normative world of contemporary life and technology. This is an image of time travel and the potential of the portal.

### ***Skywriting***

By contrast, *Skywriting* (Richardson, 2004) (Figures 4.5 & 4.6) is a lighthearted interplay of word and computer convention – moving a mouse in a determined way to produce a corresponding result. *Skywriting* assumes the reader understands both computer interface conventions and traditional literacy. It then subverts the left-to-right reading progression while simultaneously empowering and encouraging the reader / participant to enact that subversion. It is an invitation to an act of playful rebellion. The short poem emerges over a series of six themed slides furthering the travelogue feel of the work. The delightful rule breaking occurs as the reader moves the paper plane / cursor anywhere they choose to discover the printed text of the poem emerging exhaust vapour-like from the tail of the plane. One task – reading – becomes two – reading *and* playing the text. These tasks compete for the attention of the participant, who is apt to become less and less occupied by interpreting the text and more and more enchanted by the text-as-virtual-art-object and a sense of play.





*Figure 4.5 Skywriting landing page (Kuipers & Kostiuk, 2008)*



*Figure 4.6 Skywriting sample image (Kuipers & Kostiuk, 2008)*

Richardson's few lines of charming blank verse do not pose an interpretive challenge. The poem scores a 2.9 on the Flesch-Kincaid Grade Level (Kincaid *et al.*, 1975). Nevertheless, the brevity and accessibility of the elementary-level printed text is fundamental to the effectiveness of the multimodal piece. The most important element is the kinetic movement of the little aircraft and the mechanical production of the textual theme about an escape fantasy aboard a paper plane. From the moment a reader / participant discovers the interactions among their mouse movements, the plane's trajectory, and the emergence of the printed text, what the text actually conveys becomes secondary.

I wish I were a paper plane riding on the breeze  
And going whatever way it chanced to go.  
Then I could see beyond the town and see the river winding down  
And follow the ships that sail like me upon the gale  
Until at last with them I come to some place with foreign name.

(Richardson, 2004, pp. 1-6).

Reader and text are unshackled from the demands and convention of left-to-right progression. Instead, they are encouraged to explore that freedom. On each slide the participant encounters the plane in a different initial "starting point" that is misaligned with the usual top-left positioning of opening printed text. Put differently, the reader / viewer/ participant cannot but begin their reading of the printed text in a different locale than top-left. Moreover, if the viewer/ reader/ participant attempts to impose a straight left-to-right progression through their movement of the plane, they soon discover rapidly diminishing white space and are forced either to move the printed text up or down at the right-most edge of the slide or abandon the task of completing the line of poetry entirely. The pace of the plane is under the control of the readers. However,

slides do not advance to the next line/slide without the complete delivery of each slide's complete text.

### **Session 3**

The third session involved two primary texts, *Where Good Ideas Come From* (Johnson, 2010a) (Figure 4.10) and *Sleep* (Whitacre, 2011) (Figures 4.7, 4.8, & 4.9). These texts, while multimodal, privileged or emphasized one mode over others including spoken voice, dynamic image, and music. Once again, multimodal texts that stood a good chance of being familiar in their constituent design elements but not necessarily top among adolescents' Google search terms were chosen. For example, the conventions of the contemporary music video appear in Eric Whitacre's (2016) online Virtual Choirs, but the music itself – choral and highly complex – is not in any sense mainstream in its appeal or distribution. Whitacre's work, famous for his technique vocal *divisi* has choral arrangements of up to 18 parts (Shrock, 2009, p. 761). Whitacre's Virtual Choir is itself a prime exemplar of the affordances of digital, online connectivity. Its billing, as a “global phenomenon” (Whitacre, 2016), is not mere hyperbole. The Virtual Choir defeats barriers of geography, culture, language, ideology, and creed by creating a self-selected corps of professional and amateur singers from across the globe and uniting their asynchronously recorded choral “parts” in a single multimodal composite work of astonishing power. Composer / conductor Whitacre's team gathers videos uploaded from any location connected to the World Wide Web and synchronizes and integrates the video images and audio tracks into a whole much greater than the sum of its parts.

Session 3 moved the participants' attention once again, this time to online multimodal texts that, while still multimodal, privileged the audio mode over the visual and printed word modes insofar as the audio was necessary to forming a full understanding of content.

## *The Virtual Choirs*

The Virtual Choir as a mature, rich, and enduring project had its birth in online participatory culture. In 2010, Whitacre shared the origin of the Virtual Choir (2010a) on his blog. In that year, Whitacre was sent a YouTube fan video of a girl singing his composition *Sleep* (2011). Whitacre had an epiphany. He writes (2010a):

I kind of freaked out, because it occurred to me that if 100 people all recorded their respective parts (Soprano, Alto, Tenor, and Bass) we could line them all up and create a virtual choir. So I asked everyone to buy the same recording of *Sleep* from iTunes, a beautiful performance by the superb British choir Polyphony. Singers from around the world posted their individual parts, simply singing along to the recorded piece. Scott Haines volunteered to cut it together (n.p.).

Thus began the multimodal musical experiment of the Virtual Choir. Thrilled with result of *Sleep 2.0* (2010a), Whitacre embarked on another Virtual Choir, *Lux Aurumque* (2010b).

Then I offered the sheet music as a free download. As singers began posting their individual tracks, I called for ‘auditions’ for the soprano solo. Melody Meyers from Tennessee posted my favorite entry. ... My goal with this ‘chapter’ of the Virtual Choir was to see if we could not just sing our parts separately and cut them together; I wanted to see if we could *actually make music*. There is a lot of rubato in my conducting (slowing down, speeding up) and some very specific dynamic gestures, and the singers responded *beautifully*.

That first version of *Sleep* (2011) described in the blog was, in retrospect and compared to later Virtual Choir projects, a modest undertaking with 185 voices from 12 countries (Whitacre, 2010a). *Sleep 2.0* – the next project – boasted 2,000 singers from 58 countries. By the time the

fourth choir was assembled for *Fly to Paradise* in 2013, the choir had grown to 5,905 voices from 101 countries. By April, 2018 the combined views of the Virtual Choir works had exceeded 12.2 million.

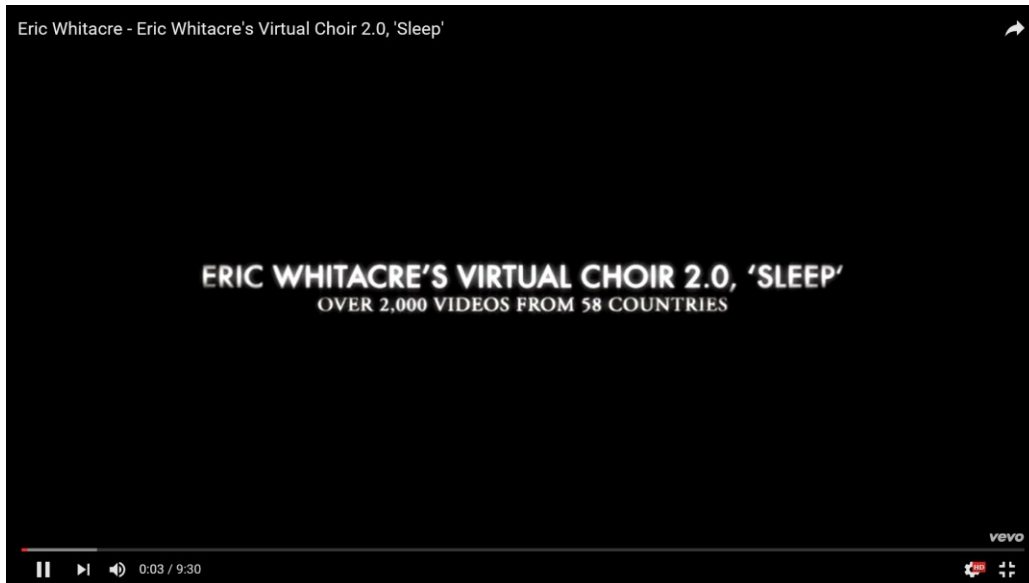


Figure 4.7 Virtual Choir 2.0 “Sleep” opening image. (Whitacre, 2011)

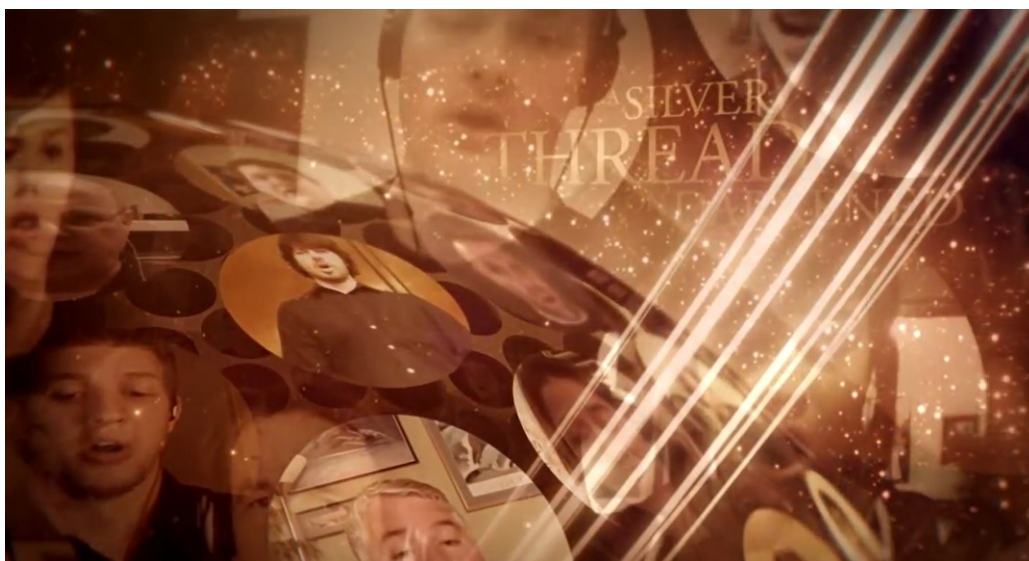


Figure 4.8 Virtual Choir 2.0 “Sleep” sample image (Whitacre, 2011)



Figure 4.9 Virtual Choir 2.0 “Sleep” sample image (Whitacre, 2011)

The celestial, dream-like imagery of the *Sleep* (Whitacre, 2011) Virtual Choir video is truly multimodal in that it deploys video, audio, and printed textual modes – including that of sophisticated music video production – to produce the embodied soporific effect of the traditional lullaby. Ribbons of starlight (looking very much like fibre optic strands) connect nodes of singers like planets in a galactic system. Each node gathers singers from a specific country or region and so viewers see images of people with whom they can immediately identify. The overall choral performance is breathtakingly beautiful and does not rely upon any one singer’s pitch, timbre, or talent to achieve the desired affect. *Sleep* (Whitacre, 2011) privileges music and image modes over printed text in opposition to the way *Outrances* (Croft, Ichikawa, & Dvorak, 2009) (Figures 4.1, 4.2, & 4.3) brought printed text to the fore while subordinating image and audio.

## *Where Good Ideas Come From*

RSA Animate’s (2016) treatment of Johnson’s *Where Good Ideas Come From* (2010b) (Figure 4.10) makes the most of the affordances of audio content coupled with dynamic image development.

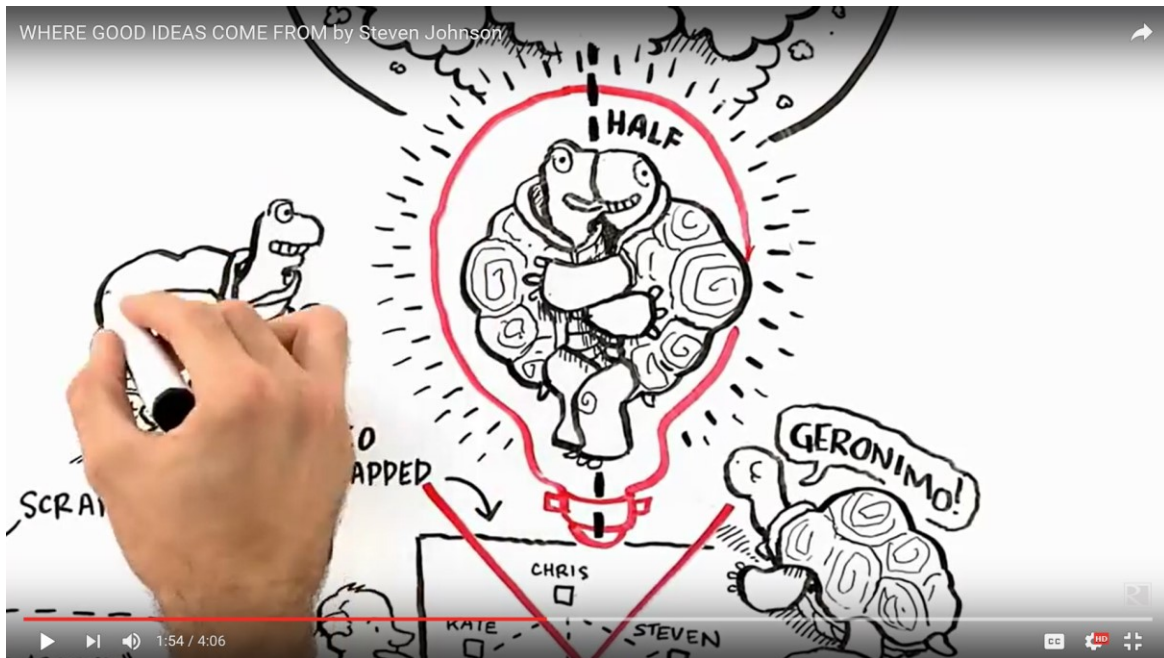


Figure 4.10 *Where Good Ideas Come From* sample image (Johnson, 2010b)

Technically known as *graphic facilitation / recording* (Merkley, 2005), this technique deploys the conventions and techniques of modern comic books and sequential art. RSA Animate (2016) takes audio content, often an excerpt from a public lecture on a topic of contemporary social, economic, educational, or political thinking, and develops the lecture’s main points and ideas visually *as* the viewer listens to the speaker’s comments. Time progression, cause and effect, movement, and speech are all depicted visually but in that characteristically brilliant comic-book way of inviting the reader / viewer to participate in completing the progression, cause and effect, movement and speech actions in his or her imagination. Iconic symbols are deployed (lightbulb for bright idea) and irony communicated visually (a tortoise shouting “Geronimo!”) (Figure

4.10). The audio lecture becomes illustrated narrative and takes on all the power of picture book, story as entertainment and, most importantly, as an aid to memory. David Sibbet (2001), a pioneer in the field, records the impact upon engagement and learning he discovered in his first experience with this new way of facilitating learning.

One day I hung up two rows of newsprint in the conference room...and began to diagram city government. Three hours and no breaks later the group had just experienced one of the most analytical and juicy seminars they had ever conducted, simply by recording boxes within boxes, drawing lines, and mapping what they knew on the diagram, with me facilitating. Something really important was going on with the graphics (p. 2).

Every picture / print text combination is multimodal and has been since the 17<sup>th</sup> century's first picture book for children, the *Orbis Pictus* (Comenius, 1658), and from that time to this, regardless of format, a multimodal text is a semiotically-charged, culturally and politically represented, value-laden production. Lawrence Sipe's seminal 1998 work made this point in the most elegant and persuasive manner. Writing of the semiotically-framed relationship between printed text and picture, Sipe was interested in the failure of reading theories to explain. "what goes on in our heads as we relate words and pictures" (p. 97). What goes on in our heads is has to do with complex processes of cognition and, by extension, metacognition. As Sipe (1998) reminds us: "The text-picture relationship is not so much a matter of a balance of power as it is the way in which the text and pictures transact with each other, and transform each other" (p. 98). Sipe described this concept as *synergy*.

In the RSA Animate piece the video of the artist's movements is accelerated to synchronize image delivery with the natural speaking pace of the speaker's corresponding comment(s). The image interpretation of the audio content emerges in sequence and feels



spontaneous, as if the artist were producing the images extemporaneously. The resulting production, one of illustration-in-motion (a kind of animation) is compelling and memorable, and effectively communicates the audio track's content, as we shall discuss further in the transcript analysis below. For now, it is helpful to highlight the comic book, or sequential art, lineage of the RSA Animate narrative innovation.

Few modern authors have been more influential in the analysis and explication of the complexities, beauties, affordances, and communicative power of sequential art than Scott McCloud (1994, 2000, 2004, and 2006). McCloud's *Understanding Comics* (1994) offers a wide-ranging exploration of the definition, history, vocabulary, and methods of the medium of comics. An attempt to formalize the study of comics, the book itself is in comic format. McCloud emphasizes the temporal, logical, and organizational narrative power of sequential images and their capacity to intimately engage the reader by encouraging (nay, *requiring*) the reader to bridge the gaps between the comic panel borders. This ground-breaking work has been taken up critically by diverse international scholars such as Magnussen & Christiansen (2000), Horrocks (2001), Brenner (2006), Varnum & Gibbons (2007), Eisner (2004, 2008), Monnin (2008), Postema (2010), Wandtke (2012), Burke (2015), Stein (2015), Brenna (2013), Beaty (2016), and Phillipzig (2016) among others. The RSA Animate content brings the conventions of the contemporary comic book and graphic novel into concert with the affective immediacy and mnemonic power of an audio / visual medium.

The Sessions 2 and 3 texts collectively challenged participants to engage with online texts that fully exploited the affordances of various representational modes. The online multimodal texts were chosen with a view towards disrupting participants' thinking about online reading and placing before them examples of texts demanding ergodic "nontrivial effort"

(Aarseth, 1997, p. 1). In the end, these characteristics served the study well. Multimodal, *avant garde* online poetry afforded the adolescent participants to new experiences to explore.

## Chapter 5 - Participant Profiles

*I opened a book and in I strode.  
Now nobody can find me.  
I've left my chair, my house, my road,  
My town and my world behind me.*

*I'm wearing the cloak, I've slipped on the ring,  
I've swallowed the magic potion.  
I've fought with a dragon, dined with a king  
And dived in a bottomless ocean.*

– Julia Donaldson (2004, p. 45)

At the outset of this section, I wish to acknowledge and thank all the participants, who were generous in their goodwill and who allowed me to share their multimodal reading experiences. All participants were students in the K-12 system in Alberta, Canada (residents of Edmonton, Red Deer, and Calgary) save one who, although a usual resident of Alberta nevertheless attended a private high school in the United States. All participants enjoyed online access both at home and at school. Monitoring of their online reading by parents or guardians ranged from none to the occasional casual inquiry on new online content of interest to the participants. Access to school-based online systems was highly controlled and fettered in terms of blocked sites and services, a frustration keenly felt by most participants. All participants' families were secure financially, educated, and English-speaking either as a primary or fluent second language. All participants had constant access to at least one portable, Internet-enabled device, be it a personal smartphone, tablet, or laptop. Differences emerged, as was expected, in their self-portraits as readers and the details of their reading life. All but one participant were aged 12 – 18 among six males and eight females. One participant was 10 but read at a grade 8 level. All participants were intermediate to expert users of the Internet and search engines. Most

participants readily identified and immediately navigated to specific favourite websites via memorized URL addresses.

What follows is an introduction to the study's participants and to the online texts they chose to demonstrate and discuss in Session 1. The participants are presented alphabetically by their chosen pseudonyms.

**Bob, age 15**

At the time of our interview, the school year had just concluded and the pursuits of the all-too-short short Alberta summer beckoned. Bob reported reading a “fair amount”. He expressed a preference for mysteries and what he termed “action” titles but rejected adventure books. At the time of our sessions, Bob was reading Robert Jordan’s epic fantasy series *The Wheel of Time*, 13 books published between 1990 and 2013. Bob reported sustained engagement with Jordan’s series. Series that are complete and extant, those can be accessed in their entirety, are preferable to Bob be it reading or television viewing via video subscription services, namely Netflix.

Bob is firmly in the “book is always better than the movie” camp, deploring filmmakers’ cuts to or reinterpretation of a book’s content. As a reader, Bob invests emotional and creative capital in his reading and reports, for example, visualizing narratives and hearing his own voice in his mind while reading. Sometimes Bob imaginatively inhabits the conjured narrative scene.

Bob: Sometimes when it’s more interesting I’ll like try to picture like ... maybe if I was there what would happen, I don't know. Like if I was just sitting there behind everything just watching you know. ... Yeah, but it's not all the time. Just sometimes.

Bob also includes the length of a book in his calculus on whether or not to engage with the print text but his reasoning does not prejudice him against long books.

Mysteries appeal to Bob for their potential and capacity to deliver surprise and fertile ground for testing evolving theories of “who done it”. Mystery titles reward close readings, attention to detail, and deductive reasoning. Bob is something of a textual omnivore. He expresses no preference for print over electronic reading formats (screen-accessed via monitor, tablet, or smartphone). Bob reports spending significant time online and social media (e.g. Instagram) but specifically not on Facebook. When online, he reports downloading more than posting. He is a social media consumer rather than a producer. Although he is aware of the appeal of video games, Bob reports only occasional social game play. Reading materials are purchased online and at brick-and-mortar retail outlets. He will peruse newspapers, magazines, comic books, and graphic novels if they are readily available but does not necessarily seek them out. His online life is a prime example of what boyd (2014) describes as participation in various *networked publics* (p. 5).

Bob’s online skills were sophisticated and impressive. He navigated to favourite sites easily and usually directly through memorization of specific URL addresses rather than through the intermediate step of a browser search. YouTube was his first destination which site he uses to further explore his abiding interest in music. The popular news site BuzzFeed.com was another favourite destination. BuzzFeed’s landing page is a dense collection of clickable links blending news and pop culture content. The site rewards rapid overview of visual “click bait” and good-enough, reading-by-skimming headlines.

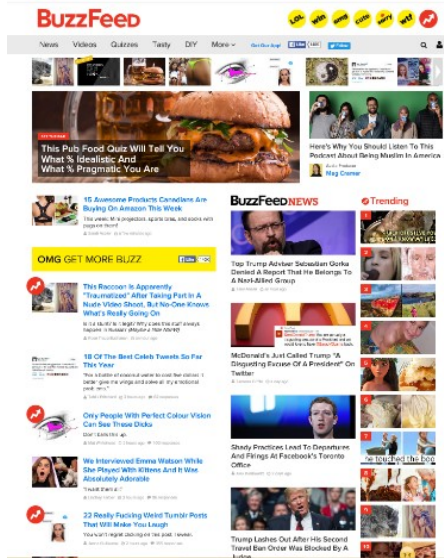


Figure 5.1 *BuzzFeed.com* landing page

Bob was an outlier among participants in his willingness to watch certain commercials with high entertainment value rather than rejecting them outright. The comical *Dear Kitten* (BuzzFeed and Friskies, 2014) advertisement series for Friskies cat food co-produced by Buzzfeed is a particular favourite. Laughter and humour were strong motivations driving Bob’s online reading choices.

### **Bologna, 13**

Bologna is a self-motivated and high achieving junior high school student who describes herself as an occasional reader of out-of-school fiction she might find “interesting”. Although she describes herself as a confident reader, she does not often engage directly in recreational reading, preferring videogames to books. When books are the topic, she relies upon her peers’ book recommendations, most recently Marissa Meyer’s young adult science fiction novel *Cinder* (2012) (which title she eventually abandoned), from her circle of friends. Bologna perceives her friends to be more frequent and more enthusiastic readers. Bologna reports not reading anything other than assigned school readings. Reading is a means to the end of academic achievement, which goal she describes as “very important”. Nevertheless, she is full of praise for Theodore

Taylor's "fabulous" young adult novel focusing on race and identity *The Cay* (Taylor, 2011), assigned for language arts class. Like Bob, Bologna was another outlier among the study participants. She conspicuously does not participate at all in social media.

Bologna reported being a consumer of video content primarily through YouTube. She "loves" action and adventure movies and television series. She has little to no experience with graphic novels or comics and has little interest in music. Bologna has immediate access to personal electronic devices including a smartphone (on which she plays games), a "smart" TV (with online connectivity), online movie subscription services (e.g. Netflix and Crave TV), Internet-connected game consoles, and a laptop. The overall impression left by Bologna was a proficient but somewhat reluctant reader who considered reading to be something attached to school pursued for the sole purpose of academic achievement. Bologna reporting valuing *efferent* rather than *aesthetic* reading. We will return to that observation presently.

At this point, it is important to relate that Bologna spent the entirety of our interviews holding a 10-week old puppy in her lap. She had carefully saved the money to purchase the purebred dog. He was acquired from a reputable local breeder entirely without parental financial assistance. Bologna successfully researched all the information related to the adoption of the pup. Nevertheless, she did not consider this intense textual engagement as "reading". Much of what Bologna considers true reading was bound up with her dedicated academic effort and achievement. When grades are in the balance, Bologna is highly motivated to sustain deep efferent reading which she considers the best route to success. Bologna's reading is a solitary rather than a social process. She does not participate in the book talk among her reading friends. She prefers to keep her video viewing experience to herself and does not engage her friends or

family in some version of “you’ve got to see this” dialogue. Although she remembers fondly the experience of being read to as a younger child, she does not read to her younger sister.

### **Chad, 18**

Chad was a recent high-school graduate planning his post-secondary program and working at a summer job of long standing. Chad readily understood and responded well to the think-aloud instructions. He had access to multiple personal Internet connected devices including a desktop home computer, a smart phone, tablets, laptops, and online connected video game consoles. He reports being an enthusiastic reader throughout his life. Chad also has access to a robust urban public library system and school libraries. Chad owns dozens of books, mostly non-fiction titles on social and political issues. He specifically cited Levitt and Dubner’s (2011) *Freakonomics* as a favourite title. He also appreciates fictional titles in the science fiction and historical fiction genres. Chad, like many of the young men in this study, exhibited reading habits and preferences that run counter to oft-cited conclusions that young men either do not read or struggle with reading in contrast to girls (Barrs, 1998; Sullivan, 2003; Pansu, *et al.*, 2016; Serafini, 2013; Retelsdorf, *et al.*, 2015; Sudic & Massoud, 2014; and Spencer, 2014). Despite his easy access to new, multiple, and varied screen devices, Chad strongly prefers the experience of print reading.

Chad: So I can't do... I like holding the book in my hands and being able to flip the pages. The feeling of the book. ... Being able to flip them yourself. Seeing, I don't know, seeing the book there in front of me. The e-books... it's not....it doesn't do it for me ... It all has to be in front of me.

He generally buys his own books although his parents and extended family are involved in building his personal library through holiday gifts and shopping trips to bookstores. He reports



always feeling “free to read whatever I want to”. Additionally, like many of his fellow participants, Chad reports an appreciation for a solitary reading experience, preferably in the peace and quiet of his own bedroom in which he experiences heightened relaxation that he believes supports concentration and retention. Chad perceives himself to be a “visual learner” and associates his sports experience with his need for a stimuli-reduced reading environment.

Chad: So, as a visual learner ... and a hockey player... I have good peripheral vision...

Researcher: Right.

Chad: ... so if something's in my field of view it'll distract me. So if I'm in my room, with just a light, it's easier to focus on the pages in front of me.

Chad also reports that his satisfaction in reading is contingent upon the level to which the content “grabs” his attention, and yet his commitment to finishing a text is not predicated upon whether or not that attention is maintained.

Researcher: When you start a book, even if it's not doing it for you, you know, you've been through three or four chapters and it's not happening...

Chad: I'll still finish it.

Chad, being a self-described visual learner, also relies upon book covers to pique his interest and appears to feel himself a fish waiting (and hoping) to be caught. Chad recalls being read to as young child but remembers the experience as being frustrating rather than enjoyable. Chad has come only lately to the world of comic books and graphic novels. The first graphic novel in his collection, Kirkman’s *Walking Dead Vol 1*. (2006) was specifically chosen, he insists, because he was attracted to the visual model. Nevertheless, he is at a loss to explain why he came lately to sequential art or comics since he considers himself a visual reader. Chad also exhibits the ability to engage with and appreciate diverse points of view. He is able to adopt a critical stance

towards texts' ideological or political messaging. Moreover, Chad expresses a willingness to read banned books as a manifestation of his right to read any content of his choosing. Here he begins by acknowledging his mother's influence on his understanding of intellectual freedom before expanding on ideas of readers' rights and censorship. Chad had more to say on his newly discovered appreciation for the affordances of the graphic novel. In the context of discussing Spiegelman's *Maus* (2011) and Talbot & Gaiman's *A Tale of One Bad Rat* (2010).

