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"I want to be the Sun": Tableau as an Embodied Representation of Main Ideas in Science Information Texts

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“I want to be the Sun”: Tableau as an Embodied Representation of Main Ideas in Science Information Texts

by

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Dedication

I dedicate this dissertation to Mike. “One step at a time” you kept telling me and it was wise advice because I eventually got there! Thanks for walking the challenging path with me and bringing me all those cups of tea when I needed them most. And to our beautiful daughters - Ella and Grace – I look forward to sharing this with you one day so that you can see why mama spent so much time “down in her office”! And last but not least thank you to mum and dad for always encouraging me and teaching me the importance of learning. I love you all.

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Abstract

In this study I investigated the process drama convention of tableau to mediate for the representation of main ideas in science information texts. My pedagogical goal was to focus on the body as a tool for engaging with information texts and my rationale for this goal was the belief that the body is neglected in classroom learning. The task of creating caused the students to be active and to think of their own and other bodies as signifiers of meaning.

The methodology was based on a formative experiment that allowed for changes and modifications to be made in response to the intervention of tableau. Formative and design experiments recognize that classrooms are ecologically complex research sites that are situated in particular cultural and historical contexts. Theories related to cultural historical activity theory (CHAT), expansive and embodied learning frame this research as paradigms that recognize the dialectics between activity and culture and the body in and of the world.

In the study tableau is framed as an innovative learning method that disrupts the traditional and historical methods for identifying main idea, such as the annotation of text. Through the disruption of tableau came opportunities to expand notions of literacy and comprehension as well as the traditional associations of drama with fiction texts. The study shows that tableau is a flexible mediating tool that can be applied to the current focus on informational texts and close reading.

Chapter 1: Introduction

> The National Reading Panel (2000) for example, recommended 'summarizing' as a key strategy that often improves students' comprehension. We wonder, however, what summarizing might entail after students learned about content through means that were not only verbal but also profoundly embodied and gestural, drawing three-dimensional space into the 'meaning' of the representation. If teachers produce embodied modes because they afford the communication of particular types of content, then we hypothesize that students may likewise build and express enriched understandings of similar types of content when allowed to produce modes that draw on the affordances of bodies in space. (Wilson, Boatright & Landon-Hays, 2014, p. 257)

This study could be considered an answer to the wondering expressed above. It describes an intervention that took place in a third grade classroom in which the teacher 'allowed' students to summarize information texts in an embodied form. Embodiment has been defined as "the enactment of knowledge and concepts through the activity of our bodies" (Lindgren & Johnson-Glenberg, 2013, p. 445) and in this study students 'enacted' main ideas through a drama convention known as 'tableau.' In a tableau students use their bodies to express a range of gestures and postures to signify meaning. In this classroom, embodied learning was not the normal mode of reading or interpreting texts, and the use of bodies is examined as an affordance.

Contextualizing Drama in Education

"Drama, the playful giant, is knocking at the door, but despite its protean wiles, it is barely over the threshold yet." (O'Toole and O'Mara, 2007, p. 215)

A 2012 U.S. Department of Education report, *Arts Education in Public Elementary and Secondary Schools 1999-2000 and 2009-2010*, described the state of arts instruction in public elementary and secondary schools. The findings showed that apart from music, teaching in the arts had declined significantly in a ten-year period, and particularly in dance and drama (see Table 1).

Table 1

Percentages of Public Elementary Schools Reporting Instruction In The Arts For 1999-2000 and 2009-2010

Art Instruction	1999-2000	2009-2010
Music	94%	94%
Visual arts	87%	83%
Dance	20%	3%
Drama	20%	4%

Note. See Parsad & Spiegelman, 2012, p. 5.

Of significance, the authors of the report were unable to include "teacher level data" about dance and drama instruction because "the percentage of schools with these specialists on staff was relatively small" (p. 46). This statement highlights the bigger problem – the absence of these areas in teacher education programs (Branscombe and Schneider, 2014, in review), and consequently draws education policy as well as practice into the present discussion. During my doctoral studies, I have had the opportunity to supervise preservice teachers (student teachers) in public elementary schools and observe either the student teachers teaching, or the teachers of the class to which they had been assigned for their internship. From what I saw, the arts were limited

to specialist instruction in the visual arts and music and rarely did I see children engaged in drama or dance activities.