Researcher: What does a graphic novel do that a purely printed book can't do?

Chad: It paints pictures. Gives you...it doesn't paint it for you. It gives you little visual cues. ... of what the scene is like and you can build it off of that. However, it is, it's just easier to paint a picture using a graphic novel. But you can still obviously paint a picture with a real book, it just takes more analyzing, it takes more skill.

Like some of the other participants, Chad reported being something of a print reading omnivore consuming newspapers at work and magazines at home and school in addition to print novels and non-fictions. He also describes himself, as a "big movie guy" willing to view any film in any genre. He also admits to a penchant for documentaries that he generally finds "fascinating".

Chad consumes news on his smartphone when not reading newspapers at work. His relationship with social media is one of a knowledgeable potential participant although he attributes his skill and knowledge to a wider generational trend. Chad's online reading choices were, it's fair to comment, somewhat atypical from what adults might usually expect from 18-year-olds. His first chosen website destination was the US National Debt Clock (Figure 5.2), a densely-packed dynamic website tracking increases in the United States' national debt in real time. Chad relied upon sophisticated literacy and numeracy skills to build an understanding of

the data into a meaningful analysis and informed ethical commentary.

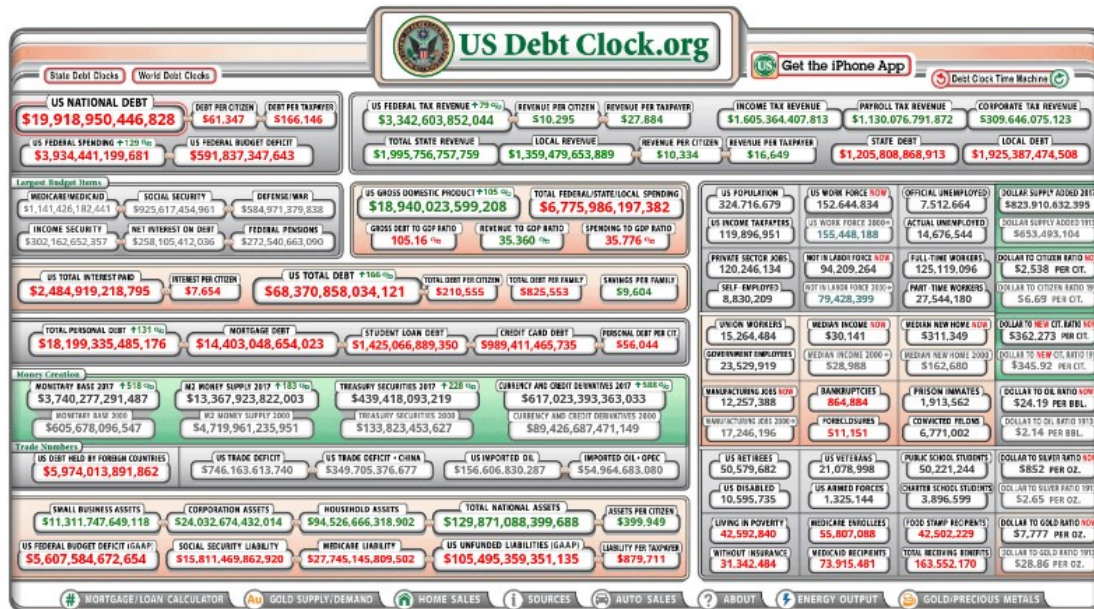


Figure 5.2 US Debt Clock.org

With Facebook being dismissed as no longer relevant (too many parent and grandparent accounts), Chad spends much of his unstructured online time visiting YouTube and subscription video streaming services, such as Netflix. Music is a high priority in online viewing as are economic documentaries such as Ferguson's (2010) financial exposé *Inside Job* and Walker's exposition on nuclear arsenals *Countdown to Zero* (2010). Binge watching, the practice of expending significant time consuming consecutive episodes of a single television series, is another recently developed viewing habit.

## Charlotte, 17

Charlotte is a self-aware reader who sees herself to be on a life-long reading journey. Charlotte is an enthusiastic writer who sees a connection between her voracious reading and her compelling need to write. The two endeavours are intricately linked in her mind and in her activities.

Researcher: ... And writing and reading go hand in hand for you: two sides of the same coin?

Charlotte: They do. I notice that when I stopped reading to get ready for my exams, I stopped reading for five months apparently, that was a long exam prep... when I stopped reading, I stopped writing. ... So I'm like "I need to pick up a book! I need to get at starting it again".

She expresses interest in a wide range of reading topics but, at the time of Session 1, had been exploring both fiction and non-fiction related to the Holocaust and the Second World War, including Wiesel's *Night* (2013). Her comments paint a picture of a highly motivated seeker after knowledge, whose reading is a means to her aim to "stay grounded" and "get information". She prefers to read printed content although she does consume some news and entertainment through her smartphone. Her print choices are driven by peer recommendations and sometimes by publishers' "you might also like" advertisements. Charlotte is aware that her reading habits are actively maturing. She reports being in an "awkward" phase that makes choosing between young-adult and adult titles difficult.

Charlotte is wary of the affective power of some types of content. The emotional impact of a Holocaust title, for example, might be intensified by its adaptation into a visual format. She reports avoiding movies.

Charlotte: No. Actually...I can't even watch movies about it because it gives me chills and it makes me sick because it's so awful. And I guess when you read about it, you kind of get the realization that this isn't fake anymore.

Charlotte finds it impossible to leave a book unfinished. Her reasons for doing so echo Chad's in that she believes the author has a message and that the work was published for a reason. She

also hopes and anticipates that a mediocre title might reveal a “twist” that rewards her perseverance.

Charlotte: Of course, because, there's always ... I've had books where the first 40 pages are like "What is this, I don't even care!" ... and then you have that twist and you're like "Oh, my goodness" and that is what I like live for. That is just the best!

Charlotte is a visual reader, meaning she constructs and populates mental pictures suggested by her interpretation of the text. If she discerns a voice in her mind during her reading, it is invariably her own unless she has seen a film version of a particular title. In that case, she might return to the text and hear the actor’s voice instead. This transference, however, is by no means straightforward. Movies, remember, are to be avoided since they muddy the waters of her imagination and hinder her enjoyment of the book.

Charlotte describes herself as a quick, confident, and proficient reader. She is aware of varying success with new vocabulary and aware of the conditions under which she will make the effort to consult a dictionary (online usually) or infer the meaning of the word from context. Charlotte avoids skimming in her reading. She intends to extract as much information as she can from a text. Magazines, however, might be flipped through since “it’s not skimming, it’s just pictures”. Charlotte exudes confidence in her ability as a reader, understanding that she can pick up anything and be successful including, and especially, *Hamlet* and *King Lear*. As she remarks: “I mean, I did Shakespeare all right. I can do anything.” Situated reading has an effect on Charlotte’s progress through a printed text. Bathtub reading, for example, is exclusively material she considers light or low-effort, not her preferred reading mode. Bathtub reading “doesn’t count for anything” and it’s “when the cheesy romances come out”. Doctor’s office reading is of the skimming-magazines variety. Evening reading takes place late at night out of necessity.

Charlotte: ...But I am just so easily distracted and my bedroom is right by the kitchen. So I wait until everybody goes to bed, so it's like midnight, and I'm perched in my bed reading because it's quiet.

Charlotte would rather undertake a challenging print text because books that fail to present that challenge result in boredom. She might then be tempted to “ruin a good book because [she] read it too fast.” Charlotte has specific expectations and criteria for what counts as challenging and engaging reading.

Charlotte: It needs to have like really...it needs to make me think. And not necessarily like good words, but like, "Could this be true? Could this happen? What if this did happen?" You know? I just need like the extra like....

She carries her personal printed reading choices to school just in case the opportunity to open it arises between classes, during spare periods, or at lunch hour. Online reading at school is frustrated by filters and content blocks – a complaint voiced by many study participants. Content accessed through free smartphone apps is most often dominated by amateur writing and fanfiction. Still, for Charlotte, some “good enough” content is better than no content at all. Charlotte is a social media user through Instagram, Facebook, and Tumblr. Charlotte uses Facebook primarily to maintain contact with an extended family overseas and to gauge public opinion on interesting or controversial social and political issues. She is also a frequent user of the Wattpad website as both author and reader. The Wattpad website bills itself this way: “Whatever you’re into, it’s all free on Wattpad: the world’s largest community for readers and writers” (Wattpad, 2017). Wattpad provides a self-publishing online sharing and publishing platform for original content. Submissions include fanfiction, poetry, articles, and stories that can be read through the website or via mobile smartphone or tablet apps and writers skill range

from novice to expert. Wattpad operates as an online community with the opportunity to interact directly with writers worldwide (Bello, 2012).

### **Chloe, 12**

Chloe expressed a preference for non-fiction with an emphasis on world history and the occasional mystery and “scary stuff”. She reports being independent in her reading choices, not relying on peer recommendations, avoiding, for example, the *Twilight* (Meyer, 2013) series. Nevertheless, Chloe lists Roth’s *Divergent* (2011) – the first title of three in a post-apocalyptic science fiction series – among her favourite titles of the last year. At time of writing, all three titles, *Divergent* (Burger, 2014), *Insurgent* (Schwentke, 2015), and *Allegiant* (Schwentke, 2016) had been released as major feature films and Chloe professed preferring the books to the films since books offer “more detail.” In light of this comment, it is notable that Chloe reports visualizing what she reads and that those visualizations help her understand the content. What Chloe appreciates about online reading is that most of the content is “shorter” and “easier to find.” Social media preferences include Instagram, Twitter, and Snapchat whereas Facebook has been ceded to parents.

At the time of her participation in the study, Chloe was monitoring the progress of the Presidential primaries in the United States, having determined through an online survey of “relevant issues” that her personal political opinions aligned with the Democrat Party. In fact, the survey site (the URL link to which she discovered on Twitter) provided biographies and position statements from several candidates through which exercise and analysis, Chloe discovered her views aligned with Senator Bernie Sanders (I-Vermont). This process of discovering her political stripe involved a sustained online reading exercise of about 30 minutes that was enjoyable to Chloe since she learned new information about the topics. She was able to “read up

on them”. Clicking on social media content is reserved for material that “catches” Chloe’s eye during a skimming process. Online reading is pressed into service for both general interest and school research. Like her fellow participants, Chloe reported that her online reading choices at school were fettered by online filters and site-blocks. By way of example, academic research of six months’ duration on the terrorist attacks that destroyed New York’s World Trade Centre on September 11, 2001 was thwarted in part due to blocked content. It was not possible to access all desired or required content at school.

As with many of her fellow participants, YouTube was a favourite online destination for Chloe where she, a ballet and jazz dancer herself, could indulge her interest in competitive dancing videos. Chloe follows specific dancers her own age whom she first discovered through Instagram. She closely examines the details of the dancers’ technique, music choices, costuming, and control. Chloe watches for the sheer pleasure of experiencing videos of an activity of which she has expert knowledge. The upper time limit of her investment in a dance video clocks in at approximately one hour, a significant investment of free time. Chloe is an outlier among her fellow participants in that she enjoys screen reading over print books. She owns a Kobo e-reader and appreciates the ease with which she can access and purchase books through download to satisfy her interest in science fiction titles. Reading helps Chloe relax and takes place in bed before falling asleep. At the time of writing, Chloe had just finished *The Great Gatsby* (Fitzgerald, 2000) a book she was drawn to having seen the recent film starring Leonardo DiCaprio and Carey Mulligan (Luhrmann, 2013).

Chloe chooses her e-books from GoodReads.com, a free subscription site that provides “surprisingly insightful” title recommendation lists. Once she has navigated to a list, Chloe has an array of visual cues to rely upon in making her selection: number of stars, for example, or a



thumbnail image of the book's cover. Even in the e-book environment, browsing for covers continues to be a key resource in selection. Her book purchases are often made through gift cards received from parents and extended family so, no matter where the money comes from, Chloe is usually choosing her own titles. Chloe is a confident and proficient user of Goodreads.com. She moves through the site content by clicking first on the thumbnail image, then on the title link, and finally on the detailed description and synopsis, which she describes as "skimming ...trying... like half-skimming and half-reading all the words." Other readers' votes in support of the title are not persuasive. Preview chapters of a potential purchase are welcomed selection tools.

In social media use, Chloe prefers Instagram to Facebook since her father has a Facebook account. She reports consuming far more pictures than she posts but is pleased and proud to share photos of herself and friends and family in various contexts from different points in her life. She does not, however, usually read the hashtags attached to the posted photos. She is a savvy user who understands the privacy settings on her online accounts. Although Chloe was a library user as a young child, she does not presently rely upon her public library for e-books, print content, or music. She is not a video gamer but will enjoy "little games" available as apps on her smartphone of the puzzle or task type exemplified by the wildly popular *Angry Birds* (Rovio, 2009) or *Candy Crush* (King, 2014).

### **Emily, age 10**

Emily was the youngest of the participants; youngest, but reading several grade levels above her age. Emily is an enthusiastic reader who lists her favourite genre as fantasy but who also hastens to include a strong interest in ancient Greece and Egypt (the Herculean labours and the life of King Tut being current obsessions) and a special affinity for Chris Colfer's *Land of*

*Stories* series (2012-2017). Comic books are acceptable but, surprisingly, only for non-fiction. Disney films, even the latest *Cinderella* live-action version (Branagh, 2015), are not among her favourites. Emily has a personal affinity with the Greek goddess Artemis of classical mythology whom she sees as an active, energetic, and athletic figure. Emily has also retained details from her readings in ancient Egyptian history. She recited with an excited forensic glee the process of ancient priests' rites and methods of mummification. If you are at all interested in the gory details of preparing cadavers for mummification, Emily is your girl. She considers her reading a "hobby" but one that results in academic achievement; something she believes to be important. Emily chooses her own books but is mindful that she should stick to materials appropriate for her age. Her home is a book-rich environment but she sees little difference in the experience of print reading versus online reading save for the mechanics of navigation. Reading the book always precedes viewing a movie adaptation at her parents' insistence. Online reading is most often done at school where she has access to a Chrome Book laptop and where much of her reading is dedicated to research for school projects. Online reading in her free time at home is given over to the *Cool Math Games* (2017) website, an educational website that builds math proficiency through fun mini-games. The games on *Cool Math Games* (2017) offer basic graphics and gameplay but often include printed instructions and hints appearing on screen. Favourite games and their progress have been memorized. When asked to choose a game she has never played before, Emily chooses one based on achieving the optimum loading of cargo into the finite space of a delivery truck. Emily reads the instructions very rapidly and thereafter dives into the gameplay conducting trial-and-error experiments with the controls.

Emily has access to various Internet-connected personal devices including an iPod and tablets as well as home and school computers. Emily also spends some of her limited screen time

on YouTube seeking out favourite songs. At time of writing, some of her favourite musicians were The Piano Guys, specifically their classical music version of the Disney song *Let it Go* (Anderson-Lopez & Lopez, 2014) made immensely popular by the animated film *Frozen* (Buck & Lee, 2013) and “Peponi”, their collaboration with Anglo-Nigerian singer Alex Boyé (Martin, *et al.*, 2012). She describes herself as being “captured” by the music and that it makes her feel “happy”. Her definition of a good song is one that has “good feeling in it”. Emily styles herself as a “pretty fast” reader who can consume a young adult novel in two nights, such as Riordan’s *Percy Jackson & The Olympians: The Lightning Thief* (2005). She reports retaining most of what she reads. Emily reads aloud to family and friends endeavouring to use “different expressions” and voices when doing so. Silent reading is mentally voiced, sometimes the voice is her own, at other times “the voice of the character that I’m reading about just comes through”.

#### **Hymie, age 14**

Hymie describes himself, rather unusually, as a “smooth” as opposed to a “fast” reader. He explained this comment meant that he believes he can extract meaning from any text and understand it effectively even if he is not the fastest reader in the class. He reports being a confident reader for whom length of printed texts is immaterial to his willingness to engage. Hymie prefers novels to any other format and drama to comedy. His favourite genre is action and adventure but he does not privilege one author over any other. Print materials, including novels, are readily available at home and usually read (like so many of his fellow participants) in the quiet environment of his bedroom. Efferent reading at school is described as “more focused” than aesthetic reading for pleasure. Nevertheless, Hymie reports occasionally skimming printed texts while giving good attention to tables, charts, and diagrams available in textbooks as he considers them a source of “important stuff”. Hymie’s interest in reading is not shared by his

peers. He cannot recall ever reading a graphic novel, and comics are not part of his reading life. News is consumed online. In fact, Hymie reports extensive reading of online articles especially hockey and soccer news, scores, statistics, and specific player profiles and National Hockey League teams (Winnipeg, Edmonton and, in times past, Toronto). Hymie reports doing most of his reading online. His social media activities centre on Facebook but more as a consumer than as a contributor. Once again, Facebook content related to hockey and other sports is sought out and read with some clicks being reserved for items of interest on popular culture and television shows. When popular culture comes to the fore, Hymie engages in the kind of pastimes familiar to many adolescents. For example, he enjoys filling out the occasional fan-based quiz of the type that will reveal if your personality comports with Star Trek captains James Kirk (Roddenberry, 1966) or Jean-Luc Picard (Roddenberry, 1987). He reports being an occasional childhood reader who preferred reading to himself. Hymie is an engaged and visualizing reader. His visualizations are detailed – voices, costumes, colours. Like Chloe and other participants, Hymie prefers books to their movie adaptations and is usually “let down” by the film with the notable exception of Francis Ford Coppola’s 1983 film adaptation of Hinton’s (1967) classic novel *The Outsiders*. School reading this year included *Warriors Don’t Cry* (Beals, 1994), a non-fiction title about the historical events involving the Little Rock Nine.

Of interest on the topic of assigned school readings was Hymie’s uncertainty about whether or not his class reading of Steven Dietz’s (1996) adaptation of Bram Stoker’s *Dracula* (1897) for the stage “counted” as reading since “it wasn’t technically a book because we were just reading the lines actually”. Hymie’s first destination online was NHL.com (Figures 5.3 & 5.4), a print-dense website crammed with hyperlinked content arranged under 13 categories ranging from “Scores” to “Statistics” to “Fantasy” to “Shop” (NHL.com, 2017). His online

hockey reading dovetails into related television viewing (ESPN, *Hockey Night in Canada*, Canadian Broadcasting Corporation).

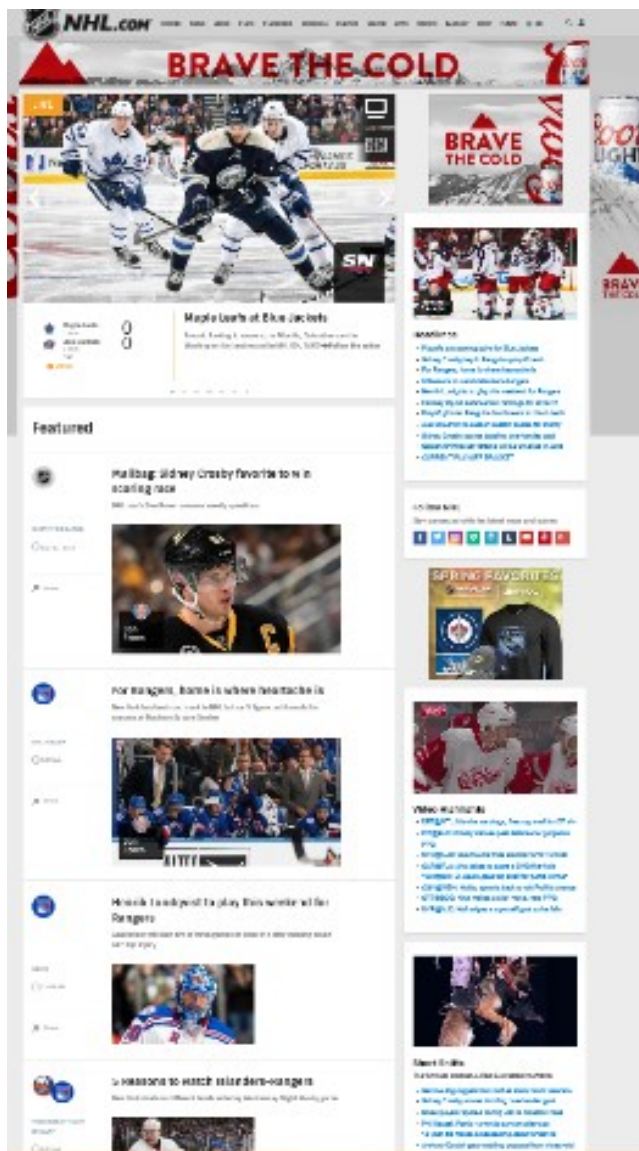


Figure 5.3 NHL.com



Figure 5.4 NHL.com

Hymie is highly motivated to engage with the articles and content on NHL.com (Figures 5.3 & 5.4) and *The Bleacher Report* (2017). Skimming is not appropriate as the articles are “usually really important stuff”, which provides valuable social capital among his peer group (many of whom also play hockey). The interest and imperative to remain on top of hockey content extends beyond the season and playoffs. Hymie navigated the site expertly, deftly moving from one information cache (tab) to the next. Once again, however, he expressed a doubt as to whether or not his efforts on NHL.com or *The Bleacher Report* (2017) counted towards his reading tally.

Hymie: Yeah, also the, I don't know if you'd really count this as reading, but you could go to like... ..you could go to like stats and you could read the numbers. I don't know if that really counts.

Hymie values the currency of information, and appreciates the “up to the minute” character of the information provided by the real-time updates of these sites. The more current the information, the more valuable the social capital. There is an imperative to consume as much current information, therefore, as possible like a baleen whale filtering vast volumes of seawater

for juicy krill. Skimming and scrolling, therefore, is a trusted strategy for locating the juiciest bits of news. The sites were also conspicuously image-rich but they need not have dedicated the space to photos for all the influence they exerted on Hymie. For this online reader, printed text remains paramount. Hymie visited a favourite NHL team's Facebook page as a typical example of his online reading, which appeared, on a cursory review, to display several thousand words over several articles and access to additional volume via through hyperlinks. Undaunted, Hymie remained dedicated to thorough reading of the content, a habit he assigns to his print reading as well.

Hymie, despite most of his reading being online, reports that he does not own or use an e-reader and for a surprising reason.

Hymie: No. Because I don't know...I always kind of thought like the book industry... I don't know if it's really fair to the book industry them being taken over by technology. ... So, I don't know... I kind of feel badly for the book industry if they go, you know, bankrupt.

Online reading, in the main, is replete with advertising, some passive, some disruptive and dynamic. Like most of his fellow participants, Hymie actively avoids or ignores advertising content as a "big waste of time" and remains focused on the printed text. So profound is Hymie's interest in sports news and content – most particularly hockey - that he is considering sports broadcasting as his future career. Even so, Hymie cannot sustain his reading life on hockey alone. He also reports visiting and enjoying network news websites. Interestingly, Hymie appears to be somewhat self-conscious about the news content he finds compelling.

Researcher: Ok. What's, alright, so is online reading mostly or always about sports?

Hymie: No. There's some other stuff. Actually, sometimes, call me crazy because I'm a kid, but sometimes I actually read news article online.

Hymie considers online news an ever-present resource perfectly suited to satiate his curiosity on interesting world events.

### **Kitty, age 15**

Kitty, in concert with many of her fellow study participants, reports being blocked from great swathes of the Internet at school. This circumstance frustrates Kitty, as she “loves” YouTube “way too much”.

Kitty: Yeah. We don't have Internet, like, we don't have YouTube at school. Like we can't get to YouTube at all.... So, except for like when the teachers decide to let us go on YouTube. When I'm at school, um, they give us VSauce [(Stevens, *et al.*, 2017)] at most. And that is for science, and only science, and more science.

Teachers will occasionally access the YouTube channel VSauce (Stevens, *et al.*, 2017) for supplemental science content to which the channel is exclusively dedicated. Nevertheless, students are not permitted to access the Internet freely at school. Therefore, Kitty devotes considerable hours of her free time to YouTube preferring to watch professional videogame players / commentators play and react to various games. Her favourite “dude” is gamer and YouTube channel host, Markiplier (2017). Kitty enjoys the heightened affect afforded by the Markiplier’s histrionic reactions and she responds with keen interest and engagement to the humour afforded by the gameplay episodes. The game titles being played are secondary to the host’s shtick. Watching game play of horror titles such as *Five Nights at Freddy’s* (Cawthon, 2014) is as enjoyable to Kitty as watching the more wholesome *Octodad* (DePaul University, 2010).



Kitty: Umm, he's really excited all the time, it's kind of weird. It's just eeeeeahhhhhh.

He's actually really hilarious when he gets angry 'cuz he's just screaming at the screen but nobody's in the background, so... he's just screaming at this thing and there's nobody listening to him. It's so funny.

Humour is also the motivation for Kitty's continued engagement with Japanese manga comics which she has read online since the age of 8. Kitty likes to laugh. Her manga journey began with the *shojo* (literally "young woman") manga title, *Tokyo Mew Mew* (Yoshida, 2000-2003) (Figure 5.5). *Shojo* manga is marketed to adolescent girls. The target demographic seems obvious from the title's visual design that appears to be effective in both the Japanese and the North American markets.



Figure 5.5 *Tokyo Mew Mew*

*Shojo* manga includes content drawn from many genres, from science fiction to history, but its through-line is romance. Kitty's home is book-rich with easy access to information-on-demand from various Internet connected devices. The *Tokyo Mew Mew* (Yoshida, 2000-2003) print text

is in Japanese. Nevertheless Kitty infers from context and relies upon her deep knowledge of *shojo* manga comic conventions to construct meaning. Kitty demonstrates sophisticated genre-specific visual literacy skills.

Kitty provides a secondary example of her expertise with manga through the immensely and enduringly popular *Sailor Moon* series (Takeuchi, 1991-1997) and the subsequent animated television series of the same name (Takeuchi, 1992, 1995, 1996-1997, 2003, & 2014), and several movies (Takeuchi, 1994, 1995, 2011; Paritsky, 2014). *Sailor Moon* narratives, like many *shojo* manga stories, are complex in their structure and intricately webbed in portrayals of complex familial relationships and the fraught politics of adolescent friendships and allegiances. Kitty is not only an enthusiastic reader of online manga; she confidently displays a deep understanding of manga production.

### **Mancan, age 17**

Mancan has limited engagement with reading by choice. Although also hailing from a well equipped and well resourced home, Mancan reported not spending any significant time reading for either pleasure or school. He also described a decrease of late in the amount of time he spent on his computer or online since his recent graduation from high school. When time online was necessary, it was task-oriented, meant to achieve a specific project or goal, usually associated with homework, which he described as uninteresting and “just awful”.

Mancan reports not reading novels, newspapers, or magazines but does occasionally pick up “the odd comic book” such as an anthology of *Calvin and Hobbes* (Watterson, 1985-1995) or *Asterix* (Goscinny, Uderzo or Ferri, 1959– 2013). Mancan does not spend time online habitually, nor does he report spending significant time watching television. He does report having pursued these activities in the past but not at the present time. In the last year Mancan has “kinda lost

interest” in the Internet. Mancan’s Session 1, in which participants conduct a self-directed tour of their online reading and discuss their life as a reader, was very brief. However, towards the end of Session 3 (on music and the Virtual Choir, see below) Mancan offered important insights into his interest in music and how, despite his recent abandonment of sustained online activity, he deploys online services and resources to explore that interest. One important metric in Mancan’s decision to engage with a video or not is its length. Time is literally of the essence for Mancan.