In addition to my role as internship supervisor, I taught classes to preservice teachers on arts integration and writing in the elementary grades and often incorporated drama in my instruction. Although the preservice teachers responded enthusiastically, they often remarked how little they had experienced arts integration in their own schooling and I was concerned that their limited experience would be repeated when they became teachers. I became aware that the absence of arts instruction (past or present) has very real future consequences.

When Helen Nicholson, editor of the journal *Research in Drama Education*, was asked in 2011 "What do you think is the most important and/or controversial subject in contemporary debate that has been discussed and considered through the journal?" she replied, "How drama can have emotional effect on participants and also educational benefit in its widest sense." Making known the emotional effects and educational benefits of the arts is motivating the arts community to have the government backed initiative known as STEM - science, technology, engineering and math, changed into STEAM - science, technology, engineering, *arts* and math. The inclusion of the word 'arts' would signal its value among the other subjects and provide impetus for funding to be made available for programs seeking to include arts provision in schools. The movement has gained recognition in both local and national government and in June 2011, Representative James Langevin from Rhode Island submitted a resolution to the House of Representatives, H.Res.51 (2013) which expressed "the sense of the House of Representatives that adding art and design into Federal programs that target the Science, Technology, Engineering, and Mathematics (STEM) fields encourages innovation and economic growth in the United States". The bill 'died' in the House and was reintroduced in February of

2013. The website "govtracks.us" that charts the progress of government bills currently states that the prognosis for its success is 0%. However, the Rhode Island School of Design is one of the national leaders in the movement of STEM to STEAM (http://www.risd.edu/About/STEM_to_STEAM/).

As an educator who has often included drama in instruction and witnessed its emotional and educational benefits, I believe that drama needs to be a visible presence in education. Hence my motive for conducting the current study.

Teaching Background

I have been involved with drama in education for many years. When I first started teaching in England I directed after school drama clubs that involved playing drama games and improvising short, humorous skits. Occasionally these would be rehearsed and shared in school-wide gatherings called 'assemblies' in England. I greatly enjoyed managing the programs but I wanted to know more about the theory of educational drama to support its application *in* the curriculum rather than *outside* of it. In 1997 I enrolled in a Master of Arts in Drama in Education course and I was introduced to the concept of 'process drama' and the work of its major practitioners such as Dorothy Heathcote and Cecily O'Neill. In contrast to popular conceptions of drama, process drama is not about 'putting on a play.' The defining characteristic of process drama is that it is an exploratory and collaborative method of working, shared within the confines of the classroom *as it unfolds* and not as a rehearsed product. In teaching situations it can be applied to explore concepts and issues found across the content areas (Bowell and Heap, 2001). Through the MA course I was exposed to theories that supported drama as a powerful pedagogical tool and as a teacher in the classroom I began to integrate process drama methods

into social studies and language arts instruction. The students embraced this style of active learning and I was invigorated by their response.

As a doctoral student my interest in drama in education has only increased and I have sought opportunities to research and apply drama with a variety of populations. Last year I led after school drama enrichment classes at a boys' magnet middle school in Tampa and I explored the use of drama with visually impaired children. Most recently I researched the application of Augusto Boal's 'image theatre' techniques (1995) with preservice teachers enrolled in an arts integration class in the College of Education (Branscombe and Schneider, 2013). The research focus was preservice teacher reflections mediated through the process drama convention known as 'tableau.' 'Tableau' is a group depiction of a moment in time with no movement or speaking, it is in effect a 'still image.' Working in groups, the creation of tableaux (plural) afforded preservice teachers a non-traditional way to reflect on moments in the classroom that had been troubling or challenging for them. When presenting the tableaux, the participants were given the option to 'step out' momentarily and articulate the thoughts of the person they were depicting in the scene. These frozen depictions of difficult or challenging situations from their field placements, combined with the 'step out' utterances, were alternative modes of reflecting as compared to the more traditional journaling (Fox, Campbell & Hargrove, 2011). According to Augusto Boal (1995) the possibility of transforming oppressive or difficult experiences can be explored through the recreation of an initial tableau into a reconstruction of the event, an 'ideal' version of the scenario, "The active, explicit transformation of body-knowing into body-doing taps into the power of body-knowing to reflect actively on the cultural and social status quo, the better to change it" (Osmond, 2007, p. 1114). Such an example of 'body-knowing' to perceive a different outcome happened when a preservice wrote, "Often times when we reflect we think

about what happened and what we can do to fix it and not why it is happening in the first place. Thinking for the characters in the reflection aids in determining the trigger for the situation."