In fact, Mancan searches for the “lyric version” of song videos specifically because lyric videos are *not* the artists’ official music video. Lyric videos are just that, amateur videos created by fans that feature exclusively the lyrics of a song. For example the “lyric video” for Macklemore’s rendition of Haggerty’s “Can’t Hold Us” (Haggerty, Lewis, & Dalton, 2012) looks like this:

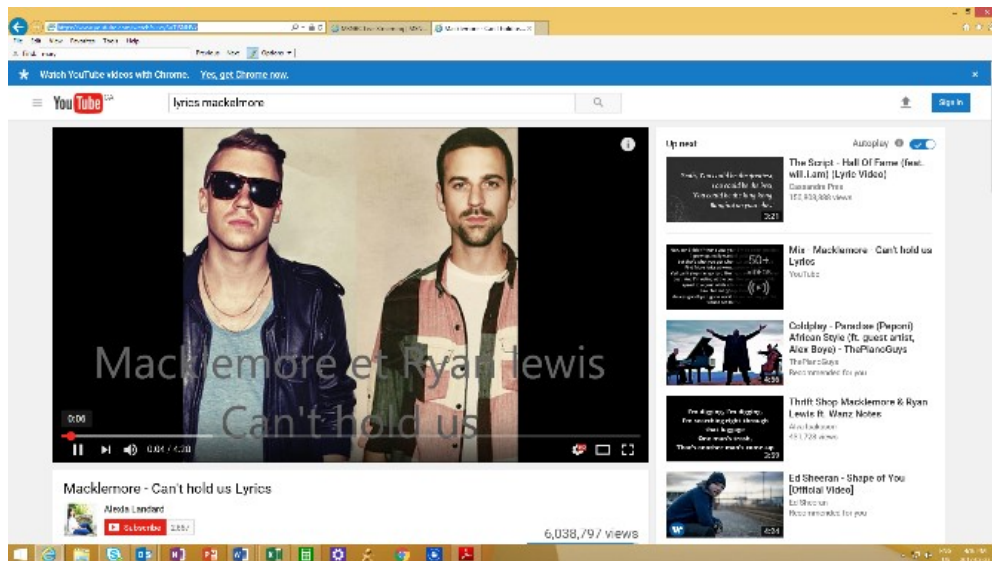


Figure 5.6 “Can’t Hold Us” lyric video image (Haggerty, Lewis, & Dalton, 2012)

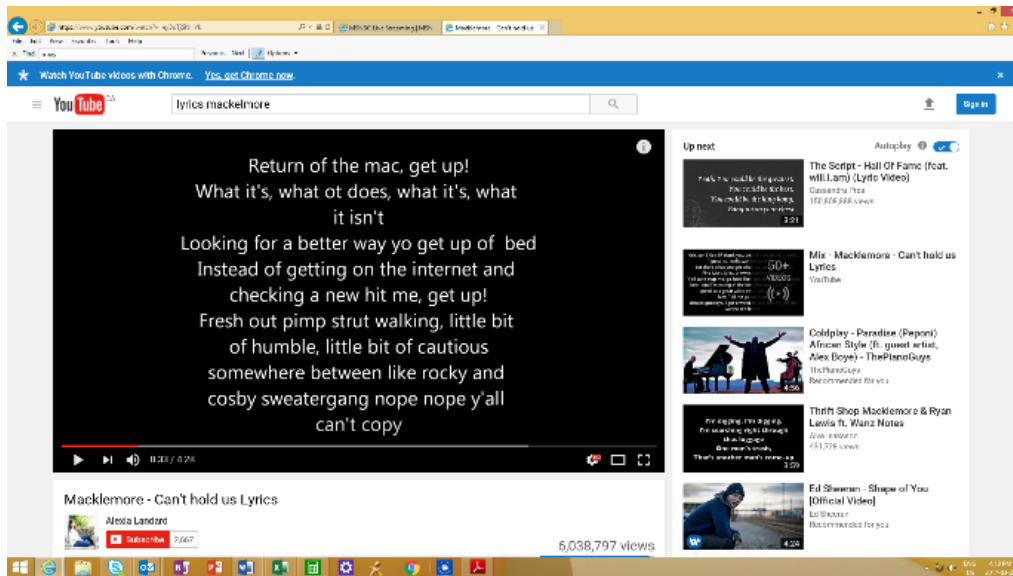


Figure 5.7 “Can’t Hold Us” lyric video image, time index 0:33

Mancan is apt to seek out the lyric video as it usually avoids the video director’s full cinematic treatment and interpretation of the song, which adds content, and therefore adds time to the video’s length. For instance, in our example above, the “official” video produced for the song clocks in at 7:03 minutes. Landard’s (2012) (Figure 5.7) lyric version plays for 4:48 minutes. Downloading music from the video format is accomplished easily and almost instantly and Mancan demonstrates his proficiency with the available online services and software.

### Nicole, age 18

Nicole is an avid print reader. Her current interests, like Charlotte’s, revolve around Holocaust and Second World War historical fiction. She has little time for books that “regurgitate information” much preferring that her reading, be it historical fiction or non-fiction, have a compelling message and narrative structure. Although she had misplaced the title in her memory, she greatly enjoyed Feldman’s (2006) *The Boy Who Loved Anne Frank*. Nicole describes herself as only a “fairly” confident in reader compared to some of her fellow participants. She would not describe herself as “the strongest reader”. She does feel equal to

constructing meaning from a printed text if called upon to read it. Strong readers, in Nicole's opinion, are those who "sit down and read like the big, thick *Harry Potter* [(Rowling, 1997-2007)] books or one who sits "down every night before you go to bed and reading for like a half-hour." By contrast, Nicole says she "reads casually." For Nicole there is a correlation between frequency of reading and strong reading skills. Nicole finds some printed texts are readily accessible while others present a challenge.

Nicole: Yeah. You know, sometimes, like in school I'm not really challenged. Like we read *The Kite Runner* [(Hosseini, 2003)] this year, and, you know, that wasn't pushing me or anything like that. I could understand everything without having to research it.

Nicole dedicates much of her online reading time to BuzzFeed.com (Figures 5.1 & 5.8) and is a fan of the ubiquitous quizzes found on that site and on Facebook. Favourite topics include popular culture and her motivation is to remain current. Her social media activity is heavily weighted towards Facebook, which is her tool of choice for social connection, posting photos and articles of interest, and personal celebrations such as her recent high school graduation. Nicole has access to several Internet-connected devices including a MacBook laptop and a smartphone. Facebook and BuzzFeed.com content is accessed primarily through the smartphone that affords her access to content anytime and anywhere. Laptop use is relegated to personal down time in her bedroom or on the living room couch.

BuzzFeed.com (Figures 5.1 & 5.8) bears more than a passing resemblance to Hymie's NHL.com (2017) (Figures 5.3 & 5.4) in that it is a dense mine of print text, images, and hyperlinks that encourages skimming and scrolling for content of interest including news items and popular culture.

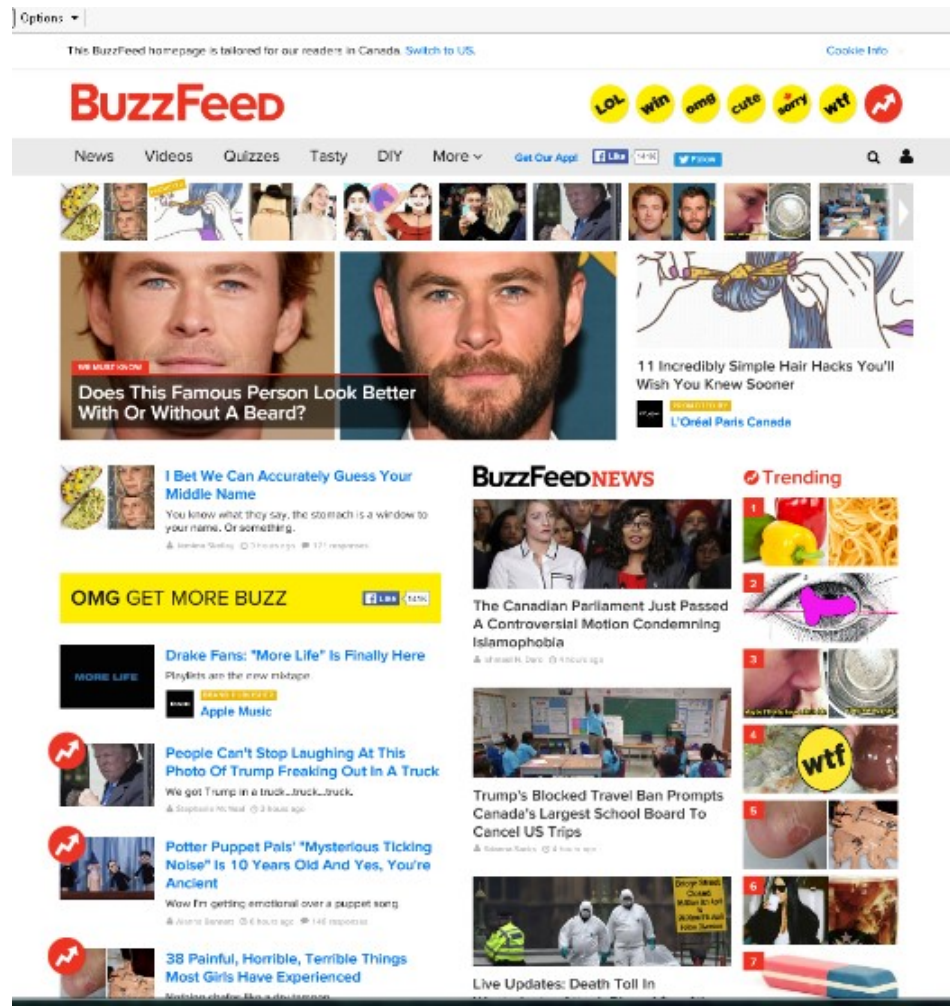


Figure 5.8 BuzzFeed.com

Nicole’s report and complaint that her online reading is restricted at school puts her in the majority of the study participants. Time and again, these young people described how school board authorities and administrators locked down online content contributing to some participants’ bifurcated view of what “counts” as “reading” based on where that reading occurs.

Nicole: Um, going online at school is a lot more purposeful. Like, they tell you exactly where to go and what to read. But online at home I find it's easier to ... just like end up somewhere random reading about like [singer] Meagan Traynor reading about how she

did this on this vacation where ... like you just like to read about anything where at school there's restrictions and you have to do this and you have to do that.

Re-reading unfamiliar or challenging language silently to herself is one of Nicole's strategies for constructing meaning from a difficult text.

### **Princess Hillary, age 17**

Princess Hillary describes herself as a slow reader. She is aware that her reading speed is at the root of what makes school "kind of hard because everyone is always trying to push you." It is therefore not surprising that Princess Hillary reports being a less than confident reader who, despite her senior high-school grade level, considers her skill level to be "intermediate". Princess Hillary became interested in reading sometime after her early elementary years. During elementary school, she enrolled in reading support classes but was unmotivated and reluctant, bored by the content, and frustrated. She has recently found a reason to invest her time in reading content she considers necessary "for everyday life", that provides a "good past-time". Moreover, Princess Hillary is considering post-secondary education and has concluded strong reading skills will be an important foundation for academic success. Like many of her fellow participants, Princess Hillary appears to consider print reading to be of higher value – what counts as "reading" - than online reading. She spends a significant amount of time reading the print-dense content available via Facebook. During those online reading sessions, Princess Hillary employs a skimming and scrolling strategy similar to Hymie's described above.

Princess Hillary is one more participant who reports restricted access to online content at school. Although she has access to sophisticated online-connected devices (both personal and school-based), online connectivity at school is often locked down.

Princess Hillary appreciates the visual affordances of Facebook but, more often than not, is looking for information that is immediately and personally relevant. She dislikes meandering through random content. Her posts are usually photos set to public view but, being aware of the prevailing cautionary tales governing privacy and online activity, her real-time messaging and conversation is restricted to family and friends. During Session 1, Princess Hillary was surprised at my rough estimate that her perusal of a typical Facebook session represented approximately 2,000 words of online print reading in addition to her consuming, interpreting, and describing photos and other video content.

News content is accessed online (CTV News) when time permits and the online content is browsed to “see what’s new.” Staying current motivates much of Princess Hillary’s online reading activity and she is apt to scan photos attached to headlines as a first step towards remaining informed. Like Mancan, the decision to engage with video content depends on its length. At this point in Session 1, Princess Hillary demonstrated her strategies for wading through volumes of online printed text and multimodal content. Some words, including adjectives, are ignored. Princess Hillary mused over the fact that this skipping-stone strategy might have come about as a result of her anxiety and concern over her slow reading speed and the need to keep up in school. For this young woman, there is definitely a “good enough” reading of a given text be it print, online, or multimodal. Moreover, the affective embodiment of the reading experience – the affect resulting from engagement with a stimulating text – informs Princess Hillary’s selection of multimodal online texts. Our young reader was engaged with a news item related to infanticide (Crabb, 2015). Without prior reflection, she moved from a one embodied state to another; one that resulted in an augmentation to her body’s capacity to concentrate and focus and a subsequent activation of her metacognitive skills. She was



distressed and saddened by the content but nevertheless chose to continue carefully reading the article to its conclusion. While thinking aloud, Princess Hillary was seeking a better understanding of how anyone could commit such a crime and to learn if the perpetrator had been brought to justice. The embodied affect generated by the piece proved to be a powerful motivation to stick with a lengthy and difficult printed text. The novel quality of a second news item about a dolphin landing in a fishing boat and sadly breaking a passenger's ankles was the next choice (complete with a bloody photo of the unfortunate creature and the injured woman) (Associated Press, 2015).

### **Shazam, age 18**

Shazam's cycles of reading activity follow the school year and exhibits another bifurcated view regarding what counts as reading. While school is in session, she reports not reading "a ton" owing to the high volume of school work. Reading for pleasure is largely reserved for the summer term break. Summer reading choices include "silly romances" and, once again, historical fiction on the Second World War and the Holocaust. Shazam describes herself as a casual, recreational reader at home up to an hour or two a day. She describes her reading pace as "slow" but her compensating strategy is giving deliberate and careful attention to "each and every word". Skipping and skimming hinders access to the entirety of the print text's meaning. Unless the word is particularly problematic, her preferred strategy is to avoid skipping words.

Shazam recalls enjoying being read to as a young child and recalls memorizing the printed text of *Dinosaur* (Sís, 2005). She employs reading aloud to herself as an aid to comprehension. Shazam is a habitual online browser with social media activity including Facebook accessed via a personal computer and Instagram being accessed on a smartphone. An

outlier among her fellow study participants in two respects, Shazam is willing to read online advertisements (if interesting) and has what she perceives and describes as open Internet access at school. Nevertheless, school reading, despite the availability of netbooks (small, relatively cheap laptop computers with Internet connectivity and basic software applications popular in schools since circa 2007-2009), is more often than not print reading.

Researcher: Do they let you go online a lot at school?

Shazam: Yeah. Quite a bit. I mean we use the Netbooks a lot. We bring those in and we ... I mean it's not really a main source of reading. Like they wouldn't say "Go online, look at this, and read this article." Normally, they would just print it off and give it to us.

Shazam, like others in the study, also expresses ideas about what “counts” as reading. Facebook is a “release” and reading, an activity at school, is “stressful”. Shazam consumes Facebook content more than she produces and posts. She is, however, an expert user of the site and has been active on it since 2008. Part of her Facebook activity is devoted to revisiting a sort of personal archive of photographs and nostalgic content. At the time of Session 1, Shazam’s high school graduation had just passed and she and her friends were still understandably in celebration mode with many photos of graduation festivities featuring prominently. Facebook is used to facilitate social plans among a large group of busy friends.

### **Stuart, age 17**

Stuart reports having been a strong and active reader between grades 3 and 10. Particular favourites included *The Hardy Boys Mysteries* (Dixon, 1959-2012), the novels of Stephen King, especially *Needful Things* (2016), and King’s lesser-known titles published under the pseudonym Richard Bachman (1977-2007). Stuart also listed the *Harry Potter* titles (Rowling, 1997-2007) and the works of Malcolm Gladwell (2010, 2011, & 2013) among his preferred titles and

authors. At the time of Session 1, Stuart was reading the gonzo journalism books of Hunter S. Thompson (1967, 1971, 1972, 1983, & 1998). Access to print materials came primarily through the public library in a book-consumed-book-returned pattern as Stuart was not interested in book collecting. On the subject of his favoured authors, Stuart is knowledgeable, critical, and articulate and his mode of selection is methodical and systematic.

Stuart tends to read authors' canons. Once introduced to a specific author's work, he is apt to exhaust that author's available titles. Stuart had ideas about what rises to the level of a "good book", one that sustains reading interest, but struggled at first to put his criteria into words.

Researcher: Right. What does "really good book" mean for you? What will keep you reading?

Stuart: Something I actually... I don't know it's hard to describe in words. It's one of those things that when you open a book and you're flipping through and it's not like painful to read like it actually goes and something that makes you think about the book.

He also holds strong opinions about books that simply do not merit his time or attention. Unlike many of his fellow study participants, Stuart has no qualms or scruples about abandoning an unsatisfactory book. As he says, "I don't have time for bad books." News and other periodical content is read online. Stuart's reading of Moore and Gibbons' *The Watchmen* (2014) was his only foray into graphic novels.

Online reading content is also pressed into service as a surrogate for assigned academic reading. As an International Baccalaureate student, Stuart is often under urgent time restraints and high performance pressures.

Stuart: School is very challenging. ... And a lot of work.

Researcher: And, do you find that the school, the school reading is different from the recreational reading?

Stuart: Yeah. If I'm completely honest, if I get a book for English, like I do the IB, it's ridiculous, like half the time I won't even read the whole book. Like, I'll skim, or I'll go online read a summary and like...

Stuart describes himself as a “voracious” reader. To that description, I would add confident and self-aware. Stuart is also a reader who can invest in aesthetic reading for the sheer pleasure of it, given the time to do so.

Stuart credits his parents with encouraging early contact with books. In fact, his first memory is receiving a book as a very young child. There were also frequent trips to a local used book store with his father. Stuart's parents modelled enthusiastic reading for their son who decided to pick up a Stephen King novel in the third grade. That book selection both surprised and concerned his parents who nevertheless modelled intellectual freedom and supported his choice. Stuart reports being a fiercely independent reader. He is a self-aware and critical reader able to reflect on aspects of his experience such as voicing and visualizing with ease. He offered interesting insights on voices he might hear in what might be termed his “mind's ear”.

#### **Teawrecks, age 14**

Teawrecks is a creative, musically inclined junior high school student. He has easy and immediate access to an array of Internet-connected devices including a smartphone, laptop, home computer, school computers, and tablets. He describes himself as a proficient yet reluctant reader, preferring overwhelmingly to read content in bite-sized chunks that he describes as “short and simple things...comic books or small paragraphs”. In fact, Teawrecks has profound confidence in his *ability* to read (a self-professed “9 out of 10) on the confidence scale) but

reports *choosing* not to engage with lengthy or complex texts. As he says, however, reading content is not necessarily understanding content. He has confidence in his ability to decode the words but not necessarily in his capacity to understand and construct meaning from them.

Nevertheless, Teawrecks also reports being a persistent reader of graphic novel series, of which some individual volumes are of considerable length and which he describes as “book books, not just the small little paperback ones”. A favourite series at the time of Session 1 was Kirkman’s *The Walking Dead* (2003). Online reading focuses on gaming news, trivia, commercial movie trailers, and articles found on IGN.com (Figure 5.9). The IGN site, active since the earliest days of the modern Internet (1996), is an amalgam of multimodal content on all things gaming, entertainment, and popular culture. In its modern iteration, IGN.com content is available on various platforms including YouTube, Hulu, Twitch TV websites, social media platform Snapchat, as well as MicroSoft’s Xbox and Sony’s PlayStation game consoles.

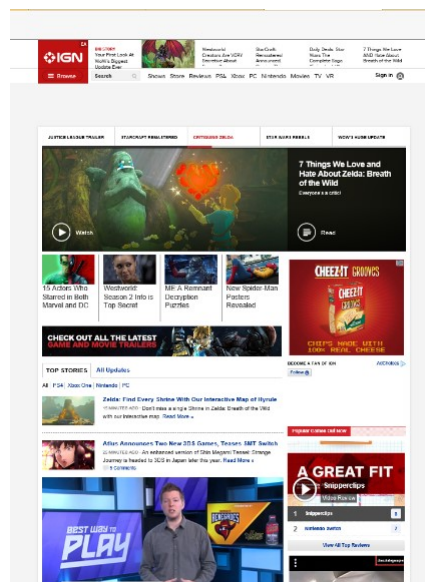


Figure 5.9 IGN.com

Teawrecks is an expert gamer who expresses a depth and breadth of knowledge and critical opinions on the quality and play value of most contemporary video console games. He is an active member of a peer-group of gamers who play console games over Internet connections

from home in real time. His offline gaming activity extends to card games like the mystical print-rich *Magic: The Gathering* (Garfield, 1993), board games, and most often the complex and hours-long *Dungeons and Dragons* (Gygax & Arneson, 1974). Some online reading is dedicated to text messaging friends, playing online with geographically remote gamers, or looking at “dumb stuff”. Teawrecks, however, does not consider those activities to “count” as reading. Social media activity is exclusively devoted to Instagram (2017). Although once a Facebook user, he has since surrendered that particular online territory to his parents and even grandparents. Like so many of his fellow participants, Teawrecks resents being locked out of most of the online sites of interest to him while at school such as Screw Attack (2015), an online video game entertainment site and YouTube channel.

Teawrecks also invests in the visual integrity of adaptations of print source material. He offers a positive example of television adaptation in *The Walking Dead* (Darabont, 2010) and a negative example of movie adaptation in the *Avengers: The Age of Ultron* (Whedon, 2015).

Researcher: Is that important? That the characters look like the comic book?

Teawrecks: Yeah.

Researcher: Why?

Teawrecks: That was one my, one of the things I hated the most, about *Age of Ultron*. That they made Ultron look like Megatron from *Transformers* [(Bay, 2007)] instead of the violent, insane Ultron that I've come to love. [Laughter]. Or Vision [an *Avengers* character], making him look human.

Researcher: Hmmmm.... and that was a departure from the comic books?

Teawrecks: Oh yeah. He's not supposed to look human. He's supposed to look like an android.

Researcher: Right. So, no go?

Teawrecks: No go.

Researcher: Joss Whedon screwed up?

Teawrecks: Yeah.

Researcher: Alright. Are we going to forgive him?

Teawrecks: No.

Teawrecks is a tough critic but an informed one and it appears that much of his cultural capital on the topics of popular culture, gaming, comics, and films is gleaned from sustained online reading sessions dedicated to fan sites, commercial movie trailers, articles, fan commentary, audio / video, images, multimodal content and gameplay streams. His favourite sources include “Teawrex” (note spelling, the online personality whose name he appropriated for his research pseudonym), Gamer, Streamer, Dinosaur (Sam, 2017) and Game Grumps (Hanson & Avidan, 2017) (Figure 5.10). Teawrecks also pays close attention to “cool” images and collects them on his smartphone. He also hunts “stupid YouTube” videos in search of entertainment and content he can share via Instagram or text message with friends.

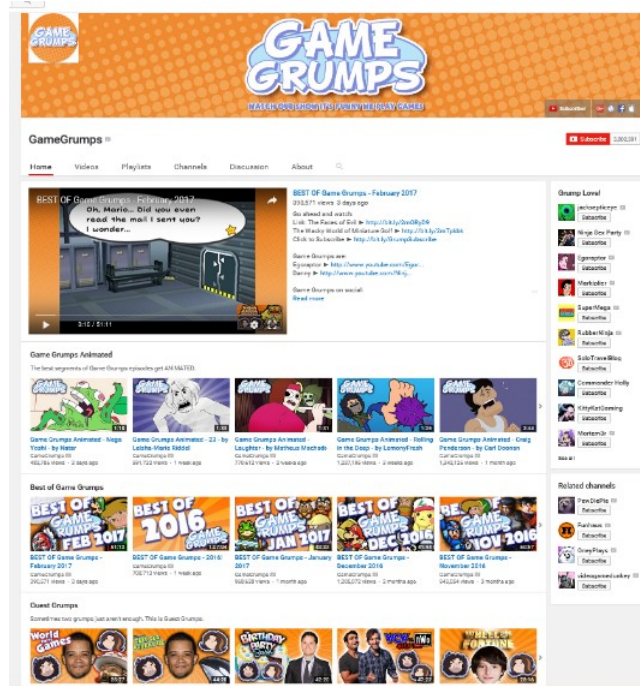


Figure 5.10 Game Grumps

During Session 1, Teawrecks worked hard at locating and choosing an amateur animated video produced by a celebrated player of the online horror game phenomenon *Five Nights at Freddy's* (Cawthon, 2014). Teawrecks often seeks out content that makes him laugh. In the present example, the video presents the gamer failing at the game play in hilarious fashion over seven full hours. Game Grumps's (Hanson & Avidan, 2017) have produced an entertaining and funny engagement with the *Five Nights at Freddy's* (Cawthon, 2014). Nevertheless *Five Nights* has attracted an extensive and dynamic online community whose discussions range over the game's meanings, narrative, game play, cheats, tricks, and fandom parody production such as *Five Nights at Flunky's* (Funktootsgames, 2015). As Teawrecks explains:

Teawrecks: Yeah, I know. It's pretty gross. But there's a puppet. There's this weird puppet thing that haunts my nightmares. Um... but he's sort of gave all of those souls life again. And their number-one goal is to kill the security guard because the killer was a security guard.



Researcher: Ah.

Teawrecks: And they sort of want revenge. But it's a lot more complicated. There's theories all over the Interwebs.

The frenetic pace of the game and of the Game Grumps' (Hanson & Avidan, 2017) reactions cannot but impose itself on the viewer's notice and produce a heightened affect be it excitement or frustration. Nevertheless, Teawrecks reports playing this content on his laptop while studying.

On paper, the study participants present as a homogenous group of contemporary, privileged, and educated young people who share some common experiences living and learning in three western Canadian cities at the opening of the 21<sup>st</sup> century and well into the digital age. That homogeneity endures, however, only to a point. As each young person reveals a unique personality and idiosyncratic metacognitive strategies – effective, ineffective, habitual, or deliberate – they insist upon their individual relationships to texts, both print and online multimodal, being recognized for their creativity, ingenuity, and pragmatism.

## Chapter 6 - Participants' Responses and the Modified Metacognitive Process Inventory (MPI)

The past two decades have seen the emergence of several metacognitive assessment tools and inventories of varying length and focus. See, for example, Schraw & Dennison, 1994; Mokhtari & Reichard, 2002; Wells & Cartwright-Hatton, 2004; Pang, 2008; and Kleitman & Stankov, 2007; and La Marca, 2014. For several reasons, this study employed a modified version of the 11-process Metacognitive Process Inventory (MPI) introduced by Block (2005). Firstly, the MPI focuses on reading and deep reading processes that are identifiable in the type of think-aloud data generation deployed in this study discussed in more detail above. To wit, the 11 processes tracked by the MPI aim at assessing understanding, meaning making, and comprehension. The relationship between the MPI and symbolic interactionism (SI) hinges upon their shared concern with individual sense making and socially mediated meaning while the participant is engaged in what they understand to be their mundane, every-day online activities and reading.

Secondly, in contrast to other metacognitive process inventories, the MPI most effectively addresses metacognitive processes *in situ* and *in progressu*. Moreover, it originated in efforts to improve print reading instruction through metacognitive awareness (Block, Bauserman, and Kinnucan-Welsch, p. 170). Put differently, the original MPI helps to identify and describe metacognitive processes in think-aloud sessions. Other instruments such as Schraw & Dennison's (1994) Metacognitive Awareness Inventory or Mokhtari & Reichard's (2002) Metacognitive Awareness of Reading Strategies Inventory (MARS) take the form of retrospective consideration of generalized reading approaches.

The original MPI, for its alignment with metacognition in reading, is text specific and therefore required some modification for use in the study's design. The original MPI (Block, 2005) aimed to guide teachers' metacognitively focussed questions reflecting four pillars of metacognition, those being metacognitive knowledge, regulation, self-evaluation, and awareness, as discussed by Block, Bauserman, and Kinnucan-Welsch (2005, p. 171). The original MPI was recommended for use in reading instruction. The modifications shift it into a taxonomy of metacognitive processes to aid researchers in identifying and describing instances of participants' metacognition in extemporaneous think aloud utterances while engaged with multimodal online texts.

Specifically, the categories have been reduced to eight by removing focus on narrative character development and the process descriptions being adapted to the present purpose. The category of "character's personality development" wherein "Readers analyze and predict the thoughts and actions of the characters as described by the author" was dropped. Additionally, the category of "Propositional cohesiveness" wherein "readers understand each paragraph's proposition and its consistency to the whole text" was eliminated (Block, Bauserman, and Kinnucan-Welsch, 2005, p. 169). Both original categories presupposed a teacher-supervised and supported reading experience of printed text. The necessity of the modification rests in the spontaneous and extemporaneous think-aloud structure of the participants' three research sessions while engaged with multimodal online texts. The idea, borrowed from Wilson and Conyers (2016), is that participants would drive their reactions and metacognitive functions in real time. The modifications outlined above effectively retools the original MPI for use in a multimodal online context.