As the instructor for the class, the work was significant because it introduced preservice teachers to the art form of tableau and it provided a public space to both share and witness challenging classroom moments that they thought were unique to them. As a researcher the significance of the study was to be found in the exploration of reflection as an embodied practice. The research conducted for this present study builds on the research of embodied reflection and extends it into another field of embodiment – that of text representation.

Rationale

Tableau and 'main idea' both represent distillation. Tableau is a frozen image that presents the essence of an idea or experience (Barthes, 1977). A main idea synthesizes information and presents it as a summary. Their compatibility as concepts that essentially refine and condense information inspired me to bring them together in a research study that explores the embodied representations of main ideas in science information texts through tableau. As a non-traditional and active way to engage with main ideas, I believed the use of tableau had the potential to be a significant learning experience for the students and its application was a way to explore the educational benefits of drama in a classroom.

Purposes of the Study

Given my background and experience, I am interested in working at the interstices of new educational trends and legislative demands for literacy learning to be found within the Common Core State Standards (CCSS) (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). With a renewed focus on informational texts in the CCSS, and a personal desire to see more drama in schools, the purpose

of this study was to implement the process drama strategy of tableau as a tool to represent main ideas in science texts.

Research Questions

The research questions that guided the study design and implementation were:

1. How did students represent main ideas from science information texts as a tableau?
2. How did students represent main ideas when writing in role?
3. What were student and teacher reactions to tableau as an embodied learning experience?

Definitions of Terms

Below I list terms used in the study that may be unfamiliar to the reader or that may have varied meanings. The definitions refer to how the terms are used in this study.

Arts integration: The application of arts-based activities to teach concepts and issues in content areas.

Creative process: The process of preparing and creating a tableau that represented a main idea in a passage of science information text.

Embodiment: The use of the body to convey an idea from the science information text.

Main idea(s): A key concept that is expressed in a science information text. Duke and Pearson (2001) described main idea(s) as the "important information" and "the gist" of the passage (p. 434).

Process drama: Drama that is non-scripted and created by the participants in response to a stimulus such as a text, a poem, or an experience. In the classroom the teacher usually provides the stimulus and the drama that is created is shared with other class members rather than an invited audience.

Tableau: An image created by a group of students who positioned themselves in still poses to convey a main idea from the science information text.

Writing in role: Writing that was composed from the perspective of a character or 'object' that they depicted in the tableau.

Context of the Study and Other Considerations

Given the decline in arts provision in public schools, it was important to me to conduct the study in a public school. The study occurred between January and February 2014 in a third grade classroom at a charter school in a semi-rural area that borders a large city in the southeast of the United States. The study took place over six sessions and each session lasted about one hour. All twenty-one students, the class teacher, and I were participants in the study.

The assistant principal of the school chose the particular class for the research. The class teacher selected the science unit about the Earth and the solar system to be the focus for the study. She gave me the 'teacher's edition' of the National Geographic handbook about Earth science to assist me in the planning of sessions and as a source for the majority of the texts.

As the instructor of the sessions and the researcher for the study I acknowledge that all the data findings and interpretations were created by and are filtered through me. I have tried to bracket my researcher bias by sharing data in ways that readers can make their own interpretations. In the body of the study, as well as in the appendices, I provide many examples of transcript excerpts, photographs, writing samples, and survey responses for readers to do their own 'member checking' as I offer my analyses. While I acknowledge that my interpretations cannot be generalized to a larger population, it was my intention to contribute to a deeper understanding of what drama can do in the classroom.

Theoretical Framework

As a particular classroom learning activity, the study was distinct from traditional classroom practice in three ways – it involved the use of the body, the outcome was mediated through the tool of tableau and the learning was collaborative. Additionally, these activities occurred within a specific cultural and historical context that I determine as inseparable from the outcomes of the research. The context informed the research as much as the research affected the context. Taken together, these considerations of 'the body' in a specific space (cultural) and time (historical) called for the application of theories related to both 'embodied learning' and 'expansive learning.'

Embodied Learning

"There are no brains that exist in vats" (Osmond, 2007, p. 1111).