## The Modified MPI

**Semantic processes:** context informs word meanings.

**Syntactic processes:** grammar and syntax are readily understood.

**Fusion of semantic and syntactic features:** participant able to adopt differing points of view.

**Internal consistencies** [of the text]: participant assesses the logical of expressed ideas.

**External consistencies** [of the text]: participant connects text to personal life experiences.

**Structural cohesiveness:** does the text exhibit cohesiveness of identity, style, cause and effect, descriptions, comparisons, and sequence regardless of format.

**Informational processes:** text of content or narrative is understood by reader and the main idea can be identified.

**Personal reflections:** reader can make personal connection to the text's content.

(Adapted from Block, 2005).

### Employing the MPI

What if we thought about archaeological excavation as a metaphor for the reading experience? We have an artifact, there is an implied function, orientation, use, and meaning to that artifact temporally removed from the reader. It is an artifact that emerges from and is imbued with the stamp of, an individual creative mind. It is also one that is in constant dialogue with artifacts from the same "layer" of history, politics, aesthetics, economics, social norms, even literary architecture and format. Nevertheless, it exhibits contact with the human experience and therefore, on some level, has something to say about that human experience. It is a text emerging from a particular time and place that nevertheless continues to insist upon our notice, our understanding, our reinterpretation. It elicits fascination.

## Excavation of a Text

### The Text



*Figure 6.1* Excavating a Text, (Shane, 2019).

Access to all texts, but especially implicated with online multimodal works, intersects issues of politics, technology, social status and identity, language, geography, available time, and cultural capital. Once access is achieved, issues related to notice arise including format, semiotics, engagement, and motivation. After a text is noticed and selected, decoding relies upon literacy and technological proficiency, after which the reader delves into interpretation based on personal knowledge, intertextuality, application of cultural conventions and allusions, among other factors. Finally, readers who engage in critical analysis of a text do so in social, political, economic, and cultural milieu in an attitude of equanimity, resistance, or call to action.

Intertextuality's relationship to metacognition

Intertextuality and metacognitive awareness skill and control impact all of the foregoing (El-Koumy, 2004). For over a decade, Block's (2005) Metacognitive Process Inventory (MPI) has aided research in this area. Block's (2005) MPI aligns with and expands upon the final three excavation activities, namely decoding, interpretation, and criticism, all of which are impacted by both the reader's embodied affective state and his or her metacognitive awareness of that state they experience in the act of reading (Fox, 1994, p. 78). Various combinations of these processes were evident in the think-aloud data gathered from the study participants.

The excavation model also comports with the central nodes of symbolic interactionism in that the reader's subjective symbolic interpretation is developed and shaped through various social channels and encounters. We must ask ourselves, what is the role of the available text as a potential social channel or encounter? Addressing that important question, especially in the lives of students, leads to confrontations with texts chosen and mandated by curricula and all the political convulsions surrounding control over what students should read and learn. In the day to day lives of this study's participants, however, the most important social channels and encounters impacting their online literary practices were peers, teachers, and parents or guardians, in that order. For example, "notice" of a text can be serendipitous as in the case of recreational online surfing. It may also be directed by teachers to specific works or by peers through social activity networks. In these cases, metacognitive strategies help negotiate the assemblage of issues presented in that moment of notice touching upon engagement, interest, investment, motivation, and even format.

*Rabinowitz's "Rules of Notice" and the importance of Csikszentmihalyi's "Flow"*

The concept of notice is of central concern to Rabinowitz, whose work we introduced in Chapter 1. In his groundbreaking work, *Before Reading: Narrative Conventions and the Politics*

*of Interpretation*, Peter J. Rabinowitz discusses his Rules of Notice (1998, pp. 47-75) in terms of a text possessing a “hierarchical organization of details” (p. 53). Rabinowitz discusses rules of notice in terms of the text itself and the conventions, clues, and cues to which readers are prompted to pay attention. In this study, Rabinowitz’s (1998) stance *vis a vis* the concept of notice gets us past the act of volition a reader makes to engage with a text. What symbolic interactionism gives us is a rich understanding of the atmospheric conditions, social topography, and climate of the textual encounter. Among the most compelling studies of the previous decade on questions of engagement and motivation is Smith & Wilhelm’s (2002) *Reading Don’t Fix No Chevys*. Smith & Wilhelm engaged with economically, socially, racially, and academically diverse young male readers to understand their attitudes towards reading and literacy, motivations, incentives, and disincentives. Their results lead to the authors challenging traditional classroom pedagogy. Central to Smith & Wilhelm’s work is book is Csikszentmihalyi’s (1990) notion of *flow*, times when human beings are “so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it.” (p. 4). School did not provide an environment conducive to experiencing flow in reading or other academic tasks. The authors, both former classroom teachers, observed that “in every case where true inquiry environments were introduced in school, in place of asking students to report on what the teacher already knew, they were embraced”(p. 189).

Arresting the notice of a potential reader is both a subtle art and exact science practiced by teachers in their relentless search for resources to encourage student literacy engagement, including texts from popular culture (Buckingham, 2012) to sports (Brown & Rodesiler, 2016). Cover art remains among the characteristics of a book or musical album, CD, or tape scrutinized

by publishers and collection development librarians as well as by the reading consumer. Underpinning the search for the most effective, most attractive, most saleable cover is the assumption that a consumer or reader will be enticed to select a particular title from an arrayed selection. Put differently, that the reader will be browsing in a state of readiness with notice primed for arrest and sustained engagement. Traditional book or music album browsing cannot persist in the same way in the age of digital content where the materiality of the content is so radically different (Aljayyousi, 2017). In the early days of the Internet, browsing was reimagined as “surfing”, a term that persisted as the modern Internet gained a foothold in the reading lives of young people (Polly, 1990) and as the so-called “pictorial turn” (Mitchell, 1994) accelerated in lock step with an explosion of online content. To be sure, browsing and online surfing do share some common ground. Browsers and surfers alike are uncertain of the extent of resources of interest available to them at any given time. A meandering type of activity typifies both browsing and surfing. Nevertheless, the two activities diverge with respect to the amount of work being assigned to the reader. Browsers will benefit from the intellectual labour of a cataloging librarian or a bookstore merchandising manager who will have collected and organized materials largely by subject. Surfers are often asked to undertake the identification of texts of interest to them without the supports offered by information professionals and to navigate a vast ocean of content that may lead them off course. Those surfing adventures may afford delights and surprises, and suggest connections among texts outside the rigours of subject-based classifications; or they may result in a frustrating waste of time.

Symbolic Interactionism and the “definition of the situation”

Participants’ statements on their personal selection of online texts (Session 1) is that those choices are unmoored from any linear trajectory or single set of strategies. In fact, the data



suggests that they appear to deploy highly idiosyncratic approaches manifestly influenced by peer-to-peer recommendations, varying skill in online searching, and some metacognitive knowledge and awareness. In fundamental symbolic interactionism terms, the participants relied heavily upon their “definition of the situation” (Crossman, 2017) and what Douglas & Hargadon (2004) explore through *schema theory* both in their dialogue with the researcher and their reports about their literacy activities with peers, parents, and teachers. Crossman (2017) describes the definition of the situation broadly as that set of cues people rely upon to guide their behaviour – funeral, movie theatre, football game, Bar Mitzvah – in given situations. One must also exhibit metacognitive awareness, knowledge, and self-control or direction while performing or reading online. Crossman (2017) identifies the link between subjective meaning-making and symbolic interactionism:

Symbolic interaction theory analyzes society by addressing the subjective meanings that people impose on objects, events, and behaviors. Subjective meanings are given primacy because it is believed that people behave based on what they believe and not just on what is objectively true. Thus, society is thought to be socially constructed through human interpretation. People interpret one another’s behavior and it is these interpretations that form the social bond (n.p.)

The alchemy and aesthetics of cover art, for example, are culturally driven and often reflect marketers’ ideas about reader’s expectations of a genre or the reputation of a given author. Dramatic departures from the conventions governing book covers provide a helpful thought experiment, one with some significant comic potential. Consider wildly popular author Neil Gaiman, known particularly for his iconic fantasy comic book series *The Sandman* (Gaiman,

1988-1996) but celebrated for a number of narratives including most recently *The Ocean at the End of the Lane* (2013).

Over the last three decades Gaiman has secured an enduring place in the fantasy literature genre; a genre that has well-established conventions drawn from sequential art but also exhibiting elements of a nostalgic medieval past, Celtic, Norse, and Greek mythology, mysticism, otherworldliness, and the numinous. *The Sandman*'s original cover is a prime example (Figure 6.2).

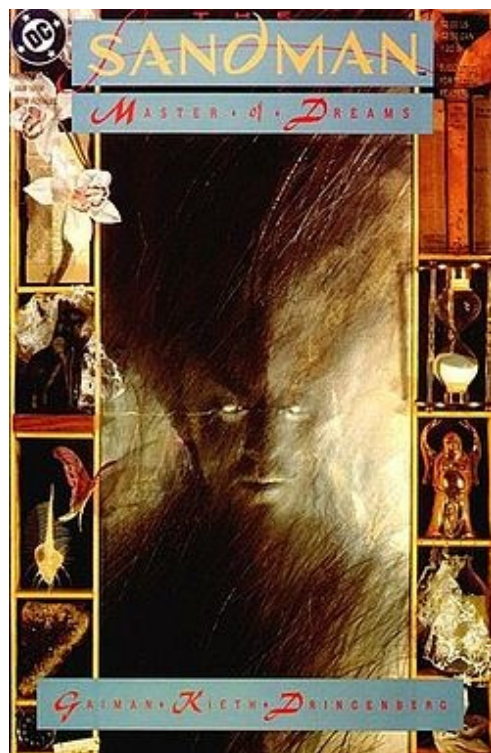
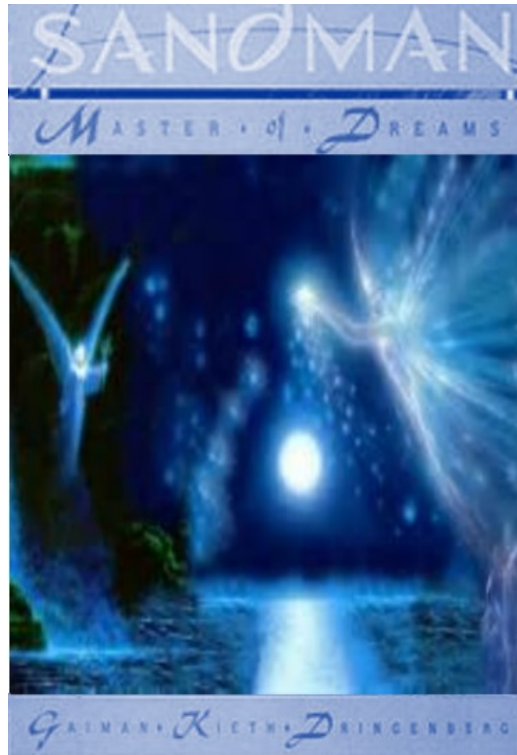


Figure 6.2 *The Sandman* cover, (Gaiman,1989)

A “sandman” cover rendered in pastels, watercolor blues, silver, or given a dewy, gooey “Disney” effect would be a violation of the genre’s conventional semiotics to the extent that it would defeat the publisher’s aim of encouraging it being picked up (literally and figuratively) by its target audience.



*Figure 6.3* Mock-up cover of *The Sandman* (Gaiman, 1989) (Figure 6.3) cover, with apologies to Gaiman.

Arresting the scanning eye of an online reader is no less reliant upon provocative, evocative and, in some cases, sensational elements.

#### Issues of Access

Processes associated with notice are bound up in various ways with issues of access. Moreover, the notion of access should be considered dually: access to systems or networks and access to content. Both aspects of access are influenced heavily by aspects of online and multimodal literacy beyond the control of the adolescent participants. How and when a participant gains access to systems, and subsequently to content, intersects myriad political, economic, social, and technical priorities and imperatives. These imperatives flow from the far-away space and macro space of public policy to the life-up-close space of personal experience

described earlier by Roy (2005) of a classroom, a public library, a friend's equipment, or a household as does the intensity, duration, reliability, and quality of that access.

Therefore, we must acknowledge that issues and challenges associated with notice and access are not as discrete as the model suggests at first glance. They may often occur almost simultaneously and, in many instances, access precedes notice in the context of online literacy. The fact that many participants simply took access for granted supports the argument for considering access separately from notice. The ubiquitous smart phone was instantly available and carried by all but one participant, and access to hardware and online services at home was available to all. Most participants also had immediate and reliable access to personal tablets and, in one case, to an electronic reader such as the Kobo or Kindle. The economics of access to hardware among these economically privileged youth, however, worked to set up a dual system of access to content that polarized between home/personal access and that available at school; a system dominated by the far-away flows of political, social, and the life-up-close flows of familial power.

The study participants themselves possessed considerable powers of agency and technical skill and these resources mitigated power differential vis a vis parents, school boards, online use policies, and social mores. Nevertheless, the participants were aware of the top-down restrictions on access to content. In some cases, participants found the situation ironically amusing; that they would be given access to robust hardware and Internet access in schools and then rarely, if ever, be permitted to freely browse or access content they considered interesting or worthy of their notice. The participants' transcripts suggest the politics of online censorship are potent and pervasive as teachers and school boards block access to content considered objectionable to mitigate legal and professional liability. In sharp contrast, personal access to

hardware and software is often free of parental or pedagogical oversight let alone censorship. Few participants mentioned parents who exerted more than a passing interest in their online reading activities. Participants moved between these various control-rich or control-free environments in their access to online content.

### **Multimodality and Metacognition in Participants' Responses (MPI)**

Steven Johnson's *Where Good Ideas Come From* (RSA Animate, 2016) aimed to provoke young people's metacognitive engagement. The text is fully described in a previous section. Nevertheless, by way of reminder, *Where Good Ideas Come From* consists of a voice lecture by Johnson on the creative and collaborative processes of innovation wherein a graphic artist is interpreting Johnson's argument pictorially as it is spoken. The viewer is presented with the simultaneous visual creation of the artist's interpretive images (accelerated to sync with the spoken word) and the audio track bearing all the enriching interpretive information of Johnson's cadence, intonation, turn of phrase, pauses, pacing, and emphasis. There are two modes of complex, nuanced, and sophisticated information working in concert. The result is an online multimodal text that study participants found novel and engaging in a way that both relied upon, challenged, and rewarded their metacognitive efforts. Almost all the participants, regardless of age, were able to produce comprehensive summaries of Johnson's argument post-viewing.

For example, Stuart, having provided an accurate summary of the content, responded to a question regarding if he could have summarized as well having only listened to the audio track. He, like Charlotte below, demonstrated competent *semantic processing* and an appreciation for this multimodal texts' *structural cohesiveness*.

Stuart: I don't think so. I think the drawing compared with the speech kind of helps, because you kind of pay attention to the drawing more than you would if you were just

listening to it by itself. ... [the drawing] might help you remember. It gives you like a visual. Something visual to kind of associate with the words. It kind of helps you remember as well. Because you think of the turtle, you think of the light bulb, it kind of gives you some imagery.

Despite his appreciation for the aid-to-memory and understanding afforded him by the images, Stuart gives the primary prize for content (if not for engagement) to the audio track and in so doing demonstrates the audio's power to prompt metacognitive *informational processes*.

Stuart: I think the speech is pretty important. Like he [the graphic artist] just writes a few words...like he just writes the big concepts. Without the guy explaining it, it could... you could interpret that in so many ways.

Stuart ranks the two modes in importance while acknowledging a metacognitive appreciation for the *propositional cohesiveness* of the power of the image to aid in content retention and *semantic processing*.

Researcher: ... if I were to ask you this tomorrow or a week from now, what was the Stephen Johnson thing about? Would you recall those images?

Stuart: I think so. ...I might not remember the name but if I remembered Stephen Johnson was the drawing thing, then I might remember.

Researcher: If I were to say "the drawing thing with the turtles"?

Stuart: Oh, yes. I think I'd remember that.

Stuart focused entirely on the task with no distractions or contenders for his notice. Not so with another participant, Teawrecks. Here is an early excerpt from his transcript at the same point of discussing the capacity of the images to convey meaning discussed above. Stuart is deploying a

specific metacognitive strategy to cope with an onslaught of content and the social context in which that occurs.

Researcher: ... So, if I were to give you that text instead of ... no images... just hand you a book with that same lecture in in, would you be able to summarize it that well?

Teawrecks: No.

Researcher: So, was ... how did the images help?

Teawrecks: It made it a little more appealing seeing all the turtles.

Researcher: You like the turtles. Turtles were effective?

Teawrecks: Turtles were effective. That's turtle technique.

Teawrecks's focus on the images as an aid to meaning-making, comprehension, and retention was challenged much of the time he was engaged with Johnson's multimodal text in ways that help us think about how the notion of *notice* may work in our online era. Below is an instance of my delving further into Teawrecks's strategies respecting a constantly vibrating cellphone buzzing with new content and potential reading work.

Researcher: That's ok. Hold it up to the camera. It's been in your hands since we started, and that's ok. So what's going on?

Teawrecks: I got a Snapchat from [name of friend] sending me a picture of his PS4 remote.

Researcher: Alright. How many text messages a day do you get?

Teawrecks: Whenever [name of a third friend] and [name of a fourth friend] pull me into a chat, I have over 400 waiting. ...

Researcher: That's a lot. How long does it take you to get through it?

Teawrecks: Not long. I just click on the chat and leave.

Researcher: That's a lot, it could be a lot of reading though.

Teawrecks: I don't read it.

Researcher: No? Not even skimming?

Teawrecks: No. So pointless.

Researcher: Why is it pointless?

Teawrecks: It's like "Ew, this band's better than that band." And it's like some dumb jazz band.

Researcher: So what kind of chat would you read?

Teawrecks: Some on a group of people who actually like the same things as me.

Researcher: What do you do with your phone when you're not ignoring chats?

Teawrecks: Listen to music. That's pretty much all I do.

Teawrecks's strategy here is to abandon *semantic processes* and to simulate engagement with the text and social interaction: "I just click on the chat and leave." That act protects him against the heavy lifting and cognitive work of meaningfully engaging with 400 text messages but leaves him open to the social risks of having missed an important message sent by a member of his group of close friends. Moreover, Teawrecks employs the strategy of pre-judgment, determining in advance the likely scope of the text message content. Put differently, he sees no benefit in working metacognitively with the processes outlined by the MPI. The content does not meet an *a priori* set of threshold criteria necessary for investment of his reading time and attention. *A priori* is very deliberately used here in both its deductive and presumptive sense: "relating to or derived by reasoning from self-evident propositions being without examination or analysis ... [or] formed or conceived beforehand" (Mirriam-Webster).



For other participants, printed text also took a back seat to the power of the *Where Good Ideas Come From* (Figure 4.10) dynamically appearing comic book art images. Shazam, for example, had great enthusiasm for the comic book format but also privileged the image and audio over any written text. She relied upon the non-textual confluence of audio and visual modes to activate her metacognitive *semantic, informational, structural coherence*, and *metacognitive coherence* processes.

Shazam: Ok. ... I like these kind of things. I find them super cool. I think it's maybe I'm a bad artist that I can never draw stuff like that. ...

Researcher: What are you noticing most?

Shazam: Um, the pictures. Probably. I'm not really, I'm not looking at the words, I'm listening to the voice and then looking at what he's drawing. And then I'm looking at the red words because they stand out to me. [Draws breath and giggles.]

... [*Where Good Ideas Come From* continues...]

Like Teawrecks, Shazam's confidence in her understanding and retention of Johnson's message - what she had learned – relied upon her exposure to the dual modes of audio and video content.

Researcher: So, can you tell me about what you just saw there in terms of content?

Shazam: Um... it was really interesting. It was about where ideas come from and how it's not really just one person that makes a good idea, it's more about the whole group and how the ideas coming together form the one big good idea.

Researcher: if I had presented that same content exactly what you just experienced in traditional print, would you have been able to engage with and summarize in the same way do you think?

Shazam: No! That one was way better because you had the audio explaining exactly what was happening and then all the pictures which just kind of tied everything together.

Participant after participant, expressed enthusiasm and affinity for the experience of seeing an *interpreted* and *interpretive* image arrive on the screen as the audio channel delivered sophisticated and complex content. This result is not surprising, as most of the adolescent participants were music enthusiasts who made audio an important part of their recreational time. Their experience of audio as a scaffold to academic engagement and retention, however, was less familiar to them. Their confidence in being able to retain the main ideas expressed by Stephen Johnson through RSA Animate and restate its central thesis at a later time was very high. That being said, the semiotics employed by the comic artist interpreting the audio track sometimes failed to immediately convey meaning, and for some participants, the audio mode was primary in achieving success in *informational and semantic processes*. As Nicole said:

Nicole: Yeah, it was. Sometimes it was hard to like interpret what he was drawing and what the speaker was saying. Even though he was drawing what the speaker was saying, I think everyone has their own interpretations of what ... what a word would look like I guess?

Nicole: Like if you were going to draw it. Like sometimes he would draw something and I was like "What is that?" and then, I'm like "Yeah, oh, ok yeah I got you."

Researcher: So, you might have chosen to draw the image differently.

Nicole: Not differently. Just it would take me a minute. Like I wasn't like "Oh, he shouldn't have drawn that. He should have drawn this." I just had to think about it and "Oh ok. I understand why he's drawing the turtle and I understand why he's drawing this lightbulb and I understand why these hands are coming out now."

Researcher: But you understood that because the audio was...

Nicole: It was there, yeah.

Kitty was familiar with the RSA Animate format, having experienced “a couple” of the series’ episodes in school before. She was drawn immediately to the animated sequential art as an aid to comprehension.

Kitty: [Dialogue plays]. I like the art. This guy is really good at drawing. I think the pictures help with what he's trying to deliver. It makes it easier to follow. [Watching intently.] Oh, it's cute. It is. Awwwwwww [drawn turtle].

Audio cues and content were interpreted primarily, and successfully, through the images.

Kitty: Awwwww. Oh, he draws a cell phone. That's creepy.

Researcher: What do you think about what he's saying?

Kitty: I think he's trying to explain ideas.

Researcher: Are you listening to him or are you more interested in...

Kitty: I'm more interested in what he's presenting on the screen.

Researcher: Have a look.

Kitty: Oooooooooooooo, it's a giant lightbulb! That's cool!

Like Kitty, Emily relied primarily upon the images to build a concrete understanding of the text, as did Chloe who was able, based on her interpretation of the images to immediately provide a solid summary of the 9-minute lecture and presentation. Chloe, however, also gave notice to the audio and worked with image and audio in concert more so than did Kitty and Emily. Even so, Chloe made it plain that the message of the lecture could have been conveyed through the single visual mode but that a thorough understanding rested upon simultaneously engaging with the audio and visual modes.

Chloe: Um, it was explaining like how in the past...oh, not just in the past, how ideas are formed and that sometimes people are really close to an idea, and they get distracted and they are missing something and they can't like complete their idea. And it's talking about how the Internet is changing how we like gain knowledge and develop our ideas. And how it's making it so people can find that like the missing information that they were needing to complete their idea.

Researcher: Wow. Well, that was a pretty expert and very thorough summary of what you just watched. So, well done. Let me ask you this question. If I had given you exactly that content word for word, exactly that content in traditional print, do you think you would have been able to summarize it in such an expert fashion for me?

Chloe: Um, it might have been a little more not as exciting.

Researcher: Right. So exciting is good?

Chloe: Yes.

Researcher: What were you noticing while you dealing with that piece? Because there's a lot going on there: there's audio, there's text, there's image all at once.

Chloe: Um, well, I mostly focused on like the audio but there was kind of the some of the drawings were a little like kind of off on a tangent some of them.

...

Researcher: ... So, if I were to ask you, if I were to turn down the audio completely off and just give you the images, would you have been able to interpret what was going on?

Chloe: I think so.

Researcher: Or would it have been...

Chloe: It wouldn't have been, it wouldn't have had as much information.

Researcher: Documentary about turtles?

Chloe: I would have had most of it, I think.

Researcher: Yeah? And if I just gave you the audio without the images, would you have tuned out?

Chloe: Um, maybe. It's ... well, it was kind of interesting. But it's good that you have like both parts to keep your focus.

Charlotte, like her fellow participants, was also familiar with the RSA Animate format, if not by name. Charlotte gave immediate evidence of the MPI's *personal reflections* and *metacognitive coherence* in that she was able to make personal connection to the text in the wider context of her online reading life and was able to connect those life experiences to the information presented in the text. Moreover, her thinking about the content comported with *metacognitive fusion of semantic and syntactic features* of the text through her articulation of a different initial and then evolving point of view on the topic at hand – the collaborative exploration of an idea.

Researcher: Ok. Thoughts?

Charlotte: Um... it's really interesting because I'm a really big hater like ... sorry...of like social media despite the fact that I have it. Just because um...I don't really ... putting a whole bunch of teenage girls on like Tumblr and letting them express themselves gets kind of ugly. And then Facebook, like bullying, came around. It's ....yeah... I've seen kids who like can't get off their phones. I'm a cashier at Walmart and I've had an 8-year-old come up to me and be on her phone while she's trying to get something from me. She's 8! Like I couldn't even order without my mum when I was that old. But at the same time, it brings up a really interesting point of the whole idea of having everyone help so that's, that's really cool because I never really considered that. I never thought of somebody

else like collaborating or anybody really could do that. But I guess that with Wattpad and stuff, with what I do, you do have people who are constantly giving you ideas and are like "Hey, like maybe if you did this". Or they're telling me their thoughts and you sit there and you're absolutely mind-blown because that's not what you were planning on doing or anything. So that's really cool.

Charlotte was also able to discuss the affordances of the audio and visual modes separately as well as in combination. In doing so, Charlotte demonstrated a metacognitive sense of *structural cohesiveness* in identity, style, cause and effect, descriptions, comparisons, and sequence. Were the audio mode to be absent, such cohesiveness could be expected erode and impair her ability to discern the author's ideas and message (*internal consistencies*).

Researcher: ... So, tell me about - let me ask you this question - if I handed you exactly that content in print form, do you feel you could have summarized it as effectively as you just did?

Charlotte: Um, probably not. Because there was like....I focused a lot on the images of like things coming together. And then once I get really easily distracted, and there was like "Oh, yeah, there's this collision of ideas" and I'm already over here like this is how this affects my life. And ... if I just read it, I would just plow through and then it becomes harder.

Researcher: Right. So the work that the images are doing there are helping them get this content into your brain?

Charlotte: Yeah. And then the presentation of the ideas. Like a turtle?

Charlotte: Was good because it's slow and old and it takes time. So I thought that was really cool, that was really well done.

Researcher: Would you, if we watched the images only without the audio....

Charlotte: No. ...

Researcher: And the audio without the images?

Charlotte: Audio without the images could do, I could do, probably. Because then you start picturing it.

Charlotte also demonstrated metacognitive *informational processes* by relating her understanding of Johnson's main idea but also her appreciation for the style aspects of the texts' *structural cohesiveness* conveyed by the animator's aesthetic choices (comic book style imagery).

Researcher: Did you find that the style of drawing made the messaging more accessible?

The images more accessible?

Charlotte: It did. Because it put it in a position where um...it was just kind of average. It was like, "Hey, like this is like really good drawing, so it wasn't so upscale that I was embarrassed to look at it or so awful that I wanted to cry.

Chad, like Charlotte, was familiar with RSA Animate content, having seen and enjoyed "a lot" of the series in school. His enjoyment stemmed from the visual mode as an aid to his *semantic, syntactic, and internal consistencies processes*.

Chad: Because it's a visual. Instead of listening to a guy speak about all this stuff and then you have to scramble to figure out, "Ok, what does that look like?" "What would that look like in real life"? "What would it sound like?" Now you can see it. ... He is talking about how good ideas come about not from one but from sum of minds.

Chad: And it usually comes from, instead of rushing an idea or rushing to what you think your good idea, is taking your time, slowing it down, and seeing what properties of this

idea and what you could do to improve it. Or who you know or who your colleagues are or who you think could improve on that idea with what they have in mind as well.

Chad also relied upon the images to aid his *internal consistencies, structural cohesiveness, and informational processes*.

Researcher: ... if I had presented exactly the same content in terms of printed text just straight print text...

Chad: No way. No way.

Researcher: ... would you have been able to produce...

Chad: No way. No way.

Researcher: So why...