Drama is a practice that uses the body as a primary means for expression. Therefore theories that seek to elevate and emphasize the role of body in learning are important to this research. As earlier findings related to the decline in dance and drama in 2009-2010 illustrated (see Table 1), the body as a conduit for learning is largely absent in public education, and as Wee observed, "Moving the body expressively is generally not encouraged in school" (2009, p. 498). Erica McWilliams (1997) argues that we have problematized the body in education to the extent where we ignore teachers and students as even having bodies and Joseph Tobin, in a chapter called "Disappearance of the Body in Early Childhood" wrote, the brain is "the favorite organ of the new American millennium" (2004, p. 122). Approaches to learning that privilege the mind over the body resonate with Cartesian philosophy; however Christopher Osmond subverts Descartes' famous proclamation into "I am, therefore I think" because "drama education represents an opportunity to involve the body *a priori* in the process of knowing – to be, we

might say, in order to think" (2007, p. 1109). In positioning the body as a tool for learning, I am not arguing for a continuing mind/body opposition in our schools but for a pedagogical approach that integrates the two, "If the body as lived structure is a locus of experience, then one need not ascribe this capability to a decorporealized mind. The self is viewed as an integrated being" (Leder, 1990, p. 5). Eisner describes an integrated body as a receptor for somatic knowledge, a reaction to a work of art is not confined to the sense that defines the art as a 'form' and can have cognitive appeal as much as sensory resonance, "Works of art call upon both the ideational and any of the sensory resources we use to experience the world; the fact that an image is visual does not mean that the experience we have of it will be visual" (2002, p. 19).

A segregated view of the body has the potential to position the arts as anti-intellectual and align cognitive functioning with specific domains of knowledge, a view strongly rejected by John Dewey,

> Any idea that ignores the necessary role of intelligence in production of works of art is based upon identification of thinking with use of one special kind of material, verbal signs and words. To think effectively in terms of relations of qualities is as severe a demand upon thought as to think in terms of symbols, verbal and mathematical. Indeed such words are easily manipulated in mechanical ways, the production of a work of genuine art probably demands more intelligence than does most of the so-called thinking that goes on among those who pride themselves on being "intellectuals" (2005, p. 47).

Segregating the curriculum into subjects has been the historical approach of schooling in the Western world. In contrast, the 'whole language' movement in literacy education was an attempt to adjust this attitude in language arts teaching. Two of the strong proponents of whole language, Kenneth Goodman and Yetta Goodman list drama as belonging to a 'symbol system' that

"interrelates with written language" (2009, p. 100). They argue that the strength of the whole language movement is in its inclusive attitude towards many modes of learning, not just word-based structures. Continuing with this idea, Siegel (1995) uses the term 'verbocentric' for the unproductive fixation schools have on "a world of words" (p. 456),

> In schools, this verbocentric ideology has led us to regard language as the sole channel for learning and to separate it from other ways of knowing. The privileged status accorded to languages over images, music and movement is evident in our curriculum guides, instructional methods and materials, evaluation practices and the like (p. 456).

Delivered as a visual mode of representation, tableau qualifies as one of Siegel's 'other ways of knowing' and as such challenges the hegemonic verbocentric ways of knowing that are present in our schools today.

The body as a site for knowing. Rejecting the primacy of consciousness as the center for experience, French philosopher Maurice Merleau-Ponty (1908 – 1961) positioned the body as a site for knowing the world because it is *of* the world. This sense of a body being in and of the world and among other bodies is key to an understanding of Merleau-Ponty, "Visible and mobile, my body is a thing among things; it is caught in the fabric of the world" (Merleau-Ponty & Baldwin, 2004, p. 295). According to Merleau-Ponty, to split the perceived from the perceiver is to construct false divisions and elevate the role of the human mind in the act of perception. Instead he calls on us to remember that, "The world is there before any possible analysis of mine" (p. 66). We cannot separate ourselves from the world because "the world is made of the same stuff as the body" (p. 295).

Chiasm. Maurice Merleau-Ponty's book *The Visible and the Invisible* revisits and extrapolates on his earlier theories of perception. In a chapter, "The Intertwining - The Chiasm"

he frequently references ideas of reversibility and circularity to emphasize that as both subject and object in the world, we are bound to the materiality of the world and to each other. The word Merleau-Ponty uses to convey this phenomenom is *chiasm*. The origin of the word is to be found in the Greek word *chi,* which denotes the shape of an X. In the letter X, the two lines do not merge and then become one line, instead they intersect at a specific point to form the letter as we have come to know it. In ophthalmology, a chiasma refers to the intersection of the two optic pathways that result in a singular image. Merleau-Ponty's notions of merging, crossing and intertwining will be developed here to show how they relate to the practice of tableau.