Chad: Because it's the drawings, it's the puzzle pieces, in between that shows ok, it's connected, it's a fit... it also showed the world wide web connecting to the ox and carriage and everything. It's it's it's easier to see it and then to say, "Ok that's what they're trying to say here, I can go off that."

Researcher: So, what work are the images doing there? ...

Chad: Paints a picture, a picture for yourself. It puts the picture right in front of you. So you can say, "Ok, that's what it looks like, I can build off that." It's like what Robin Williams does. He takes a couple of words on a piece of paper and he makes a million jokes out of them. ... It's those visual cues. ... That can spark an imagination.

Researcher: If I had just played the audio without the video, would you have got as much out of it?

Chad: Probably not.



Researcher: So when you're watching...you're listening to Steven Johnson and you're watching the artist produce the images that are interpreting what Johnson's saying...um, are you, are you paying more attention to one or the other? The audio? or the visual?

Chad: Both. You get a true togetherness of the information.

Researcher: Right.

Chad: You get both at the same time.

Researcher: So, if I asked you to summarize it tomorrow, do you think you could?

Chad: Probably yes.

Although Chad did not summarize the material at a time past this exchange, other participants were able to do so. The RSA Animate content, while multimodal, was nonetheless linear and easily accessible content to the study participants and engaged their *semantic, syntactic, and informational processes*.

Participants' initial reactions to *Outrances* (Figures 4.1, 4.2, & 4.3) involved finding themselves unsure of what was going on. Bob's first reaction was "I'm confused" after which he lost any motivation to continue meaningfully through the text. Bologna, also confused, adopted a different strategy along which to proceed – she would focus almost entirely on printed text to achieve some success in her *semantic, syntactic, and informational processes*. Here is her reaction upon open encountering *Outrance's* landing page:

Researcher: ... Like, what's your impression of that image? You've got a scowly face.

Bologna: Yeah, it's just weird.

Researcher: Ok.

Bologna: It's like noisy and like "ugghhhhhh."

Researcher: So this is, what do you do next?

Bologna: I don't know. Click to play I guess?

Researcher: Yeah.

Bologna: I don't know. That's what it says. Ok. [Reading from screen, silently.] What?

"Chaos" ok.

Researcher: Ok. You read the whole thing?

Bologna: Yes.

Researcher: Ok. What would you do next?

Bologna: Play?

Researcher: Yeah.

Bologna: Press play. Oh.

Researcher: Alright. So, you were working hard there. What do you think?

Bologna: It's fine I guess. I don't know.

Researcher: Where you working hard on the words or on the images?

Bologna: Um ... I wasn't ... I was just sort of looking at it...

Researcher: Right.

Bologna: I read the lines.

Bologna's strategy of relying on the printed textual mode of information to engage metacognitively with this densely packed multimodal text ultimately failed. She placed the modes into a utility hierarchy and engaged with them or not accordingly: printed text was privileged, images were backgrounded, and audio was abandoned altogether. There was no opportunity or inclination to expend cognitive or metacognitive resources or effort on *internal or external consistencies, prepositional or structural cohesiveness* let alone exploration of *personal reflections, characters' personality development, or metacognitive coherence*. Bologna never

arrived at the excavation layer of this text where she might have made a deeper connection to her personal experience despite a wide knowledge and appreciation of popular culture, music, and printed text. By contrast, Chad's initial response to the *Outrances* (Figures 4.1, 4.2, & 4.3) landing page was to begin immediately interpreting the images in early efforts to establish *structural coherence, information processing, character personality development*, and the text's *internal consistencies*.

Chad: They're ....it's obviously the creators of this. I'm assuming. And they're trying to get you to listen to the ambiance of what sounds like a cityscape. ... But, it looks like they're trying to pull me in. Obviously. He's trying to pull me in. And get me into their world per se. ... To see if they can kind of change the way I think.

Researcher: What's that world? Just based on this evidence?

Chad: It looks just city. The city. ...

Chad: [Launches *Outrances*] Do you want it real loud?

Researcher: It's up to you.

Nevertheless, when printed text was available, Chad made certain to consume it entirely and aloud. He demonstrated simultaneous awareness of various multimodal cues including the low bass musical note that sounded through the cacophony of the audio track as a signal to advance the image, a cue upon which no other participant commented.

Chad: I could. [Reading the printed text.] "At one particular club foot show, they did in Austin, the balance of chaos and control was so precise that I, as I observed from the balcony that never ceased thrashing for a second during the entire performance, the plastic trash can in the centre of the dance floor never once tipped over." Wow. [Reading the quote at bottom aloud.] [Reading the printed text *soto voce* to

himself.] [Bass cue for screen advance clearly audible for the first time. Other sessions did not pick this up.] So this is very "street". [Continues to read aloud....]. This is like spoken word with the big bass in between each ... [Goes back to reading aloud.] Am I wrong about the bass?

Researcher: No.

Chad: It's more spoken word.

Chad embraced aspects of the work that other participants found disruptive and confusing. He demonstrated a *fusion of semantic and syntactic features* by adopting an openness to the simultaneous delivery of content via various modes (various audio streams, images and printed text). Chad was therefore able to identify a different viewpoint and to render additional images suggested by the visual elements of the text.

Chad: So that was ... they incorporated kind of like ... like a ... I don't know how to say this. This is more of a ... get you thinking I guess. But it's also they try ... it's like shock and awe. It's like ... to the point text, the Teutonic knights. The hard hitting, like you can see that in your head.

Chad also exhibited a strong sense of *metacognitive coherence* being able to connect his formative life experiences with the text. So potent was his familiarity with the poem's diegesis and situation that he was able to metacognitively appreciate, not only the *semantic, syntactic, and informational processes* but also the more elusive *internal and external consistencies* of the text as well its *structural cohesiveness* especially in terms of the text's identity, style, and sequence.

Researcher: How did you... what did you think of the way that the printed text of poem was presented. The zooming in and out.

Chad: Flow. I liked the flow. Especially being a guy who grew up in the city. You're used to the ... you kind of ... you kind of feel at home. You can of feel safe around the streets. You kind of ... it's...you can relate to it.

Chad: It's a natural habitat. And the flow in between ... you're incorporating movie posters which you'll see. Or concert posters, more like. You can see that anywhere in the city and it's cool to have text on there. ... Yes, because ... it's just like you were walking down the street and at first glance you wouldn't think anything of these posters you were seeing on the walls or on the lamp posts. You're just having a casual stroll. But if you invest a little bit of your time or you invest a little bit of your brain power into this, then you can discover something nice.

Chad: You can discover something meaningful.

Researcher: Tell me about the spoken word thing a little bit more.

Chad: I like the...because the way the poem...obviously what I found was presented ... was... it's not soft-spoken poetry. The Teutonic Knights, all that, to the point, hard-hitting. It gets to the point. It doesn't dance around anything.

So focused was Chad on his engagement with the printed text that he did not notice the “pause” and “next” buttons available at the top of the screen that would have enabled him to exert control over the pace of the slides’ transitions.

He realized that he could have reacted differently and thereby altered his construction of his meaning of the work.

Chad: You could linger on certain posters. Because certain posters had something to do with the text. On purpose. But other posters were just ... it... it was purposely made to look like someone wrote it on top of a poster that was just previously there.

Charlotte was impressed and reassured by *Outrances*' (Figures 4.1, 4.2, & 4.3) opening image. At her first glance, Charlotte demonstrated *metacognitive coherence*.

Charlotte: Um. It seems like a very teen-friendly site to be honest.

Researcher Ok.

Charlotte: Ummm ... I feel like it's going to be really relatable.

Researcher: So are you reading this printed text [*Outrances* landing page].

Charlotte: No I'm mostly staring at the pictures.

Following a rapid ingestion of the opening image and general aesthetics, Charlotte moved to the first available printed text and discovered, to her surprise, the first sentence to be in Latin. Her interest piqued, Charlotte embraced the disruption to what otherwise could have been a standard exercise in linear print reading.

Charlotte: Yeah. Oh, this is a different language. That's nifty [Latin phrase]. Oh, this is actually kinda cool! [Slides progress.] It's cool because it's engaging but at the same time when it breaks off, it kind of breaks my concentration [abrupt slide transitions automated timing].

...

Charlotte: Like looking at this is something that I would definitely like I could at least see my classmates focusing on this. Because it's moving and with teenagers if things are moving you're doing a good job.

Charlotte also exhibited an appreciation for the affordances of the multiple modalities simultaneously at work despite the challenging nature of the content. *Semantic, syntactic, and informational* processes gave way to *structural cohesiveness*. Put differently, Charlotte was excited and intrigued by *Outrances*, she reported an understanding of the author's themes and

characteristic style, but was not fully seized of its meaning. Maintaining a slippery hold on what the text actually meant was just fine with Charlotte.

Charlotte: And if you just put it all on just white text and you had it moving ... not a chance. But if you have it moving and you've got pictures... yeah, it's good. And I think that the images really help to bring the point across. Because it's not ... it's not this... if you put it in a flowery field it would destroy it all.

Researcher: [Referencing *Outrances* landing page.] What does this image say to you? These, these dudes?

Charlotte: I honestly was trying to make sense of it. I was like whaaaaat? I don't really get what's in the picture frame. I don't really get what's going on there. But there's probably some relevance. Um...

Charlotte, like several of her fellow participants, did not notice the “pause” and “next” features available to the online reader.

Researcher: Where you anticipating the pace?

Charlotte: Uh, not at first, but once it started moving.

Researcher: What happens here is the movement is very arresting in terms of your attention, I think. If you notice up here [pointing to top right of the webpage] there are...

Charlotte: Oh Jeez, I didn't even notice those.

Once the ability to dictate the pace of the transitions was demonstrated to her, Charlotte volunteered a renewed commitment to the printed text and her willingness to export it to a purely printed (and inscribed!) mode.

Researcher: ... controls. I know. And that's ok. So would you go back to this text and review it on your own, at your own pace.

Charlotte: Probably. I might even actually write it down.

Researcher: Really?

Charlotte: Just so you can like... because when it's broken up it gives you a sense of it but then when you put everything together you have that flow that you didn't have before and then you can have an entirely different story, right?

Researcher: And you're right, when you take away the presentation which is deconstructed and as if you were walking a streetscape and encountering this text randomly and putting it together. So, if I hear you right, you're saying that if I were to take this text only divorced of its images, reassemble it, in terms of the stanzas, then re-read it you think that that would assist with comprehension?

Charlotte: I definitely think it would. It might not make it easier but it would might tell like an entirely different story.

*Personal reflections, metacognitive coherence and external consistencies* were Charlotte's paramount metacognitive processes. These processes formed the connection between the content and her experience. She relied upon the images to cement this connection.

Researcher: What work are the images doing here?

Charlotte: Um, it's kind of just bringing it home, I guess. It's kind of like almost making it more relatable. Because not only do you have the words but you have this image of like something you can entirely place yourself in. That's really cool. And it's also making it like everyone has seen this street. You've been there. It's really easy to just see yourself in that position. On the street.

The audio track did not contribute to Charlotte's overall *semantic* or *informational* processes.

The simultaneous demands on her visual and auditory sensory systems proved beyond her



perceived level of skill and ability. Instead, Charlotte deconstructed the multimodal architectures of the work and chose to focus on a single mode.

Researcher: What about the audio track?

Charlotte: Um, I kind of tuned that out to be honest.

Researcher: You tuned it out?

Charlotte: I can't listen and view at the same time.

Researcher: So it's background noise? It's just white noise?

Charlotte: Yeah.

Nevertheless, as she revisited the audio mode, Charlotte was able to integrate it into her dynamic and emerging construction of meaning.

Researcher: Now that we're noticing it, what work is the audio track doing?

Charlotte: It kind of makes you feel like you're on the street.

The device of “the street” is central to *Outrances*’ thrust, aesthetic, and messaging (Figure 4.2). It conveys meaning via a simulation of movement through an urban city-scape, and the audio track reinforces that central device. Yet Charlotte’s rejection of the multimodality of this text denied her the chance to arrive at a richer experience of the work. Moreover, it is important that she believes herself to lack the skill or capability to simultaneously process and integrate the full range of multimodal content. Does this perspective represent a gap in literacy education? Or would a re-reading of the content make a difference to Charlotte? In either case, Charlotte’s experience is pedagogically significant.

Chloe immediately articulated the “street” feel of the piece and began her journey through *Outrances* (Figure 4.2) by noticing images rapidly and briefly before concentrating intently upon the printed words. Her efforts at meaning making through the printed text was

thwarted, however, by the rapid transitions between the images and the unorthodox presentation of the printed words as part of rapidly advancing and visually complex posters. Put differently, her reliance upon printed text as an aid to her *semantic, syntactic, and informational processes* failed to help her arrive at an understanding of the content's *internal consistencies, propositional cohesiveness, and fusion of semantic and syntactic features*. Chloe enjoyed the dynamism and movement baked in to this digital artefact but was disoriented to such an extent that her deeper metacognitive skills could not be deployed effectively to arrive at an understanding of the poem's meaning.

Chloe: [Watching intently.] So maybe they're in a band or something?

Researcher: Hmmm mmmm. Are you reading the intro?

Chloe: Hmmm mmmm. [Reading intently.] ...

Researcher: How about the words? Are they making sense?

Chloe: Like, I've missed a few so...

Researcher: I'm sorry, we can do it again if you like.

Chloe: [Watching intently] It makes the poem more exciting. Because it's changing the graphics. ...

Emily, in a way similar to Chloe, immediately engaged with reading the printed words.

However, in Emily's case the reading was done aloud and there occurred both an effective integration of printed words with images and an early and accurate speculation on the content's subject matter.

Emily: [Reading from the print text introduction] "...as I observed, from the balcony, the pit never ceased thrashing for a second during the entire performance yet the plastic

trashcan in the centre of the dance stage never once tipped over. Offenders Review, Austin Chronicle. Outrances ...”

Researcher: Good.

Emily: ... by Thomas H. Crofts III. Peregrinnes ... [reading the Latin phrase on landing page] "I have looked for my path into exile amid the crashes of cymbals."

Researcher: Good job. Ok. So, what do you think just based on that image and those words, what do you think you're in for?

Emily: Um, a performance. ... Or something... with cymbals.

As her intent engagement with the printed words continued over several minutes, Emily reached the conclusion that the material was familiar to her after all and thereafter demonstrated *personal reflections* and *external consistencies* that scaffolded her move towards *informational processing* and *metacognitive coherence*. She made these efforts despite the meaning of the piece remaining elusive. Emily did not demonstrate instances of *propositional cohesiveness* or *internal consistencies*.

Emily: [Reading aloud from the images]. "Wake up again to find, the world was living still... my intelligence... fully reclined" ... Oh, I think I know, might know, this type of poetry. [Reading intently]. They're using, I think they're using different posters...

... that, yeah, to make like up a story.

Hymie, like Chloe, was intent upon decoding the printed words in *Outrances* (Figures 4.1, 4.2, & 4.3). Unlike Chloe, however, he preferred to read the print text silently to himself. The intensity of his concentration mirrored that of most other study participants. His approach was more deliberate than other participants in that he immediately rejected the audio mode by silencing the audio track.

Hymie: Usually I would read it really quietly, like not spend it on the computer [turning down volume].

Researcher: Ok.

Hymie: [Reading silently: *Outrances* landing page printed text.]

Researcher: Ok. ...

Hymie: Wow, that was pretty crazy and yeah.

In discussing his experience of the landing page, Hymie appeared to consider the entirety of the image of the two creators posed in a way reminiscent of a so-called “selfie” (self-snapped digital photo via a smartphone) that might be taken by young people attending a contemporary rock concert. His interpretation of the image did not summon music festivals but rather hard-core gamers. In any case, Hymie formed the expectation that he would enjoy what followed.

Researcher: So, what did you think of... let’s look at this image first and talk about that [opening image]. What are you noticing? What is it saying to you?

Hymie: Um, it's saying that it's I don't know, I guess from what they look like, it's like a crazy gamer thing.

The “gamer thing” aside, Hymie also focused on the printed text in his efforts to construct meaning from the work. However, his efforts were stymied by the non-traditional presentation of the printed text within a complex multimodal piece. Locating the printed words in the first place was challenging as there was nothing akin to left-right progression or any discernable “top” of a “page”. Moreover, the printed words could (and did) appear anywhere on the rapidly progressing pages. Hymie worked hard to decipher printed words before the slide advanced and it disappeared. His ability to construct meaning through *internal consistencies* processes were hindered. What is interesting, however, is that Hymie arrived at a sense at a meaning of the work

even though his main strategy of relying on printed words was not fully effective. Put differently, Hymie engaged in *semantic processes* based on what he could absorb of the printed text *and* the aesthetics of the context to help him sort it all out.

Hymie: Yeah, it was like a street, and would zoom into separate things. It was pretty cool but ... yeah.

Researcher: You were working hard on the words...

Hymie: Yeah!

Researcher: ... so the transitions and the images were kind of doing...

Hymie: Sometimes I didn't really get enough time to really look. Sometimes I would like, I could read it, but I didn't have enough time to understand it.

...

Researcher: Right. So in terms of what they've chosen to put in the image, the elements to put in the image...

Hymie: Yeah.

Researcher: ... what does that say to you?

Hymie: This image?

Researcher: Yeah, this kind of whole page.

Hymie: There's kind of like drums to me, a drum set, so it kind of looks like it would be like a band or something.

Kitty was immediately dismissive of the audio track and turned the volume down very low (but not off entirely) explaining the “audio is going to drive me crazy.” Kitty, also, was laser focussed on the printed words which she chose to read aloud until, that is, the print language shifted from English to Latin.

Kitty: Peregrinnes... I usually skip this part. [The printed text is in Latin.]

Researcher: Ok. And you're skipping it because...

Kitty: I've already read it. Usually I will look at the big words [meaning printed text size] and then move to the small ones. Peregrinnes....expect.... what? [Skips to English translation of the quote]. How do you say that? Is this like Latin? "I've looked for my path into excel amid the crashes of cymbals." I would have said "clashes" but whatever. Ummmm... Is he Russian or something?

Researcher: Um, that quote is from a Russian person.

Kitty: Oh wow. Only, this is cool, animation...."only to wake". Ok I can't read that.... being still my intellect. Sound... fully reclined...

Kitty, like other participants, was taken with the “coooooooooool” multimodal novelty of the work that others (e.g. Mancan) had described as “weird”. She had never before encountered an online multimodal work like *Oustrances* (Figures 4.1, 4.2. & 4.3). Although Kitty was a good sport, her meaning-making apparatus largely collapsed and she was adrift in the experience of the work. There was a glimmer of *semantic processes* wherein Kitty worked hard at deducing meaning from context. There also appeared flashes of *informational processes* and *external consistencies*. What was lacking, however, were reports of deep structural and logical processes.

Researcher: What are you liking or disliking about it?

Kitty: The way that it's animated. This is like a movie. You could sit here and watch this except for the audio. Which is driving me insane.

Researcher: Well, what about the audio [Urban street scape sounds]? Is it that's driving you insane?

Kitty: It's just so repetitive.

Researcher: Well, what is it?

Kitty: It's just people screaming into a microphone! During a concert or something. This looks kind of like.....Green Day-ish. Like the style of Green Day. Weird. Goth. That's the word I was looking for. Goth. It looks like those people who go graffiti things. Ok, someone got shocked by lightening [on the animated image].

Researcher: Now, you're not controlling the pace.

Kitty: No.

Researcher: Is that a problem?

Kitty: Sometimes. If it's going too fast, then I have no idea what they said. Umm...

Kitty: It's weird. Microphones from an airplane. What is THAT? Ok, there's a dumpster. Ok. Why are there newspaper clippings on dumpsters and on the walls? That looks like Ahmed [A character created by ventriloquist comedian Jeff Dunham.] I'm trying to follow where the heck I'm going and I'm trying to read but sometimes it goes a little fast.

Was there a poem in that?

Researcher: Yes, there is.

Kitty: Ok. I couldn't read that. ... That was weird.

Like Kitty, Mancan's comments suggest that he also relied upon the printed words as primary and the images as secondary as well as the general aesthetic feel of the piece to work out a range of potential meanings

Mancan: It's a like a street sign, like it's taped to a tall phone poll or a light poll. ,, It's trying to hint at something. Like, it's trying to hint at something that's recently happened.

...

Mancan: First thing is I look at the text.

Researcher: Is the speed more or less helpful?

Mancan: Not really. It's pretty helpful. I'm able to know what I'm supposed to be looking at. Determined by the speed.

Researcher: Good point.

Mancan: What I should be focusing on. It's like if it takes longer than then I know there's something I know I should be looking for. But if it's short, then it's just the words. Or if it's just the picture. ...

Mancan: These ones remind me of the bombing in World War II probably.

Researcher: Well, those were B-52 bombers. Well spotted.

Mancan: And that's like an old knight from somewhere. ... All of them had chain mail on.

Like Mancan, Nicole also reacted adversely to the audio mode and immediately reduced the volume in order to concentrate first on the images and, ultimately, on the printed text. Her commentary also evidenced an awareness of the affect of the work, specifically the intensity of the emotions being communicated. Nicole exhibited behaviour - intense concentration, furrowed brows, moving closer to the screen, talking softly to oneself - that suggested she had worked hard at interpreting the images through the lens of her personal experiences, exhibiting *metacognitive coherence*.

Nicole: Um... I'm not really fond of the music. Or the sound [reduces volume]. Yeah, I'm kind of interested to see, they kind of look like, um, very like um... very...

Researcher: Hipster?

Nicole: Yeah, hipster and very like hard-core people.

Researcher: Yeah, I know what you mean.



Nicole: Not like Rock, but intense.

Nicole, like so many of her fellow participants moved rapidly from her assessment of the images and the aesthetics to an intense focus on the printed word. Even so, her overall construction of the meaning of the piece relied upon an amalgam of information she gleaned from both reading and interpretation of the images based on her experience and knowledge. In other words, she demonstrated *semantic processes*, *structural cohesiveness*, *personal reflection*, and *metacognitive coherence* to support her *informational processes*.

Nicole: Ok. [Returns to reading intently.] Ok. [Continues reading and watching.] I find how it's written very interesting.

...

Nicole: Yeah, it was very fast and there was a lot of like reading and then a lot of pictures around it again.

Researcher: Right. And what... so what was the overall impression there.

Nicole: It seemed very like... I don't know... this might be completely off but towards the end I kind of got a feeling of the ... of like... um...it kind of seemed like propaganda to me just because that's how... propaganda looks. Early looks. That I studied.

...

Nicole: I was concentrating on the text, I would read the text first and I would look at the pictures around it. So I was, I wasn't ... like I could not quote for you one of the text except for the one about the riot.

When the researcher pointed out the heretofore unnoticed “pause” and “next” controls, Nicole explained how she would have exerted her control over the pace of this very complex and fast-flowing multimodal work.

Nicole: If I could do it my way...

Nicole: I would pause it on every single one and just like you know, if you were to ask me in-depth questions about it, I would want to write down what I took from every single line...

Researcher: Oh, ok.

Nicole: ... and figure out what it all meant together.

To paraphrase, Nicole arrested the flow of the visual mode, ignored the audio mode (which she set aside as irrelevant from at the outset), and reformatted the imagery of the visual mode into printed text. Transcription was her means of distilling the complexities of the work down to a single printed mode through which she would arrive at a satisfactory notion of the *aboutness* of this piece. Based on her report, we could reasonably expect that, with the entire text stripped down to a single mode, she might engage in metacognitive processes that lead to deeper and deeper excavations of a text's meaning including *internal consistencies*, *structural cohesiveness*, *propositional cohesiveness*, and robust *informational processes*.

Struggles with complexities also confronted Princess Hillary as she found herself distracted by the details of the images.

Princess Hillary: Ok. Well, I notice the guy, and it seems to be a pipe or something in his mouth. Um, I'm not exactly sure what they're holding in the picture frame. And these guys seem pretty rock-n-roll. He seems to be holding up his fingers like that.

...

Princess Hillary: Oh. I find that you need to read things over twice.

In short order the visual and audio modes of content faded in relevance and printed words, once again, insisted upon Princess Hillary's notice. She demonstrated obvious effort in engaging her *semantic* and *syntactic processes*

Princess Hillary: Well, I saw the guys ... [Reading *sotto voce* to herself]

Researcher: Mmmm hmmm. Do you find you have to orient yourself?

Princess Hillary: Yeah, my eyes need to adjust before moving on.

...

Researcher: Is it making sense?

Princess Hillary: Not too much. ... I'm kind of frustrated.

When the printed text failed to assist her in constructing the meaning of the poem, Princess Hillary returned to considering what she might glean from the images.

Princess Hillary: But just by looking at like the surroundings of it. ...

It kind of looked like hard-core and kind of like - I don't know - ...

It kind of seems a little bit scary. It seems either that he's at a party and he's drunk or that's what it makes me see. Or ... it kind of seems to me like he would wake up and find like a girl or something next to him possibly. ... Yeah. [Scrolling through reading to herself *sotto voce*.] This is like DJs ... and JLos ... living a little too hard possibly.

By contrast, Shazam made immediate judgments about those elements of the piece worthy of her notice and in so doing revealed a heightened awareness of *metacognitive coherence* and *personal reflection* to the point where key elements of the landing page, the introduction to the work to follow, were dismissed outright at the outset.

Shazam: Ok. [Reading aloud, but whispering, the intro to *Outrances* on the landing page.] Ok. So I don't see the point of reading that.

Shazam: I don't know why. It doesn't seem important to me.

Researcher: That's ok.

Shazam: So, yeah, I just kind of read the top part. Didn't seem that interesting.

The pace of the work's transitions from one segment to another discouraged Shazam further as she described herself as "not a fast" reader. When the printed text proved unhelpful in supporting her *semantic processes*, or failed to assist her in constructing her sense of the poem's *aboutness*, Shazam returned to the images. As a result, Shazam formed a shaky opinion of the meaning of the poem, one that she was not at all confident in either forming or advancing.

Researcher: What are the, what's the style of the image?

Shazam: Um, they're pretty harsh, I don't know, they're using words like "crash" and "thunder and lightning."

Researcher: And the image itself? Like the way they are presenting the printed text?

Shazam: Yeah, I don't know. It's kind of vulgar almost. Like this person's getting electrocuted. Yeah. Um, "Just as lightening speeds ahead of thunder". [Reading from the printed text.] I don't know. This doesn't... this kind of stuff doesn't really catch my interest I guess because I'm not... I'm not a huge... I kind of like listening to the like country side of music.

In an effort to contribute something to the session, however, Shazam became adroit at zeroing in on details within the images even if those details didn't result in an improved understanding of the work. Having availed herself of the newly noticed "pause" and "next" buttons, Shazam demonstrated keen powers of observation.

Shazam: "So quickly that music..." [Reading from the print text and clicking through]. It's kind of cool the way it goes, I don't know, downtown or somewhere downtown.

Researcher: Hmmm hmmm. It's a streetscape for sure.

Shazam: Yeah. "Fits that..." [Reading from the printed text and clicking through]. It's kind of cool how the little rockets are microphones, kind of clever.

Researcher: Hmm. I never noticed that.

Shazam: [Laughter]. ... And..." Oh, I missed that. "And scatters in substantial..."

[Reading from the printed text and clicking through]. "And crowds in sworling..." I don't know what "sworling" means.

...

Shazam: Yeah. [Reading and clicking through - persevering.] "And heavy-armed Teutonic knights." Kind of cool with crosses on their coats. And maybe a name. Yeah. I don't know it still doesn't make sense to me to be honest. ...

Another set of strategies were demonstrated by Stuart who immersed himself in the work for its entire duration and resisted occasional reminders to think out loud. When he came up for air, he demonstrated a talent for reflection and ability to integrate the multimodal information presented to him with one notable exception.

Stuart: I don't know. It was kind of an interesting format. I was going back and forth. I can't say I understood the poem too well.

...

Stuart: I didn't notice the images as much as the words. It felt like there was a lot of sound. It was like all sound-based. Like not really imagery but kind of and the images

were kind of like gave the impression of violence. Like there was one with people and bomb planes, like... Um... I don't know. It was going pretty fast. So I would read the words before I looked at the pictures. Just in case. ...It's kind of like...I don't know they're all like music posters. Kind of like creating a sense... I don't know what the actual art style is called but it's....

The audio mode, though present, did not register at all.

Stuart: I didn't hear anything.

Researcher: This was playing the whole time. At about this level.

Stuart: Oh, it's the ambient noise.

Researcher: Yeah, the streetscape noise. Did it register? Did it...? [Shakes head]. No?

Stuart: Not really. I just kind of tuned it out.

In contrast to Stuart's attention to the printed words, Teawrecks, our musical enthusiast and comic book aficionado, moved rapidly past the printed word to an appreciation of the music "scene" elements of the visual design of the work. In so doing, Teawrecks demonstrated a strong sense of *metacognitive coherence*, which, in his case, was a determining factor in his level of overall engagement or lack thereof. *Semantic processes, structural cohesiveness*, and a sense of the work's *internal consistencies* were deployed readily. He could decode any printed text placed before him and he certainly was apt to relate the material to his own experience.

Researcher: What are you reading?

Teawrecks: The entry thing.

Researcher: Will you finish it?

Teawrecks: Yep. "Only to wake up to find...the world was still was living still ... [reading poem aloud]. Ok. Don't want to read. ... "upon the ice"... "half-second ...".... I think this

is a long-ass poem. ... Uh, grunge band, anarchy band, political band. It's on music for sure. It's all like band posters.

Even though Teawrecks successfully decoded the text through *semantic processes* and the images through a *fusion of semantic and syntactic features*, he did not arrive at a satisfactory sense of what of the poem's *aboutness*. The deeper layers of excavating the text (Figure 6.1) that would move him into metacognition beyond decoding – namely, *internal consistencies*, *propositional cohesiveness*, *character development*, and *informational processes* – were left unreported.

Researcher: Did the poem make any sense?

Teawrecks: No. Not really.

Researcher: Did you care?

Teawrecks: I sorta did.

Researcher: Would you read it again?

Teawrecks: No.

Over the last decade, a cluster of conclusions has emerged in multimodal and online literacy studies suggesting that young people demonstrate expertise at constructing meaning from multiple modes of content but often prefer to interact with and create multimodal texts. These researchers include: Smith, Pacheco & Rossato de Almeida (2017); Nagle & Stooke (2016); Ehret, Hollett & Jocius (2016); Smith (2016); Bok & Cho (2015); Vasudevan, *et al*, (2013); Vasudevan (2015); Miller & McVee (2012); and New Media Consortium (2005). As Tan and McWilliam (2009) write:

... multiliteracies initiatives propel pedagogical practices in the classroom that address students' preferred current mode of learning that relates to their social engagement" (p. 121).

The "notice" and "access" filters discussed above can be clicked into place when considering the participants' reactions to *Outrances*. For these participants generally, there are no barriers to access. These students live and learn in a political system exhibiting the hallmarks of a liberal democracy. Their education is conducted in a publicly funded system affording access to myriad texts in every format. Participants enjoy relatively high levels of disposable income and robust social family and networks supporting their capacity to engage with any text that arrests their notice. In sociological terms, as described by Bourdieu (1986 & 1996), participants are rich in cultural capital, those resources necessary for academic achievement and social advancement. With that foundational taken-for-granted in place, participants are free to react to issues of notice – format, engagement, interest, investment, need and motivation - in making their individual choices. For example, in Session 2, all participants struggled with notice while engaged with *Outrances*, a complex and challenging online, multimodal work of poetry.

Although television screen-time persists as a mainstay of free-time disposition (Len-Ríos, Hughes, McKee & Young, 2016, p. 104) participants demonstrated time and again that printed text continued to be as least as important in their meaning-making efforts as images. That being said, what impact upon meaning making might arise from the affective quality of a work and the embodied experience of engaging with such a multimodal text? As outlined above, Kuipers and Kostiuk's (2008) collaborative piece, *What Afterlife?* is cloaked in an affectively evocative aesthetic accurately described by many participants as "creepy". Recall that *What Afterlife?* looks like this:





Figure 6.4 *What Afterlife?* Main page.

Some participants, like Bologna, lingered on the landing page a few moments in an effort to get their bearings “just to see what it is about kind of.” Others, like Chad, took in the biographies as a clue to content: “if you get to know... if you get to read as ... is a 20-year old self-taught hybrid designer ... that gives you an insight to what you're going to expect in here.” Chad was successful in integrating the visual elements and the printed text through *semantic* and *syntactic processes*, and appreciation for the text’s *internal consistencies*. Chad experienced a sense of immersion stemming from the multimodal affordances of the work.

Chad: I like how ... actually taking a second glance at it...some of the stuff that he was talking about is actually incorporated. So, he was talking about the fireflies in the Mason jar which is one top of the TV.... But it's also the eerie music. That's another thing that draws people closer is kind of like the little ambient sounds ... because it makes you feel like you're there in front of that TV reading the text.

Chad: Because of the sounds, also outside, I believe there was thunderstorms? ...

Researcher: Did you notice the image that was being created for you in terms of the ambiance?

Chad: Yeah. It helped. It helped...

Researcher: Helped?

Chad: ... what he was describing. You can feel you're on the sailboat.

Researcher: Hmmm hmmm.

Chad: ...rocking around.

Researcher: What did you think of the music and the voice?

Chad: I like ... I like the voice over because it created kind of an eerie ... with the music... the eerie-ness of it. The non-knowing what he's going to say next. It's ... I don't know... it's very eerie but it's not too eerie, it's not distracting or scaring you, or uncomfortable. It's just eerie enough. ... That you, it, pretty much makes you focus.

The affective qualities of the work aided Chad in developing a relationship with it, one that he reported as conducive to meaning making and enjoyment working upon his *informational processes* through *personal reflections* and *metacognitive coherence*.

Chad: It created...it made it a little more interesting to ... it made it more interesting to read it or watch I guess. Interactive. It's better for me to do it this way than it would be to read it. ... Because it wouldn't get those ambient sounds that added to the thrill or that added to the effect that it had on me. It felt ... I didn't feel ... I just felt in a different place, it was like an uneasy place. ... Which made it nicer to read. ... And, it's just cool. It creates a picture that you can relate to through your past experiences. ...

Researcher: Yeah. Because you were really engaged there.

Chad: It was cool...I liked that a lot.

Like Chad and Chloe, Charlotte paid attention to the content of the landing page. However, rather than conducting a review of the biographical highlights, Charlotte was among those participants (like Nicole) who engaged in a detailed and purposeful referent reading of the landing page's paratexts as defined and explored by Genette (1987, 1997) and further explained

by Genette and Maclean (1991) and later by Altmann, *et al* (2014). Paratexts are those materials that surround and frame a text such as dedications or back-cover reviews, notes on the authors, etc. They are often supplied by a third party such as a publisher. Paratexts often shape a reader's initial expectations of a text that, in turn, guide deliberative processes such as selection, motivation to complete, abandon, or re-read a text and cognitive and metacognitive processes including *informational processes*, *personal reflections*, and *metacognitive coherence* that drive interpretation. Charlotte was determined to glean as much information as she could about the proffered poem from the landing page's paratexts. No detail was extraneous, including the name of the author's family dog.

Charlotte: [On landing page.] I kind of read everything first. [Artists' biographical paragraphs.] Because like when I read Shakespeare that is what I was taught to do. So you read everything that is in italics and in small, and above it. Because it aids a lot. ...

Charlotte: "Bishop" is an interesting name for a dog [from biographical paragraph]. I guess it kind of gives like a background as to who they are. Perhaps why they wrote the way they did.

Charlotte: [Entering site]. Oh. Ok. I will click on that and see what happens. [Watching]. You can't ignore the sound in this one because he is talking to you. So I mean good luck. But, yeah, it's pretty cool. I'm really creeped out. But I feel like that's its job.

The work evoked an emotional response from Charlotte who, like Chad, had successfully integrated the entirety of the work's aesthetic elements, including the whispering audio track, into her understanding of the experience if not of the actual poem itself. In Charlotte's case, affect took over, and the printed text faded in importance as she moved through the work.

Charlotte: Oh, my goodness. It's weird because I'm like almost sad. Like, I feel sad. His voice was like creepy and the music just made it creepier. But at the same time I'm like "Oh, my goodness, this is so sad." Because it never like ... it was never like somebody's dying. But it just sounded like somebody was like suffering so much. It was like "Oh my goodness, this is awful."

...

Charlotte: I was [focusing on the printed words]. But then I started to let myself listen and not read so much. And then I started to look.

Researcher: Ok.

Charlotte: And that's when it got really cool. Because it was like I'm not even like sitting in an office anymore. I'm sitting in this really cool house and it's gloomy and it's dark and than it's just, that's when it got cool. ... But then I was like "Oh, I have to click" and that almost kind of ruined it because I was so captured and then I had to click. ...

...

[Re: The music.] You're just...your kind of getting pulled with it. It's very ... it's almost pleasant actually because it's just so easy to fall into.

By contrast, Hymie, largely ignored the landing page moving immediately to enter the interactive version of the site. At the conclusion of the work, Hymie was clearly responsive to the affective “creepy” elements of *What Afterlife?* but nevertheless demonstrated awareness of the work’s *internal consistencies* and *structural cohesiveness*.

Hymie: And the point was that it was supposed to be related to the actual story. They made the voice, like, weird. Uh, kind of ... it kinds of reminds me of an abandoned

house or something. With the TV playing. ... I kind, it kind of sounded like it was a horror movie.

...

Researcher: Yeah, it's definitely got that kind of horror movie, sort of film noire feel to it, right.

Hymie: It sounded like a guy narrating, like say, he's trapped in a horror movie. Or not.

He's trapped in a cage or something and he's reading a poem because someone's about to kill him or something.

Emily's efforts took a different direction. The power of the image reasserted itself on Emily's reading of *What Afterlife?* Upon noticing the first flash-image, Emily engaged minimally with the printed text but in a way that suggested decoding text was a pastime while she held herself in readiness to notice and identify the next flash-image.

Emily: [starts reading aloud and stops when realizes there's a voice over]. [*What Afterlife?* plays ... Oh I saw a face!

Researcher: Did you?

Emily: Yeah. [Watching intently].

Researcher: Ah, there it is again!

Emily: [Watching intently.] So I'm watching. Is that a cat or something?

Researcher: Maybe.... Maybe there won't be every time.

Emily: Fireflies ... two orange sticks crossing [reading from the printed text]. Oh, I saw something. Maybe a body? ... Is that wood or something? [Watching intently]. Yeah, I think I'll... here. I think I'll just read it. [Turns off the voice over narration.]

Emily eventually returned her notice and efforts to decoding the printed text and in so doing abandoned the multimodal affordances of the imagery and the audio track prompted by her affective state generated by the full power of the multimodal aspects of the work.

Emily: "Into the untreadable dark, the soul is composed of infinite sucked into black holes and what comes out the other side..." [Continues reading aloud from the screen.] I saw it. "Nothing more than an infirm constellation pinned to your child's ceiling." It's called a consolation. ...

Emily: "Please stand by."

Researcher: So why did you turn... first I'm going to ask you... why you turned off the audio? Which is fine. I'm just curious why.

Emily: It's a bit creepy.

In contrast to Emily, Kitty engaged immediately with the *external consistencies* of the work and its relevance to her life experiences and in short order formed expectations and opinions respecting its *structural cohesiveness* before any engagement with her *semiotic* or *syntactic* processes.

Kitty: "What after life". Now, this is weird. ... That is a Dutch game. I know that.

[Looking at the title page where author's biography appears.] They are just explaining...

nope. This is like a horror game.

Researcher: Why is it like a horror game?

Kitty: That looks like the picture from one of the games that Mark played. Oh, this is a horror thing. Laughter. "Cutting through...". Ok this is creepy. [Clicking]. "It is a beautifully constructed semaphore..." It is someone whispering to me. Oh! Is he narrating? I think he's narrating. He's whispering and narrating!

...

Researcher: What is capturing your attention here? What are you feeling or reacting to?

Kitty: It's creepy. Laughter.

Researcher: Creepy good? Creepy bad?

Kitty: Creepy like a horror game. Like, it's going to give me a jump scare any minute.

"...bodies in glass...".

Kitty moved through the printed text in anticipation of the work fulfilling her early expectations regarding the narrative content.

Kitty: It's kinda like, a glance at the outside [around the central image of the television] to check if what was on the inside was like something that had to do with it, because I saw that and I thought this is going to be a horror movie, someone is going to jump scare me somewhere. And then they were talking about the jar with the screwed lid, and I was like "That's right there!" What does that say? Mirrored.

Mancan, on the other hand, although first looking to the printed text, nevertheless abandoned his efforts to construct meaning from the printed text alone and instead privileged the audio track.

Letting himself listen allowed him to shift his visual work from the print text appearing on the television screen to the details of the main composite image.

Mancan: Kinda creepy and old. Using the old television set, you can tell it's supposed to feel older style.

Researcher: Is that old television screen helping to focus your attention at all?

Mancan: I focus my attention on the TV mostly, but while he's reading it, since I can kinda hear what he's saying, I can look around and see what else is in the room just to see what's happening. [Watching intently] Researcher: What is in the room?

Mancan A jar, newspapers, a rack, old photo of a girl, there's a lady... I can't really tell what this is [antique cash register]...older like....It's talking about the jar....

Unlike Mancan, Nicole relied upon the audio track in her *informational processes* to construct an understanding of the poem's tone and pace.

Researcher: Now, let's just go back to the image that we can just... we can just turn down the volume ... so what did you think of the audio? Did you notice the audio?

Nicole: I did. I found it, um... nice just because you could hear like the tone of how it was supposed to be read.

Researcher: So the cadence, helped you interpret where the pauses were? And helped you to maybe understand what the poet was trying to get across?

Nicole: Yeah, I tried to convey because there wasn't a lot of punctuation. Periods and the usual.

Nicole: The voice and the music did more than the words did.

Researcher: Ok.

Nicole: Um... I think mostly because I was focusing so much on like what he was trying to say, she was trying to say. Um, like the meaning.

The audio mode also engaged Princess Hillary who could not move beyond awareness of the “creepy” whispering voice to demonstrate metacognitive engagement with the work.

Princess Hillary: I'm more focusing on the whispering itself rather than on the words. It sounds a little creepy and it's kind of like the olden days kind of stuff.



She was convinced that the work had *internal consistencies* but was unsure what that might be. She deferred to the work's creators and the belief they had instilled the work with a deliberate *structural cohesiveness*; one that remained opaque to her. The multimodal element of the whispering voice did not interfere with Princess Hillary's *semantic* or *syntactic progresses* but did forestall her *informational processes* and ability to arrive at the main idea or subject of the work. There was, notably, a report that gave a hint in the negative at *personal reflection* or *metacognitive coherence*. Put differently, Princess expressed these processes in the negative, and commented on how her online reading experience departed from the proffered text. This dissonance may have contributed to Princess Hillary's meaning-making struggles: "I'm not really understanding it."

Princess Hillary: [Turns volume up] [Reading and listening intently, moving through images.]

Researcher: So what is it, which the person who created these images trying to get across?

Princess Hillary: Um... I'm not exactly sure.

Researcher: That's ok. It's very different from online texts that you just showed me.

Princess Hillary: Yeah, because I mean like what people say and what the communities say online, like they just say the facts, and I interpret it in my own way. And I can form my own opinion. But with this, but the whispering and all the stuff around it, I feel like they want you to see what they want. Rather than having you interpret it. Or maybe they want it to interpret it in their way.

Although a single expressible meaning eluded Princess Hillary, she responded to the affective qualities of the text that gained her an appreciation for the spirit of the work.

Princess Hillary: Like a few slides ago it said something about the fireflies and the lights and that kind of brought me to a little happy picture. And then the "untreadable dark" it's kind of just straight to darkness and "infinite planets" make it seem like we're all alone. But yet, like because we don't know what's out there... and it almost seems to be a word there, it seems like.

Affect also engaged Shazam who, like Emily, immediately rejected the audio mode and turned off the “raspy, whispery” voice having quickly labelled it “spooky” and “creepy”. The affective qualities of the combined audio and visual mode were sufficient to warrant their rejection in favour of the relative safety of printed text.

Shazam: Right. And plus like the pictures and like the way it's kind of spooky and this lady's face is kind of blurred and ghost-like. I don't know. I didn't like it.

Researcher: Ok.

Shazam: [Reading from the printed text without voice over.] "Twilight might be called..." Ok. [Continues to read the printed text...] "Semaphore"? I have no idea what that is. Probably something like "metaphor" I have no idea.

For his part, Teawrecks, although demonstrating some struggles with the content, was able to relate his sense of the work's *structural cohesiveness* by relating the aesthetics to his wide knowledge of music and music videos through *metacognitive coherence*. Having described the work's feel as “terrifying”, Teawrecks went on to explain.

Teawrecks: No. The whole setting and the voice in the background. It seems like something from a Fallout Boy / Young Blood Chronicle video.

Researcher: Alright. And that's not good?

Teawrecks: No.

Researcher: Why?

Teawrecks: If you ever saw a Fallout Boy / Young Blood Chronicle video. You would understand.

Researcher: Well, tell me.

Teawrecks: They are terrifying.

Researcher: Oh.

Teawrecks: It's sort of a group of people trying to kill everybody in that band while they're like working for Satan or whatever. It's really weird.

Researcher: So you find this...

Teawrecks: And they cut off Patrick Stump's hand.

Researcher: Ok.

Teawrecks: Then they send Joe to Hell.

Researcher: Dark.

Teawrecks: Yeah.

Unlike Teawrecks, Stuart (like Nicole) was keen to read the work's paratext, specifically the creators' biographical notes on the introduction landing page.

Researcher: Do you always read the intro?

Stuart: I try to. I feel that if I just click it, I'll have no idea what is going on.

Researcher: Do you always read the foreword of a book?

Stuart: Yeah.

Researcher: And the Prologue?

Stuart: Yeah.

Researcher: Ok. Alright.

Stuart: [Reading].

Stuart's ability to exercise fully his *informational processes* however were hindered by the "distracting" audio mode.

Stuart: It was just so raspy and low and that's kind of a major focus. ... Rather than the words, it was really spooky.

Stuart, the Stephen King enthusiast, was familiar with the trappings and conventions of the horror genre and so focused his attention, like so many of his fellow participants, on the print textual mode. Stuart privileged print text to the extent that the flash images, so conspicuous to Emily and others did not rise to Stuart's notice.

Researcher: ... oh, the images that flashed behind the text. Did you notice that?

Stuart: Oh, the faces [showing him for the second time]. Honestly I can't really say that I noticed that too much.

Researcher: Really laser focused on the printed text?

Stuart: Yeah.

A pattern whereby printed text is foregrounded, privileged, and sought out in determining *metacognitive coherence* and the construction of meaning is beginning to emerge. Does this pattern persist in a wholly novel online multimodal text?

### *Skywriting*

Richardson's (2004) *Skywriting*, as mentioned above, is a short, interactive multimodal text that invites and then rewards a reader's engagement. It was a palate cleanser between the courses of a heavy meal. After tackling *Outrances* (Figures 4.1, 4.2, & 4.3) and *What Afterlife* (Figures 4.4 & 6.4), participants had earned a respite from deeply complex and challenging multimodal texts. Most participants responded with delight and something close to relief to be

able to play with a text the meaning of which was readily accessible and with which they could score a reading and interpretative success. Metacognitive processes were identified easily in participants' engagement with *Skywriting* (Figure 4.5 & 4.6). Most participants demonstrated all relevant metacognitive processes including *semantic* and *syntactic processes*, *internal consistencies*, *propositional cohesiveness*, and *informational processes*. Every participant responded positively to the surprise that the poem emerged exhaust vapour-like from the tail end of the plane and that they were free to move the printed text on any trajectory that took their fancy. Participants then faced a number of decisions. Should they remain liberated from reading printed text left to right or should they impose the standard progression; to read each word as it emerged, or deliver the entirety of the poem's next line before reading it; and, finally, how to manage the screen space available to them once they discovered the use and disposition of that space was entirely under their own control. Results ranged from mild fun to hilarity. In practical terms, *Skywriting* provided insight into metacognitive processing skills that emerge during engagement with a surprising text. Stuart's experience with the text was typical of most participants and so is reproduced here as an exemplar of the group's experience.

Stuart: Alrighty. [Begins *Skywriting*]. What to do..."drag the paper plane". Oh.

Ok. [Laughter]. ... S: Where did my plane go? Oh, come back!

Researcher: So what are you becoming aware of here as you go?

Stuart: Time and space constraints. [Ends *Skywriting*].

...

Stuart: Just trying to make it legible. ... Just trying not to run out of space. I didn't have too much trouble reading when it was upside down and stuff. Like it was manageable.

Unlike Stuart, Shazam, as did several other participants, made purposeful efforts to impose the left to right progression of the printed text upon the unruly airplane.

Shazam: Ok. [Begins *Skywriting*.] Uh. Oh, that's kind of cool. [Reading aloud while moving plane.] "I wish I were a paper plane riding...". [Laughter]. "And I wish..." Oh, what?! [Delighted with the experience. Laughing].

Researcher: Ok. So what's going on here?

Shazam: The, I don't know. I don't really. Oh! So wherever I take the mouse, that's where the words go?

Researcher: There you go.

Shazam: Ok. I'm bad at this.

Researcher: There's not bad. There's just "is".

Shazam: "Then I could something beyond the town and see the river winding down..." [Stilted reading one word of the poem at a time as it emerges from the plane. [00:05:09]. Ok.... ok. Cool. I want the mouse to come over here. Oh no! "And follow the ships that sail like me upon the gale." [Stilted reading again.] [Laughter.]

...

Researcher: So why did you want the mouse to be over there [left side].

Shazam: So that I could read from left to right. [Laughter].

...

Shazam: That was my favorite one yet!

Researcher: Ok. Because it's fun?

Shazam: Yeah, you had to make like a strategy to actually read the poem let alone understand it.

Researcher: Exactly. And what was the strategy that you had to work out there?

Shazam: Not moving your mouse backwards.

Alone among the participants, Princess Hillary took the time to study the landing image before making the decision to click on and move the paper plane. She too, however, was intent upon imposing left to right order on what she described as a text “going crazy”.

Princess Hillary: Well, there's a paper airplane. ... And buildings and cars ... Seems like it's in a city. Is there anything else we should ... [Moves the plane.] [Laughter]. [Gets the words backed up on themselves making them illegible.]

Researcher: What's going on?

Princess Hillary: It's going crazy.

After her first attempt, Princess Hillary refreshed the webpage and restarted *Skywriting*. In the time between the attempts, she had clearly evolved a new strategy for engaging with the work.

Princess Hillary: Yeah. [Moving airplane again.]

Researcher: Now what are you trying to make the plane do?

Princess Hillary: I'm trying to make it go straight that way [left to right] so I can see the words.

Researcher: Ok. And what are you thinking? You're working really hard on this.

Princess Hillary: Yeah [Laughter]. [Reading aloud] "I wish I were a paper airplane...or a paper plane...". [Reading each word as it emerges] "ri ... riding ... on...the...breeze...

[Laughter]. ,, dot...dot...dot... Oh... [Plane disappears off to the right of the screen once all the words have been delivered.] Alright. I'm going to try and make this go a little

better. Oh, Oh. [Working hard at manual control.] "And... going... whatever...

[Laughter]...it...chanced...

Princess Hillary eventually decided that she could abandon the left to right progression and place the words of the poem anywhere on the screen, largely for the fun of it, but also so she could avoid attempting to read the printed text upside down.

Researcher: Ok. But now you're being a bit more experimental with the, with the spatial, that didn't take long, so, have you got a new strategy now.

Princess Hillary: Yeah, just so I don't have need read upside down.

Researcher: Ok. Away you go.

Princess Hillary: "And... following....oh, follow... the... ships... that...sail...like me... upon the... gale." Uh oh. ...

Researcher: Ah.

Princess Hillary: "Until...at last...with them... I... come... to ... some...foreign... "

Researcher: Hmmmm? Well, done. That one's almost a circle. Ok!

In the end, however, the novelty of moving the plane to and fro and then all over the place distracted Princess Hillary from constructing a meaning of the poem, as it did for other participants.

Managing space was no challenge to Mancan who was quick to discover that he had to pay attention to the space available for the plane's progress if he was going to be able to read the printed text.

Mancan: Well, I was thinking about what's the longest route I can take to drag out the sentence.

Researcher: Oh, that's a good strategy. Ok. Awesome. Ok. That's good. Suddenly, space becomes important.



Mancan: Yeah...because when I first did it, I'm like "Oh, I'm running out of space, I better move down." [Laughter].

Researcher: Because usually when we're reading something like this, the space is arranged for us. Right?

Mancan: Yeah. The sentence is already laid out. We already know long it's going to be, but with this you don't know how long it's going to be.

Playing with space also engaged Emily, who like some of her fellow participants, used her plane to create fun shapes with the line of poem emerging from the plane. The printed text stopped being linear (left to right progression) and became a brush stroke. The task ceased to be entirely about reading and began to include a kind of digital doodling. Emily made three passes on the print text each time through gaining confidence in her ability to “draw” with the printed text.

Emily: [Moving the plane immediately and reading aloud the printed text.] "I wish I were a paper plan, plane...."

Researcher: Hmmm hmmm.

Emily: [moving plane] "Riding...

Researcher: Good.

Emily: "...on ... the... breeze".

Emily: I think it's very interesting because I could like make shapes [with the printed text emerging from the plane].

Researcher: Yeah.

Emily: See, I could do this. [Making shapes with the print text.]

Researcher: You can do whatever you like.

Emily: "And follow ... the ... ships...that ... sail...like... upon the gale."

Researcher: You made a "W" ... [with the printed text.]

Emily: Cool.

Researcher: Or an upside "M".

Emily: What should we make next? ... Make a circle. "Until...at last...with them...I come...to some place...with foreign name...."

Like Emily, Charlotte's comments on the work are direct evidence of *internal consistencies* and *propositional cohesiveness* in aiding *informational processes*. She also surrendered to the enjoyment of the text and engaged with the "flow" of the content.

Charlotte: That was cool. I loved that one.

Researcher: So what was cool about that one?

Charlotte: Um... it was... I don't even know how to explain it. But when you move the mouse, and the words started coming out. It was like "Oh, this is weird." And it's like "Oh my God, this totally correlates with what it's saying." And when you put the two of them together. It's like "Wow!"

...

Researcher: At one point you were working hard to make it go right across ... like left to right... does it let you?

Charlotte: No! You have to give up on that and you have to go with the flow. Which is exactly what it's saying. ... It was phenomenal. Honestly, that was really cool.

Charlotte was the only participant to link form and content, or at least the only one to voice her detection of that link aloud. Charlotte's strategy of "going with the flow" is an apt bumper sticker meme that could be applied to participants' responses to the next set of online texts, Eric Whitacre's Virtual Choirs (2010a, 2010b, 2011, 2012, 2013, & 2016).

*Virtual Choirs – A New Experience*

Chad was among the majority of participants who had never heard of a Virtual Choir. The experience was entirely new. His first response to this piece echoed that of Mancan's and of other participants, that being to suss out the technical aspects of putting together a Virtual Choir in the first case, *Sleep* (Whitacre, 2011), and in the second example, Chad is remarking on *Fly to Paradise* (2013).

Chad: ...So how does he? Do they just add all of them together at one time? Or do they individually say, "Ok, you need to go here. You need to go here"?

Researcher: Right.

Chad: "It needs to sound like this." This would take a while.

Researcher: It takes a while. You're right.

Chad: It paid off though. [Continues to watch and listen]. Sri Lanka.... Yeah. At some points you've just got to ... just got to let it sit and let it ... take its own course. Well that's cool. Kind of like a ... an amphitheater. Almost.

...

Chad: Blocks. [Music plays.] Oh, it's obviously...so it's only... it hangs on anybody whose singing. So all these people are singing now with humming and the rhythm. And then it will have that one person who has the ... bigger role as the individual singer. You know what I mean?

Researcher: Right.

Chad: See? So it's not...

Researcher: What's happening to the character as the imagery goes along?

Chad: Her wings get bigger, she sees herself ... So she sees herself in these puddles here. She starts to get a little bit, you know... she starts to fly. It's not bad at all. I like this.

...

Chad: And she sees it all in a new perspective now that she's able to expand her sights and her colours are more vibrant. [Watching intently] Yeah, I like how she had to look through the puddles to see herself and then her wings started to get bigger.

In addition to his appreciation of the technical expertise underpinning the work, Chad demonstrated that he could readily identify the *internal consistencies*, *structural cohesiveness*, and even *character's personality development* of Whitacre's piece without paying any attention to the lyrics of the song or working his *semantic* or *informational* processes. The Virtual Choirs do heavily privilege the visual mode and audio modes, yet printed text is not entirely absent in *Sleep* (Whitacre, 2011). That being said, Chad expended no time or effort working towards constructing the meaning of the song, which, after all, is poetry put to music. There was rich ore to be mined in those lyrics, but they were not conspicuous as printed text and therefore did not engage Chad's metacognitive meaning-making efforts. He did, as Charlotte suggested, go with the flow of the work and that lead him to interpretations primarily of the images and not of the music.

Researcher: So what do you think of the concept and the way the imagery is interpreted and what's it saying?

Chad: I just like how he like incorporates ... the city full of people. And even in a city everyone's kind of.... it's not like everyone knows each other and everyone's connected, it's just it's ... all of you being in that one city at that one time kind of makes you connected.

For her part, Bologna is open to singing and joining a choir. She is not presently involved with choral singing since her schools only offers a Glee Club, which she avoids owing to their interest in show tunes and dance numbers. Her instincts were not to go with the flow but to focus on the minimal printed text that does appear on the screen intermittently during the performance.

Bologna: They have the words. ... They words they're singing.

...

Researcher: Does that help? The words?

Bologna: A little bit. [Watches intently].

At the conclusion of the music, a full list of the singers' names appear in a slow scroll as credits would at the conclusion of a feature film. Bologna was intent upon scanning the credits for specific information. Her concern was that Canadians were participating in what she deemed to be an interesting international project. Like Chad, however, Bologna did not demonstrate any metacognitive processes in constructing the song's meaning.

Bologna: Yeah [reading the scrolling names intently]...

Researcher: So it's really become this thing, right?

Bologna: Oh, Canada! Yes!

Researcher: Yea!

Bologna: Yes.

Researcher: Canada is there. So someday there might your name there and the country you're singing from.

Bologna: Yea, more Canada.

Researcher: Canada. Yes.

Bologna: More Canada! Yes. Yes.

Researcher: So why are you looking for the word "Canada"?

Bologna: Because I like Canada.

Seeking his own meaning making strategies, Hymie made a point about lyrics and how shifting one's gaze away from a music video aids in understanding the song's lyrics.

Hymie: One thing I noticed about actual music videos though is when you watch the music video, you understand the words, but actually when you open a new tab, you actually, you start to understand the words better. It's weird.

The lyrics come to the fore when the images aren't getting in the way. Charlotte noticed the printed text of the lyrics at the outset but quickly shifted her attention to the video and audio modes. In so doing, Charlotte brought her *informational processes* to bear on the image and constructed a meaning based on the idea of isolation rather than one based on connectivity advanced by some of her fellow participants.

Charlotte: [Begins video. Silent for 19 seconds.] That's pretty cool, actually. I like how the lyrics are there too because you have so many voices that they kind of like overlap a little bit. Seeing all the faces is really cool though. That's like ... that's what kind of makes it...

Researcher: It is pretty neat.

Charlotte: ... make sense. You can see those and know what's going on.

...

Charlotte: Um...I'm not actual super crazy about the image. Because it kind of separates people. It's people in different spots. Which I understand the dynamic of because we in different places and that's the point of it because we're separated by country but if they

did like.... um... I don't ... to me this like we're all in one big thing together and we're all separated in the video. So it kind of contrasts what I think.

Her consideration of the images and not the printed lyrics or the qualities of the music track persisted with another Whitacre Virtual Choir, *Water Night* (Whitacre, 2012).

Charlotte: Yeah. It's a lot more togetherness. Which I appreciate. [Continues watching.] Yeah, this is like, awesome but you can't really see the lettering. But I mean, it's minor.

Time and again, participant after participant conducted their journey through Whitacre's Virtual Choirs, in a way that either quickly dismissed or ignored the printed textual mode and paid little if any attention to the audio music track as relevant to meaning making. Singers and non-singers, gamers, readers, non-readers, sports fans, Tweeters, or music aficionados, all dealt with the Virtual Choirs' multimodality by paring down the experience to primary engagement with a single mode – video. Those metacognitive processes demonstrated – usually *metacognitive coherence* and *personal reflections* - were focused on the video mode. There were exceptions like Kitty who initially sought to understand the lyrics. Nevertheless, even she moved past that task very quickly to focus on the visual mode.

Kitty: I can't hear... oooooooooooh this is pretty. [Choral music plays] This is pretty.

Ooooooh. This is so pretty. ...Mainly the lyrics [printed text on the page] so I know what they're saying. Cuz I can't really tell. Oh, these are from different ...

countries. Oooooooooooooooooooooooooooooo. Ok. That's really pretty. [Watching intently]. That is so pretty. He doesn't look like someone who'd be singing [referring to one of the participants] but he's singing. ... They're beautiful! [Watching and listening intently.] How do they know the rhythm? That's what kind of freaking me out. [Choral

music continues.] What kind of blows me away, is how do they know the tune? [We discussed how Whitacre shares the music with participants after the session.] ...

Ooooooooooooooh. Scroll up. [Move to Whitacre's *Fly to Paradise*]...Oh, there's an anime animation of a girl! That's a lot of singers from 101 countries, that's a very large...

[Music begins.] This is going to be animated isn't it? You know. [Watching intently].

What an interesting art style. ... I love how they fit them all into the windows [of the buildings in the animation]. That is a really beautiful voice. ...

A lot of them are just so serene. The way they look at the camera is just like....and her ...

Pretty! Laughter. I like the tune.... Mainly the lyrics [printed text on the page] so I know what they're saying. Cuz I can't really tell. Oh, these are from different countries. ...

...

Kitty: Oh, they stuck all the tiny little videos in there. That is so cool. That must have taken so much dedication to animate, and write, and stick together. Like, you must have a team. ...

Researcher: You're following along just fine without the printed text.

Kitty: Yeah. I think it's because I'm listening to just the music [of the song *Fly to Paradise*] and then looking at the animation on the screen. Cuz it's more important. I think what the animations are supposed to convey the message as well. So it doesn't matter what the people are singing... THAT is a really hard note to hit. Let's just say that. I know. I sing. Um... I think the animations and the colours are supposed to convey the message for you. You don't need the text.

For his part, Mancan was the participant most alert to the time investment required of him with respect to the length of a video; the shorter the better. Moreover, Mancan, like many of his



fellow participants also harboured an affinity for the printed textual mode, unless he was interested in experiencing the emotional affect of the cinematic narrative of a music video interpretation of the song. Printed text, he reports, is preferred when experiencing the song as a secondary, background activity to other endeavours like homework or gaming. A cinematic music video is preferred when an emotional connection or affective experience is sought. Mancan, in very real terms, both understands and relies upon a sophisticated understanding of the affordances and limitations of various modes.

Mancan: But, in the beginning, see this is a 7-minute video. The song is only like 4 and a half minutes, maybe even 5. ... So, it adds like an extra minute, two.

Researcher: So, when you find...so this is the one you would have chosen. Going back to the navigation [search results on YouTube], you'd have chosen what?

Mancan: I probably would have chosen a lyrics. I would have chosen probably this one, but....

Researcher: Go ahead.

Mancan: But with this one, it does show, if you're going to wind up watching video, I probably would have watched this one. Because it actually shows a lot and it triggers a lot of emotion. Because, in just the first minute, you start to kind of see that something is happening and it's very emotional what's happening. And then, as you go through the video, you start to see that this is how I grew up.... yeah ... [Video plays.] [Listening intently for two minutes] and as it goes on you see him grow up and ... yeah ... this is for, for triggering emotions.

When a lyric video is chosen, it is for a reason absent of affect. The narrative cinematic, affect-generating mode is abandoned and the video is relegated to background noise. Nevertheless, it is

background noise over which Mancan exerts full control and so some residual, albeit minimal, affective quality of the music is at play.

Mancan: I just listen. I don't read along. I go off and I do my own thing. Like I pop up a game or I'll be working on homework and I'll listen to music while I'm doing it.

Researcher: So it's like a virtual radio.

When confronted with complex online multimodal texts, many of the study participants demonstrated a metacognitive strategy involving a narrowing of their notice to a single mode, a process described here at *multimodal reduction*. This topic will occupy Chapter 7.

## Chapter 7 - Commentary and Conclusions

### Introduction

We turn now to consideration of the rich, qualitative data and the insights these young people afforded respecting their metacognitive skills and strategies when engaged with multimodal texts. Recall the primary research question re-visited below.

1.0 What is the nature of metacognitive awareness exhibited by youth while engaging with multimodal texts?

1.1 Which traditional print reading practices are identifiable in participants' reports of their metacognitive strategies?

1.2 Which metacognitive skills are exhibited by young people while exploring "the semiotic landscape" (Kress & Van Leeuwen, 2006, p. 16)?

How does the data help to answer these questions? We have investigated the individual cases in Chapter 5, but here we take a broader approach and ask what this study usefully reveal about metacognition among young adults when engaged with both familiar (even favourite) and novel (unfamiliar) online multimodal texts. Upon addressing these questions, some attention will be paid to their relationship to the contested space online multimodal texts occupy in contemporary Alberta classrooms.

### Symbolic Interactionism and Participants' Self-selected Online Texts (Session 1)

Participants' statements on their personal selection of online texts (Session 1) reveal those choices were influenced by personal motivations in the moment. The data suggests that participants deployed approaches manifestly influenced by peer-to-peer recommendations, varying levels of online searching proficiency, and a continuum of metacognitive knowledge and awareness. In fundamental symbolic interactionism terms, the participants relied heavily upon

their “definition of the situation” (Crossman, 2017, n.p.). Crossman (2017) describes the definition of the situation broadly as that set of cues people rely upon to guide their behaviour in given social situations, be it a funeral, piano recital, or informal birthday party. Crossman (2017) identifies a link between subjective meaning-making and symbolic interactionism:

Symbolic interaction theory analyzes society by addressing the subjective meanings that people impose on objects, events, and behaviors. Subjective meanings are given primacy because it is believed that people behave based on what they believe and not just on what is objectively true. Thus, society is thought to be socially constructed through human interpretation. People interpret one another’s behavior and it is these interpretations that form the social bond (n.p.).

The alchemy and aesthetics of cover art, for example, discussed above through the example of Gaiman’s cover art (*Sandman Series*) evoke a definition of the situation of book choice. The knowledge of the behavior governing the selection of a book is culturally driven. Book designs reflect marketers’ ideas about reader’s expectations of a genre or the reputation of a given author.

Returning to the online excavation model (Figure 6.1), processes associated with notice are bound up in various ways with issues of access. Moreover, the notion of access is complex and far-reaching, touching upon important aspects of the reader’s personal experiences, memory, and unconscious de/motivations. For the purposes of this chapter, however, we will limit discussion to: 1) access to systems; and 2) access to content. Both aspects of access are influenced by characteristics of online and multimodal literacy frequently beyond the control of the adolescent participants, as we shall examine further below in considering access in the classroom context. How and when a participant gained access to systems, and subsequently to

content, intersected with myriad social, political, economic, and technical priorities and imperatives. These imperatives flow from the high-level and macro space of public policy to the individual and micro space of personal experience in a classroom, a public library, with a friend's equipment, or a household, as do the intensity, duration, reliability, and quality of that access.

The data suggest that the issues and challenges associated with notice and access are not as discrete as the excavation model (Figure 6.1) introduced in Chapter 6 first suggests. They may often occur almost simultaneously and, in many instances, access precedes notice in the context of online multimodal literacy. The fact that many participants simply took access to both systems and content for granted suggests it is possible to consider access separately from notice. The ubiquitous smart phone was instantly available and carried by all but one participant and access to hardware and online services at home was available to all. Most participants also had immediate and reliable access to personal tablets and/or electronic readers such as the Kobo or Kindle. The economics of access to hardware among these economically privileged youth, however, worked to set up a dual system of access to content characterized by divergent power dynamics. Home/personal access is shaped by familial flows of power, peer expectations, popular culture, and economic resources. Young people must constantly confront the liminal space in which occurs their transition from the known to the not-known; a transition into spaces that can be dominated by beauty, creative self-fulfillment, empowerment and peace, or grievance, racism, violence, and psychosis.

Prevailing political and social imperatives regarding public education circumscribe school/curriculum access. These imperatives often manifest as benevolent censorship, risk-averse policies governing pedagogy, and all the complexities of classroom spaces where battles

of inclusion, appropriate content, human sexuality, minority rights, historical truth and so many other issues are contested.

The study participants themselves were not without considerable powers of agency and technical skill, and these resources mitigate the power differential with parents, school administrators, and other online gatekeepers. Nevertheless, the participants were aware of the top-down restrictions on access to content. In some cases, participants found the situation ironically amusing; that they would be given access to robust hardware and Internet access in schools and then rarely be permitted to freely browse or access content they considered interesting or worthy of their notice. Participants' transcripts suggest the politics of online censorship are potent and pervasive as teachers and school boards block access to content considered potentially or actually objectionable, in order to mitigate legal and professional liability. In sharp contrast, participants' personal access to online content is often free of parental oversight. Participants generally characterized parents' interests in their online reading as cursory at best. Participants move between these various control-rich or control-free environments in their access to online content.

### **Metacognition Attached to Familiar and the Novel Online Texts**

A second set of conclusions cluster around those metacognitive and reading strategies adhering to the familiar online content selected freely by participants in Session 1 and the novel online materials presented to them in Sessions 2 and 3. Many of the participants' favourite online texts fell into a category best described as *print mimicking*. Put differently, these online texts appear to follow those conventions governing printed texts but nevertheless appear on a computer screen and afford a different embodied experience. Reading online, even on a screen configured to mimic a printed text, involves contending with the screen's bright light,

keyboarding instead of turning pages, different postures and body positions, restrictions on reading location (e.g. connected to power source, or avoiding water) and these environmental conditions must be accounted for (Bhatt, de Rooock & Adams, 2015). Nevertheless, the conventions of print produced the responses of print. Rabinowitz's (1998) rules of notice visited above asserted themselves. Titles and conclusions were given especial attention, as were headings. Semantic and *syntactic processes* were automatic. Attention was paid to the *internal consistencies* of the content, producing strong informational and familiar meaning-making processes. In most cases involving print-mimicking online texts, participants readily demonstrated *metacognitive coherence* by connecting their own life experiences to the content (Blockauserman, 2005). Chloe's motivation in selecting dance videos related directly to her own pursuits in ballet and jazz dance.

Researcher: Cool. Are you a dancer?

Chloe: Yeah. ... ummm ballet and jazz.

Researcher: So you're busy. Busy with dance.

Chloe: Yeah. .. I like a few dancers. So I'll just try to find someone that I know. And then.... like this maybe.

Researcher: How did you find out about her?

Chloe: On Instagram.

Whereas Chad, intensely preoccupied at the time of his interview with economics, was keen to demonstrate same with a visit to the print-dense United State Debt Clock website (Figure 5.2).

Researcher: And you can go anywhere, do anything, log into anything you want. So, away you go.

Chad: Ok. I usually US debt clock....

Researcher: What?

Chad: US Debt Clock ... it's a real-time clock....US National Debt Clock in real time.

Researcher: Oh, my goodness!

Chad: Yeah!

Researcher: That is...

Chad: Yeah, it's got tax revenues, total debt per person, savings per family, it's got unfunded liabilities. So you have 18 trillion in the US National debt.

Researcher: Well, that is chock-a-block with numbers and text. So how are you interpreting this? Like, what are you looking at?

Chad: It's visual. It's fascinating to see big numbers like everybody else, they're fascinated by all the numbers and all that stuff like that.

In most cases when the multimodal online text was novel to the participant, familiar multimodal sense-making strategies were not immediately effective. The result was often a state of mild to moderate anxiety. To relieve the sense of disorientation, participants adopted different metacognitive strategies. Anxiety was relieved either by constructing a satisfactory sense of meaning (minimally or otherwise), or by simply abandoning the attempt entirely.

### **Abandonment: Habit? Metacognitive Strategy? Or Both?**

One strategy reported by many participants in Session 1 involved setting criteria for abandonment of the content before or during access and engagement. In the case of familiar online texts (those chosen by the participants themselves), abandonment of the text could be described ready-to-hand and deliberate metacognitive strategy often tied specifically to the time required to complete the video, audio, or fully multimodal content. Participants demonstrated strategies that had the effect of ruthlessly rationing their time and attention *based upon* their



familiarity with the extent and/or conventions of the multimodal content including. For example, the expectation of what they identified as extraneous introductory content or the dreaded commercials were routinely and actively ignored. Some participants performed those minimum tasks required to maintain the illusion of engagement and pay a perceived social debt to peer groups. Recall Teawreck's "I just click on the chat and leave" rather than read and then compose replies to 400 text messages. For Teawrecks, abandonment was a metacognitive strategy based on knowledge of the social media platform's operations and friends' expectations. Others, like Shazam, made micro abandonments, for example, when encountering an unfamiliar word.

Researcher: And in your, when you encounter a word you don't know, or something that doesn't make sense or isn't connecting, do you work that problem?

Shazam: Um, yeah, if it's an important word, normally I will just go and look it up or ask someone. If it doesn't really apply, then I just kind of skip over it.

Other participants relied upon a conscious metacognitive strategy of pre-judgment, determining in advance the likely scope of their friends' text messages, for example. Some participants set *a priori* threshold criteria that had to be satisfied before they would invest time and attention in the content. *A priori* is deliberately used here in both its deductive and presumptive sense: "relating to or derived by reasoning from self-evident propositions being without examination or analysis... [or] formed or conceived beforehand" (Mirriam-Webster). For example, Mancan describes this strategy in the context of lyric videos.

Depends on what I'm trying to look up. Like, if I am trying to look up just the music, just the song. And it's like 10 minutes long, I probably won't open it. Or if I do, then I will just try to scan right through until I get to the actual song.

When it came to the novel multimodal content, particularly with *What AfterLife?* (Figure 4.4 & 6.4) and *Oustrances* (Figures 4.1, 4.2, & 4.3), abandonment became less an *a priori* habit and more a deliberate metacognitive strategy to alleviate the meaning-making anxiety produced by the disorientation generated by the novel multimodal online poetry. Additionally, the abandonment became less overt and occurred *during* rather than before engagement with the text. Participants, perhaps unwilling simply to turn off the online texts the researcher had tasked them with exploring, abandoned the *attempt* to create meaning while continuing to move through the texts. For example Bob, abandoned the attempt early in *Oustrances* signalling so by saying “I don't ... I'm confused” whereupon his attention wavered to various distractions. Participants spent their store of attention among various distractions during research sessions; vibrating cellphones, incoming text messages and Snapchats, social media notifications, and an Apple smart-watch in one case. Even more striking was Bologna’s use of the “continue” button in *What Afterlife?*

Bologna: Yeah! It was slow how the person read! Holy moly.

Researcher: [Laughter] I noticed that you clicked through...

Bologna: Yeah, because it was...

Researcher: ... to the end.

Bologna: ... so slow. It was just like "uggggggghhhh".

Researcher: So you preferred to just get through it!

Bologna: Yes!

Researcher: So you appreciated the "continue" button?

Bologna: Yes! ... I love the continue button. It's my friend.

As mentioned above, well-established strong metacognitive strategies emerged during engagement with the familiar self-selected content. Participants demonstrated understanding of a

text's *semantic processing* and strong *informational processes* in these cases. In addition, audio also served as a prompt to metacognitive *informational processes* as they constructed an understanding of the main idea of the work. Participants relied less upon printed content than other modes in their construction of meaning. Kitty, for example, as mentioned above, was rapt by the art images produced in *Where Good Ideas Come From* and Chloe demonstrated effective retention of the main themes of *Where Good Ideas Come From*.

Chloe: Um, it was explaining like how in the past...oh, not just in the past, how ideas are formed and that sometimes people are really close to an idea, and they get distracted and they are missing something and they can't like complete their idea. And it's talking about how the Internet is changing how we like gain knowledge and develop our ideas. And how it's making it so people can find that like the missing information that they were needing to complete their idea.

Researcher: Wow. Well, that was a pretty expert and very thorough summary of what you just watched. So, well done. Let me ask you this question. If I had given you exactly that content word for word that content in traditional print do you think you would have been able to summarize it in such an expert fashion for me?

Chloe: Um, it might have been a little more not as exciting.

Researcher: Right. So exciting is good?

Chloe: Yes.

Other participants similarly downgraded the importance of print content in favour of the power of the dynamically appearing comic book art images presented by *Where Good Ideas Come From* (Johnson, 2010a). Shazam, for example, was among those participants who expressed enthusiasm for the dual modes operating in comic books (print text and image) but also

privileged the image and audio over any written text appearing on the screen. Chloe, Teawrecks, Emily, Kitty, Princess Hillary, Chad, and Bologna made similar reports. These participants relied upon the confluence of audio and visual modes to activate their metacognitive *semantic*, *informational*, *structural coherence*, and *metacognitive coherence* processes. Their confidence in their understanding and retention of the content – what they had learned – relied upon their integration of audio and video content despite the presence of substantial print content. Participant after participant expressed enthusiasm and affinity for the experience of seeing an *interpreted* and *interpretive* image arrive on the screen as the audio channel delivered sophisticated and complex content. Their confidence in being able to retain and restate that content at a later time or date was very high. As might be expected, participants reported high rates of *metacognitive personal reflection* and *metacognitive coherence* with those online texts they chose for themselves; these online texts were, after all, already part of their reading lives and were chosen out of personal interest, peer recommendations, or for fun. Nevertheless, *metacognitive personal reflection* and *metacognitive coherence* – those aspects of the MPI that look at connection to the text through personal life experience – were among the most prevalent metacognitive processes reported during engagement with the entirely novel multimodal texts. These young adult readers looked hard for the multimodal texts’ relevance to their personal life experiences.

What does this finding reveal about the impact of prescribed and formal curricula on a diverse population of students who arrive at school with the widest possible range of cultures, languages, socio-economic resources, and interests? Is this where the chasm between what “counts” as reading (personal reading pursuits) and what happens at school (curricula) continues

to widen? Contemporary researchers the likes of Kinloch, Burkhard, and Penn (2017) map the topography of that chasm through student observations. One astute student observed:

‘Cause, see, I be wondering why schools don’t let us work out here [curriculum work]. We gotta stay inside all day, sit at desks, staring at the board doing busy work. That’s learning? (p. 61).

Many participants were able to discuss the affordances of the audio and visual modes severally as well as in combination and demonstrated awareness of the text’s *structural cohesiveness* in identity, style, cause and effect, descriptions, comparisons, and sequence. They speculated that, were the audio mode to be absent, such cohesiveness would erode and impair their ability to discern the author’s ideas and message (*internal consistencies*). They were adroit at articulating their appreciation for the particular aesthetic details and the unfamiliar aspects of online multimodal texts without prior experience of the content. In so doing, they were willing to leverage that appreciation in attempts to understand the main ideas presented in the multimodal content when that content was linear and engaged participants’ semantic, syntactic, and informational metacognitive processes such as many of their own chosen online texts and the RSA Animate text selected by the researcher.

*Oustrances* (Croft, Ichikawa, & Dvorak, 2009) confronted, disrupted, and confounded participants on many metacognitive levels. As described in detail above, *Oustrances* (Figures 4.1, 4.2, & 4.3) is an onslaught of multimodal content; multiple simultaneous and competing streams of audio and visual modes. It is linear only in the strictest sense that it progresses from a beginning to an end. Between those points, *Oustrances* is a cacophony, an amalgam of relentlessly insistent elements jostling and competing for notice. In these characteristics, *Oustrances* has much more in common with immersive video game play experience than with the

conventions of poetry. This work throws up roadblocks to interpretation and scuttles attempts at straightforward linear progress through the content. It displays few grounds upon which participants' metacognitive processing of *internal consistencies, external consistencies, semantic or syntactic processes* can find purchase. Most participants were confounded and found themselves ill equipped to tackle this perplexing title, a title that demonstrates the creative achievements available through the affordances of online multimodal texts. Many attempted to place the multiple and simultaneous modes in a hierarchy of utility. Some participants privileged whatever printed text was available; it was quickly sampled and then backgrounded. Images were routinely sampled and then backgrounded. Audio was sometimes abandoned altogether. Participants found little opportunity to expend cognitive or metacognitive resources on *internal or external consistencies, prepositional or structural cohesiveness*, let alone exploration of *personal reflections, characters' personality development, or metacognitive coherence*.

While some participants gamely attempted to put together some satisfactory sense of what *Outrances* might be about, several others, including Princess Hillary, Stewart, Mancan, Hymie and Chad, good-naturedly abandoned hope of constructing a fully formed understanding of the work. In the alternative, they made close examination of those specific elements of the work that appeared accessible to them. Some focused on the teen-age-friendly quality of the opening image. Charlotte was intrigued and charmed by the novelty of the Latin inscription attending the opening image. Many, especially Chad, worked very hard at examining details of an image before it cycled off screen, to the extent that they failed to notice at all the "pause" button at the top of the screen that would have greatly aided those efforts. Many participants reduced the experience of the content by ignoring the affordances of one or more modes and exclusively privileging either printed text or image but never the audio. Several participants

made instant judgments on which printed text mattered and that which could summarily be dismissed and ignored. One participant ignored printed text and audio entirely, preferring to indulge in the affect or the “feel” of the “music scene”. This metacognitive strategy of what I will term *modal reduction* appears to be pedagogically significant.

As mentioned above, the organizing motif of “the street” is central to *Outrances*’ (Figure 4.2) thrust, aesthetic, and messaging. It conveys meaning via a simulation of movement through an urban cityscape and the audio track reinforces that central device. Yet, participants’ rejection of the multimodality of this text means that they did not fully experience the author’s work. They instead parsed and dissected the work through varying degrees of *modal reduction*. Modal reduction resonates with *interpretive reduction* wherein readers reject the full universe of a work’s potential meanings (both diverging and coalescing) in favour of a single interpretation. Both interpretive reduction and modal reduction can be either cognitive or metacognitive. However, classroom practices often promote interpretive reduction that guide students toward “correct” interpretations of a given work regardless of genre or format. Correct answers drive standardized test achievement regardless of the quality or depth of student learning. These results will be of interest to teachers, as will some participants’ reports that they believed they lacked the skill or capability to simultaneously process and integrate the full range of multimodal content.

### **Affect in Responses to Novel Multimodal Texts**

Another prevalent theme emerging from the data has to do with how the affective quality of a multimodal online text can both advance and hinder a young adult’s willingness and capacity to construct a satisfactory, personally meaningful, and rich understanding of that work.

Recall Kuipers and Kostiuk's (2008) collaborative piece, *What Afterlife?* (Figures 4.4 & 6.4) described by almost all participants as "creepy".

*What Afterlife?* opens with an introductory landing page including the creators' biographies and a static version of the printed text of the poem. Once the work is launched, the printed text of the poem appears in a series of images on the antique television screen as a disembodied voice whispers it into being, suggesting a haunting otherworldliness. The printed text of the poem is legible. Nevertheless, every other instance of printed text in the image (excepting the Mason jar) appears as a through-the-looking-glass mirror image. Nothing is *wrong* with the image per se, but neither is everything exactly *right*. Appearing in the top left quadrant of the image is an amorphous ghostly image, perhaps the reflection of the lamp, perhaps not. The black and white television, rotary telephone, photographs, print magazines and newspaper (the Italian headline of which reads *sette giorni* or "seven days"), and the bells are all instruments of analogue communication, still useful and familiar but outmoded in the digital age. These elements in sum, however, are multimodal in and of themselves as they support the featured print text and audio modes. The reader's attention is arrested by this space, and progress through the work is ostensibly guided by the whispering voice reading the printed text and through flashes of almost subliminal imagery that appear on the television screen. Participants reacted variously to the affective quality of the work but were united in their understanding that their main task was to engage with the printed text in concert with or in opposition to the whispering voice soundtrack. A few participants were able to successfully integrate the images and print text through metacognitive *semantic and syntactic processes* and immerse themselves in the affective qualities of the work. Most participants were derailed by the "creepy" in their interpretation of the poem. One participant did abandon efforts to construct meaning from the



print text mode alone and instead privileged the audio track. In that case, listening shifted the interpretive heavy lifting from the visual to the audio mode. The participant was then free to conduct what amounted to a forensic examination of the details of the main composite image. For most participants, however, a pattern persisted whereby printed text was foregrounded and relied upon to aid *metacognitive coherence* and construct a satisfactory understanding of the work.

Richardson's (2004) *Skywriting* (Figure 4.5 & 4.6), as mentioned above, is a short, playful, interactive multimodal text. It was offered deliberately to provide participants with a respite after the heavy work involved in working through *Outrances* (Figures 4.1, 4.2, & 4.3) and *What Afterlife?* (Figures 4.4 & 6.4). Participants deserved a respite from those two deeply complex and challenging multimodal texts. Most participants responded with delight and something akin to sheer relief to be offered a text the meaning of which was readily accessible. Put differently, they could score an easy reading and interpretive win with *Skywriting*. Their metacognitive processes were readily accessible to both the participants and the researcher during their engagement with *Skywriting*. Most participants demonstrated all relevant metacognitive processes including *semantic* and *syntactic processes*, *internal consistencies*, *propositional cohesiveness*, and *informational processes*. Every participant responded with delight and laughter to the surprise that the printed text of the poem emerged exhaust vapour-like from the tail end of the paper plane. They enjoyed being free to move the printed text/plane according to any trajectory. Participants then faced a number of subsequent decisions. Should they continue to enjoy reading in any direction or impose the standard left to right progression? Should they read each word as it emerged, or keep the plane moving until the entire line was evident before reading it? Finally, how should they manage the entirety of the screen space once

they discovered the use and disposition of that space was entirely under their own control? Participants' reactions ranged from mild fun to outright hilarity. In practical terms, *Skywriting* provided insight into metacognitive processing skills that emerge during engagement with a surprising text. The importance of play, delight, and surprise to stimulate metacognitive processes and engagement was writ large with *Skywriting*.

Engagement is also encouraged and readily produced through the affective qualities of music. Participants were presented with Eric Whitacre's Virtual Choir(s) (Figures 4.7, 4.8, & 4.9) where music is the dominant mode and conduit of meaning. Many participants readily demonstrated appreciation for the Virtual Choir's *internal consistencies*, *structural cohesiveness*, and even *character's personality development* in the case of the video for *Fly to Paradise* (Whitacre, 2013), without paying much attention to the song lyrics or working their *semantic* or *informational* processes. The Virtual Choirs do heavily privilege the visual mode and audio modes, yet printed text is not absent entirely in *Sleep* (Whitacre, 2011). Participants expended no time or effort working towards constructing the meaning of the song. Many participants gave themselves over to the flow of the work that encouraged interpretations primarily based on the images and not of the music or lyrics. It was, essentially, a passive activity. Time and again, participant after participant conducted their journey through Whitacre's Virtual Choirs (*Sleep*, (2011), *Fly to Paradise* (2013), *Water Night* (2012)), in a way that either quickly dismissed or ignored the print text mode or paid little if any attention to the lyrics as relevant to meaning making. Participants – be they singers or non-singers, gamers, readers, non-readers, or sports fans, Tweeters, or music aficionados - employed modal reduction. Participants focused primarily on the visual mode to assist meaning making even when engaged with a musical text, where one might expect the audio mode to be primary.

## “Real” Reading versus “What Happens at School”

Many participants reported a bifurcated view of reading in general that fell into two mutually exclusive categories. The first category, *real* reading stands opposed to *reading that happens at school*. Most importantly, a majority of participants relegated all their complex online reading that they spent significant time consuming into a third category we will call *wasting time or fooling around*. In some cases, participants were consuming thousands of words in a sitting, the equivalent of several magazine articles or short stories, without framing these efforts as *real* reading. Time spent online engaged with multimodal texts was considered recreation, although participants did report some metacognitive awareness regarding their motivation to remain online, levels of engagement, and benefits (or detriments) of consuming these texts. By contrast, participants were less apt to move beyond a cursory or a “good enough” reading of that content, be it print or online, when that content occurred at school. A metacognitive strategy of taking in just enough to get the gist of content not aligned with their interests or motivation was common among many of the participants, sometimes reinforced by peers and encouraged by their lack of interest in school-based texts that were often described as boring. In the terms of our excavation model described above (Figure 6.1), the good-enough reading being “what happens at school” often results in an abandoned excavation that does not progress beyond notice, access, and initial engagement.

Many participants exhibited considerable metacognitive knowledge, awareness, and control over what may be described as the embodied aspects of print reading. Over and over, participants commented on those conditions considered optimal for *real* reading. These conditions included: a secluded and comfortable, a relaxed physical and mental state, and minimal distractions. *Real* reading occurred in what they considered an ideal reading space.

Descriptions of this space were remarkably consistent among this economically privileged and technically well-equipped participant group. Print reading remained the overwhelming preferred format in this protected space. For these young people deep, sustained, engaged reading took place in solitude in their own bedroom and away from other family members. These young people consistently valued a relaxed reading space where they were physically comfortable (usually prone), and in bed. Many undertook their “real” reading just before falling asleep or as a means to relax sufficiently to fall asleep, many with the book (and one or two with an e-reader) in their hands. These descriptions and similarity of experiences heavily emphasized the both the embodied and the metacognitive aspects of reading captured by Anna Quindlen (2010): “We read in bed because reading is halfway between life and dreaming, our own consciousness in someone else’s mind (p. 20).”

Participants found strategies associated with *real* reading easy to articulate. They exhibited metacognitive work in that they could describe how they were *aware* that these embodied conditions were conducive to successful reading, they *knew* the consequences of not achieving them, and they could directly *control* how and when those conditions were met. This metacognitive empowerment was, in part, facilitated by their comfortable and secure homes, access to private personal space, food security, and often stable (if not always traditional) families, schools, and supportive peer groups. The correlation between poverty or affluence and student achievement has a long scholarly history, one that continues to evolve but one that is not directly germane to this study. Economic resources and social stability are mentioned here since the participants themselves pointed to those very conditions as necessary to create the space where “real” reading could occur. What counted as *real* reading, be it in print or online, generally *did* not, indeed perhaps *could* not, occur at school.

So we are left with the perspective that there is an important role for metacognition in participants' initial evaluation, selection, surface engagement and maintained engagement with the online, multimodal texts. Or, put in terms of the excavation model discussed above (Figure 6.1), there are metacognitive strategies that underpin the notice, access, decoding, interpretation, and ultimately criticism of a text where notice, access (selection), and initial engagement occur right at the outset of interaction with a text. These processes are hindered and difficult for any pedagogy to shape or to inform if the structures, biases, and realities of the school system lock down available online multimodal texts. The contemporary conditions prevalent in Alberta K-12 education - conditions shared in many North American school jurisdictions - contributes to this student alienation. Although there are efforts to combine print and multimodal (or "new") literacies in classrooms (Bogard & McMackin, 2012), there remains a profound and enduring disconnect between the overarching discourse on classroom technology's importance to student learning and the reality that instructional focus remains heavily focused on print literacy.

### **Alberta Classrooms –Access to Online Multimodal Texts**

In 2016, Alberta Education commissioned and received a report entitled *Flexible Pathways to Success: Technology to Design for Diversity* (Smith, 2016). In that document, Smith and her team asked research questions inquiring after those processes and contexts that impact junior high school teachers' successful implementation of technology in inclusive learning environments. The goal of the work was to assess the degree to which such implementation would improve learning outcomes for students who require accommodation beyond the usual classroom supports. This study stands as an example of a general thrust of some long standing in Alberta pedagogy characterized by sustained interest in and resource allocation to determining how technology can be relied upon to bring about the so-called "21<sup>st</sup> century classroom."

Boudreault, *et al.* (2013) characterize and encapsulate the matter succinctly highlighting the overt and direct link between Information and Communications Technology (ICT) in classrooms and a specific socio-economic ideological stance.

The Alberta Education Program makes reference to 21st century learning competencies – including creativity, critical thinking, computer and digital technologies, and character – under the rubric of ‘competencies for engaged thinkers and ethical citizens with an entrepreneurial spirit.’... Computer and Digital Fluency is identified as a separate subject area as a means of highlighting its importance, not to suggest that it should be a stand-alone subject. This interdisciplinary approach is in keeping with 21st century learning practices... (p. 7).

In 2012, Daniels, Friesen, Jacobsen, & Varnhagen placed technology high on the list of strategic priorities surrounding the improvement of high school completion rates in Alberta. They make their case for the untapped potential of technology very plain.

Effective use of technology can benefit all students, but especially those at the low and high ends of the achievement spectrum. Effective use of technology has the potential to increase student engagement, increase student achievement, increase student and teacher ICT skills and, ultimately, change teaching practice (p. 4).

Statements cast in similar perspectives and attitudes are prevalent in Alberta educational officialdom. In recent years, they have attached themselves to various programs including the Technology and High School Success (THSS) suite of initiatives sponsored by Alberta Education beginning in 2008 and concluding in 2010. Twenty-four school jurisdictions or partially publicly funded charter schools succeeded in their applications for funding, and the bulk of the money distributed landed in Grade 9-12 classrooms. According to Daniels, *et al.* (2012),

the totality of the THSS programme affected 22,000 students and 420 teachers in 70 schools. Successful applicants “demonstrated innovative uses of technology-rich environments to improve the student learning experience” (p. 4). In the end, researchers had to conclude broadly that, despite being two decades into the so-called digital age, technology’s impact on classroom activities and pedagogy remains nascent and emerging. Daniels *et al.* (2012) based this broad conclusion on observations that teacher study participants were in the “early phases of adopting learner-centered instructional strategies” (p. 6). More than 50% of observed students were described as “disengaged” (pp. 6-7) or performing “ritualistic compliance behaviours” (pp. 6-7). The researchers offered various recommendations couched in general terms reinforcing “21<sup>st</sup> century learning”. For example, recommendation 5 suggests “teachers assume professional responsibility for creating a 21<sup>st</sup> century instruction and assessment practices with technology to enhance student learning”.

Technology writ large also informs the professional standard Alberta teachers are required to meet or exceed, which takes its authority from of a Ministerial Order (016/97) (Alberta Education, 2013). Teachers are expected to “understand the functions of traditional and electronic teaching/learning technologies” in order to “engage students in using these technologies to present and deliver content, communicate effectively with others” (p. 1).

Teachers must:

... apply a variety of technologies to meet students’ learning needs. Teachers use teaching/learning resources such as the chalkboard, texts, computers and other auditory, print and visual media, and maintain an awareness of emerging technological resources (p.3).

Teachers are expected to develop and encourage purposeful use of technology (p. 4)”.

The official imperatives continue. In 2010, Alberta Education issued *Inspiring Education: A Dialogue with Albertans* claiming public schools must strive to “engage thinkers, who are ethical citizens, who exhibit an entrepreneurial spirit (p. 6)”. The document succeeded in provoking public debate that was in the main productive and useful, with some controversy arising from some quarters on what engagement and ethics look like from an entrepreneurial perspective. That being said, what is of interest here is the description of an engaged thinker as someone who “uses technology to learn, innovate, communicate, and discover...” (p. 5). “To create” is notably absent from the list. This state of affairs, where technology is seen in some circles as somehow foundational to literacy and synonymous with multimedia content (for our purposes, “multimodal”), plays out in this contemporary moment in school boards that are risk-averse concerning students’ unfettered access (or, in some cases *any* access) to the online materials. Moreover, huge investments in information and communications technology (ICT) in the education sector have come at the cost of available funds for teachers’ professional development in using, implementing, and integrating wave after wave of ICT hardware and software since the early 1980s (Thomas, 2010; Couture & Murgatroyd, 2010, p. 1-2). There is a relationship between ICT initiatives and the level of multimodal literacy skill and metacognitive awareness students in this study have demonstrated. Other educators have adopted and continue to embrace the creation of multimodal “digital portfolios” as part of student activity, learning and assessment (Wiedmer, 1998; Fazal & Goldsby, 2001, Niguidula, 2005; Meyer, *et al.*, 2010; and Renwick, 2017). Yet for all the foregoing, study participants consistently reported a strong emphasis on print reading as *real* reading, a discernable lack of opportunities to produce or engage with multimodal texts at school, and a tendency to focus on the print mode of multimodal texts when constructing meaning.



School board technology policies are often punitive rather than permissive. School administrators often lock down tools of multimodal text production and sites of their consumption or enjoyment. It was an oft-repeated source of complaint and frustration for many study participants that they were blocked from accessing the full Internet at school. Teachers are often the gatekeepers of online content and act as the arbiters of appropriate online texts. Professional risks attend any teacher who defies a lawful order of their employing school board. Moreover, inviting students to engage with material that parents might consider controversial or inappropriate is another realm of peril for teachers as these labels are often subjective and driven by potent and important values, perspectives, cultural mores, religious views, and philosophies. Within this regulated environment, students are in proximity to multimodal texts but not necessarily guided by teachers or encouraged to develop or demonstrate metacognitive, interpretive and meaning-making skills that would allow them to make the most of multimodal texts. Alberta is not, therefore, a context in which sustained, robust, critical engagement with multimodal texts is encouraged. Print literacy remains the mainstay and “fooling around online” is not counted as reading by anyone; school reading be it online, multimodal, or exclusively in print is not counted as “reading” by students.

There have been some recent efforts to include multimodal literacies and multiliteracies in pre-service teacher education, what Serafini (2015) terms creating a “context for multimodal” (p. 412) pedagogy. Significant among these studies are McClay & Stagg-Peterson (2013), Walsh, Durrant, & Simpson (2015), Miller (2014), Serafini (2015), Boche & Shoffner (2016), & Youngjoo & Angay-Crowder (2016). The teachers of the students participating in this study, however, are conducting lessons without robust professional development in multimodal literacies or widespread teacher-education course work. These studies call to mind Feenberg

(2002) recasting technology's place in pedagogy: "Technology itself is not a destiny but a scene of struggle" (p. 15). Multimodal literacies is a scene of struggle for both students and teachers in Alberta, a struggle to fulfil the perceived potential of multimodality to motivate student engagement and prepare students for skills of the 21<sup>st</sup> century. Danielsson and Selander (2016) put it this way.

The re-conceptualisation of texts over the last 20 years, as well as the development of a multimodal understanding of communication and representation of knowledge, has profound consequences for the reading and understanding of multimodal texts, not least in educational contexts. However, if teachers and students are given tools to "unwrap" multimodal texts, they can develop a deeper understanding of texts, information structures, and the textual organisation of knowledge (n.p.).

The unwrapping our authors speak of does not appear to be under way in Alberta secondary classrooms. Participants' metacognitive skills in the main were contextually operative yet, in terms of enabling deeper meaning making, superficial and stunted. The excavation of multimodal texts, down to the deepest layer of criticism, is metacognitively arrested at the surface layers of notice, access, and initial engagement (Figure 6.1).

Howsoever we fill the capacious gaps in the term "21<sup>st</sup> century skills", it is clear that the voices of Alberta's educational officialdom are raised in concert to further assumptions about students' contemporary knowledge, skills, and attributes. School boards have invested policy, capital investment, and public reputation on creating learning environments rich in technology that they claim accommodate diverse learning styles where student learning (another wide open concept welded to notions of accountability and achievement) is advanced by multimodal literacies. The experience of the study participants, however, occurring in the hands-on space of Alberta classrooms, is one of strong reliance on

print literacy even when engaged with truly multimodal texts – ones that demand the participant integrate the meaning-making affordances of multiple and simultaneous modes. There appears to be a disconnect between the grand vision of modern education in the connected classroom and the risk-averse reality of classroom experiences. In these classrooms, technology is often heavily regulated and /or locked down, study online texts mandated by curriculum are often print based (even where the source originated online), and assessment of student learning gives short shrift to multimodal or metacognitive skills despite various official teacher curriculum guides. By way of example, consider Alberta Learning's 2003 *Senior High School English Language Arts: Guide to Implementation*, which generally relies upon Marzano's (1992) comments on metacognition (declarative knowledge and procedural knowledge) and its relationship to student achievement on provincial diploma examinations.

The study of language enables students to develop metacognition: it enables them to become more consciously aware of their own thinking and learning processes and to gain greater control of these processes. Essentially, metacognition involves reflection, critical awareness and analysis, monitoring, and reinvention. Students who are engaged in metacognition recognize the requirements of the task at hand, reflect on strategies and skills they may employ, appraise their strengths and weaknesses in the use of these strategies and skills, make modifications, and monitor subsequent strategies.

Metacognitive awareness is equally important when students make meaning of literature and of nonliterary text. (p. 35).

Within this official document there is some attention paid to multimodal literacies but it is by no means a focus of teaching or learning.

Participants registered proficiency with several MPI processes on print-mimicking (minimally multimodal) online texts. However, that proficiency broke down with unfamiliar,

challenging and multimodal texts, with the exception of *metacognitive coherence*, the connecting of content to one's personal life experience. Participants relied heavily on print-reading strategies, such as Rabinowitz's "rules of notice" when engaging with online multimodal texts. Put differently, participants employed strategies that arose during their mastery of print literacy that were useful in the construction of meaning from multimodal texts. This finding aligns with arguments advanced by Robinson and Mackey (2003), Bearne & Bazalgette (2010), Bazalgette & Buckingham (2013), and Hill-Bulman (2017). Participants display well-developed metacognitive knowledge, awareness, and control over the environmental and embodied aspects of what they consider *real* reading. *Real* reading, however, does not occur at school. Schools erect roadblocks – by policy or through software – to students' access to or exploration of complex, interesting, engaging, sophisticated multimodal online texts. Such spring boarding of print reading is not surprising in itself. What is important, however, is that those print literacy skills were not sufficient to allow the participants to achieve full success with a complex, online multimodal text. Although the question of teachers' own metacognitive awareness in relation to online multimodal texts is beyond the scope of this study, it is worth noting that investigations into teachers' metacognitive skills are on the uptick recently. Kohen and Kramarksi (2018), for example, investigated math teachers' metacognition; Palantis, *et al.* (2017) studied patterns of metacognitive awareness and declarative knowledge among elementary school teachers. Recent investigations into teachers' metacognitive awareness, knowledge, and control online are lacking. Two notable exceptions are Richardson (2017) and Cope, Kalantzis, Schamroth-Abrams & Gee (2017). Richardson's doctoral thesis of December 2017 tracked and analyzed the metacognition demonstrated by teachers while using an online collaboration tool. Cope, Kalantzis, and Schamroth-Abrams (2017) investigated meaning making in the era of the digital

text with attention paid to supporting teacher metacognition. It is possible, therefore, that teachers in general are not at present metacognitively equipped to integrate multimodal online texts into their pedagogy in a way that would bridge the chasm between curricula and the “real reading” identified by the student participants. As Wulf (2013) reminds us, schools operate according to rituals (p. 92) and those governing the contemporary classroom “aren’t working to engage students and laying online multimodal texts and technology over that disengagement environment is not working” (p. 89).

Insights flow from rich qualitative data as do overflowing rivers in a flood. One is left contending with a new landscape, a changed topography and perspective. The data sifts out into four discernable sets of conclusions. The first can be gathered under the symbolic interactionist term “the definition of the situation”. Participants relied upon resources available to them within their peer group (reading recommendations, shared content) to explore the subjective meanings they “imposed on objects, events, and behaviours” (Crossman, 2017, n.p.). Moreover, the concepts of notice, access, personal experiences, memory, and de/motivations all contribute to participants’ definition of the situation. Differing metacognitive strategies attending both familiar (print-mimicking) and novel complex, multimodal online texts occupies the second set of conclusions. When faced with such online texts, participants often employed a metacognitive strategy of modal reduction - ignoring at least one mode in the hope of better understanding the content. Abandonment of the text often followed modal reduction. Affective qualities of the text and the participants’ awareness of their own emotional reactions impacted their motivation to persevere in the excavation of a text. Finally, participants clearly made a distinction between *real* reading (those texts they choose for themselves) and that which occurred at school where

access to interesting, sophisticated, and engaging multimodal online texts is denied in whole or in part.

## **A Final Word of Thanks**

I must conclude with my enduring respect and gratitude to the study's participants. Their spirits were generous and their talents, insights, enthusiasm, and optimism ran deep.

*The power of youth is the common wealth for the entire world. The faces of young people are the faces of our past, our present and our future. No segment in the society can match with the power, idealism, enthusiasm and courage of the young people.*

*- Kailash Satyarthi, 2014 Nobel Peace Laureate*

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## Appendix A – Session Guide

University of Alberta

Youth's Metacognitive Skill and Awareness During Multimodal Text Engagement

No. Pro00053798

Good (morning, afternoon, evening)

I want to thank you for being here and agreeing to talk to me about your online reading. It will help teachers understand better how young people think about online texts. Texts can be movies, music, reading print online, or anything that uses all of these at once.

Let me tell you a little about myself. I've always been very interested in reading. So much so that I became a librarian. I want to understand how young people make sense of what they read. Reading online can be challenging and I'm interested to know how young people think about their online reading / watching / listening in real time. That's why I've designed this study; to learn more about how young folks think about their online reading in real time.

What we're going to do here over this session and the next 3 sessions is engage with some online texts. I'll be asking you to look at a few texts that I've chosen. But I want you to feel free to talk about what interests you online.

If anything we view online makes you uncomfortable please tell me right away. There are always other things to look at and we can work together to find something that works for you.

If you get tired, or feel ill, please tell me right away and we will stop. We can also adjust the volume, brightness of the monitor, lighting in the room, text size, closed captions, seating, or any

other setting to make you comfortable. You're welcome to help yourself to a snack or drink before, during, or after the session.

We are not using your real name in any of the study results. And it is very important that you know that you can stop participating in this study any time you choose. You don't have to tell me why you want to stop. All you have to tell me is that you don't want to participate any longer. There are no problems with stopping, and nothing negative will happen if you choose to stop. Nothing at all.

Concluding remarks:

Thank you so much for sharing your thinking about your online reading! You've been a great help to me in gaining a better understanding of how young people create meaning from these texts. Are you feeling comfortable with what we discussed today? Do you have any questions for me? Remember, your information is kept confidential and your real name will not be used in the study results. And remember you can stop participating any time you want. You don't need to give me a reason. All you have to do is tell me you wish to stop.

Questions

The specific questions will be guided by the content of the participants' think-aloud reporting. Generally the questions will seek to encourage the participants' to expand upon comments that give evidence of their awareness, knowledge, regulation, and control of their cognition (the basic elements of metacognition).

The main text guiding this aspect of the research is van Someren, Barnard, & Sandberg (1994).

*The think-aloud method: A practical guide to modelling cognitive processes.*



## Appendix B – Research Ethics Office Documents

### RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM

**Title of Study:** Youth’s Metacognitive Skill and Awareness During Multimodal Text Engagement

**Principal Investigator:** Margaret Shane,  
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Your child or legal ward is being asked to participate in a research study. This study’s results will be used to support the researcher’s Ph.D. thesis. Please look over this form. The Principal Investigator, Margaret Shane, can answer any questions. Please take your time to decide if you consent to child or legal ward being in this study.

#### **Purpose of Study**

This research studies how much youth aged 12-18 rely upon their early-childhood print reading instruction when reading complex digital texts online. These texts might include video images or streams, audio tracks, as well as printed words. This research also studies to what extent young people are consciously aware and in control of their reading strategies while actively working with such a text.

## **Study procedures**

If your child or legal ward takes place in this study, the following procedures will apply:

- Participants will be asked to schedule 4 research sessions with the Principal Investigator over the course of two months.
- Participants' real names **will not be used**. Pseudonyms will be assigned to each participant and used in all research reports or publications.
- Individual reading sessions of approximately one hour will be scheduled at the convenience of the participant.
- Participants will have the choice of one of two locations: the University of Alberta, Education South building (see attached Campus Map); or the library at the Alberta Teachers' Association headquarters located at 11010-142 Street, Edmonton.
- Participants will be seated at a computer with Internet access. Every effort will be made to ensure the participant's ergonomic comfort and audio/visual access to digital the digital texts used in the study.
- Participants will be shown two or more age-appropriate digital texts. Texts will be of various lengths. Participants will be able to choose which texts they wish to work with that session from a list provided by the Principal Investigator.
- The beginning of each session (except the first) may include a "follow-up" discussion regarding any aspect of the last session.
- Participants will be asked to "talk aloud" about their thinking and decisions as they explore, read, and work through the digital text. From time to time the Principal Investigator may ask a follow-up question or encourage the participant to keep talking.
- The individual reading sessions will be recorded with both a digital video camera and a digital audio recorder. Transcripts of the video and audio recordings will be made by the Principal Investigator.
- The Principal Investigator will also take notes during the session.
- All information (videos, audio recordings, and notes) will remain secure (on encrypted hard drives or locked cabinets) and accessible only to the Principal Investigator.
- Participants may pause, take breaks, eat or drink as they wish to ensure their comfort.
- Participants may ask questions at any time during the session.

## **Duration – How long will the study run? How many sessions must my child or ward attend?**

Your child or ward will be asked to participate in 4 sessions over approximately two month scheduled at the participant's convenience. There will be no long-term follow-up of this study.

## **Results**

All participants, their parents or guardians, may receive a copy of the final research report or publication upon request.

## **Risks and Discomforts**

Participants will be asked to sit at a computer and work a mouse for approximately one hour. Participants may experience mild muscle cramp or eye strain. To mitigate these discomforts, participants may take as many breaks (standing, walking, stretching, washroom breaks) as necessary and eat or drink during the session.

## **Benefits**

It is hoped that participants will gain a deeper understanding of their reading strategies and their own metacognition. However, participants may or may not benefit directly from this study. It is hoped that the results of this study will help teachers better understand how young people decode complex digital texts. The study will help teachers evaluate if present early-childhood reading instruction is preparing young people well for reading and understanding such texts. The study's results might suggest changes to literacy instruction and supports.

## **Costs**

All the procedures, which will be performed as part of this study, are provided at no cost to you. If you or the participant incur parking or public transit costs, the Principal Investigator will reimburse you or the participant at each session upon receiving a parking receipt or public transit transfer.

## **Confidentiality**

Research participants **will not be identified** by their real names or other potential identifiers (city, town, school name, etc.). Students' age and gender may be specifically identified as necessary. Pseudonyms will be assigned randomly by the Principal Investigator to each participant.

Every effort will be made to maintain your child or ward's confidentiality within the extent permitted by ethical principles and/or law.

The Principal Investigator, and her academic advisors (listed above) will have access to the study data. The electronic data (video and audio) and any electronic notes, lists, contact information, indexes, schedules and other administrative records including consent forms, collected by the researcher will be housed in electronic format on an encrypted hard drive. Such hard drive and any back up shall remain locked in secure cabinets when not in use.

Research data, analysis, and results will be shared with the Principal Investigator's academic advisors (listed above), reported in the Principal Investigator's doctoral thesis, and other academic publications (books, articles), presented at academic conferences, seminars, and meetings. The University of Alberta Research Ethics Committee may review the research data at any time.

All encrypted files indexing participants' actual names with pseudonyms will be destroyed after the participant's last interview session. All other study data and records will be securely stored for 5 years after the study is over, at which time it will be securely destroyed.

### **Freedom to Withdraw**

Your decision to allow your child or legal ward to take part in this study is voluntary. Your child or legal ward will also be asked if they are willing to participate. Your child or legal ward can stop participating at any time, simply by you or your child or legal ward telling the Principal Investigator they wish to stop. No reason is required. Any data collected up to the point of withdrawal will not be used in the study but will be destroyed immediately after your child or legal ward withdraws from the study.

If you decide not to allow not to allow your child or legal ward to participate; or if you decide to withdraw your child or legal ward from the study at any time, there will be no negative consequences to you or to your child or legal ward.

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

### **Statement of Consent**

In signing below you are agreeing to allow the Principal Investigator to select age-appropriate electronic texts containing textual, audio and video materials, with which your child or legal ward will be interacting.

I have read this consent form. I have had the opportunity to discuss this research study with Margaret Shane. I have had my questions answered by Ms. Shane in a language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by Ms. Shane to participate in the research study by any statements or implied statements. Any relationship (such as employer, supervisor or family member) I may have with Ms. Shane has not affected my decision to participate. I understand that I will be given a copy of this consent form after signing it. I understand that my child or ward's participation in this study is voluntary and that I may choose to withdraw my child or legal ward from this study at any time. I freely agree to allow my child or legal ward to participate in this research study.

I understand that information regarding my child's or ward's personal identity will be kept confidential, but that confidentiality is not guaranteed. I authorize the inspection of any of my records that relate to this study by The University of Alberta's Research Ethics Board for quality assurance purposes.

By signing this consent form, I have not waived any of the legal rights that I have as the parent or guardian of a participant in a research study.

I understand that the plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

**Parent or Guardian** printed name: \_\_\_\_\_

Participant printed name: \_\_\_\_\_

**Parent or Guardian's** signature \_\_\_\_\_ Date \_\_\_\_\_

(day/month/year)