The body as both subject and object. When the body sees, it becomes part of the visible world that can look back at itself through other people, "I regard my body, which is my point of view, upon the world, as one of the objects of that world" (Merleau-Ponty, 2004, p. 83). There is a reversibility inherent within the visualizing process that Merleau-Ponty refers to as "a double and crossed situating of the visible in the tangible and the tangible in the visible" (1968, p. 134). When a tableau is created, there is a duality of seeing involved, the ability to create from within while simultaneously envisioning what it looks like from without. In this way tableau leads to a heightened awareness of yourself as both subject and object because in a tableau the role of the body is to 'show' a 'knowing' through a still pose. I believe this awareness can help develop an aesthetic sense about the way a body performs in space.

The body as touching and touched. This idea reinforces the notion of the body as both subject and object and applies to the study because a tableau is a human structure that involves touching and being touched. The example given by Merleau-Ponty of the body as capable of multiple and simultaneous sensibilities is the act of placing your left hand on your right hand while it touches objects. The reversibility and circular processes are at work in that the objects

are touching as much as they are being touched and also the left hand is touching the objects through the right hand. A participant in tableau may be simultaneously touched while touching another participant and the overall intertwining of touching and non-touching is a constituent of how meaning is conveyed in a tableau.

The body in relation to other bodies. Bolton (1985) strongly rejected the popular idea that drama is about individual expression and process drama practitioners have frequently stressed that drama is primarily a social art form (Heathcote, 1984). A tableau may be about an individual's experience but the essential aspect is that it is a group of people who decide how to depict the experience and then form the image. The interaction between participants in tableau is key to extending Merleau-Ponty's notion of chiasm from the individual to the collective. He described this dynamic as operating when two people shake hands and there is a reciprocal engagement of touching and being touched. At the moment that the two hands come together, there is a reminding that the individual is a "dimension and a universal" (1968, p. 142) and according to Merleau-Ponty this recognition is the true primordial consciousness that connects, "a carnal adherence of the sentient to the sensed and the sensed to the sentient" (p. 142). Implicit in these words is an appeal for humans to remember their ancient, prelinguistic state (Vallega-Neu, 2005) and carries echoes of Moffett's declaration that "No written symbols are required. Drama is primitive" (1983, p. 63). Tableau as a silent depiction could be construed as prelinguistic and as a collaborative process that involves touching and being touched, it binds the 'sentient and the sensed' in a chiasmatic form. The one who is touching and the one who is touched do not become one in the tableau but together they create tableau.

Tableau and time. As a distilled image, tableau has no past or future. It is truly of the moment and if participants are asked to speak their thoughts, these are spontaneous on-the-spot

responses. In the act of contemplating an image, Merleau-Ponty claims that we experience atemporality. “The present still holds on to the immediate past without positing it as an object, and since the immediate past similarly holds its immediate predecessor, past time is wholly collected up and grasped in the present” (2004, p. 82). As an embodied ‘grasp’ in the present, tableau has the potential to root the viewer in the present and momentarily relieve them of time constraints, which Tierney (2013) regards as a novel experience for many people today.

Expansive Learning

The other theory that frames this research is ‘expansive learning.’ Yrjö Engeström is recognized as the author of the theory of ‘expansive learning’ (1987). It is a theory that came out of a larger theory – cultural historical activity theory (Engeström, 2001) and borrows heavily on the sociocultural theories of Vygotsky (1978). I therefore begin with a description of cultural historical activity theory before bringing the discussion back to expansive learning.

Cultural Historical Activity Theory (CHAT). Engeström states that cultural historical activity theory (CHAT) was “initiated” by Vygotsky and “further developed” by his colleague Alexei Leont’ev (2001, p. 134). I selected CHAT as a theoretical frame because I am positioning tableau as a ‘tool’ in the learning process. The idea of mediation is key to a Vygotskyian model of learning. It appears as a catalytic presence in his well-known triangle of a directed activity between a stimulus and response. More commonly today, ‘subject’ and ‘object’ have replaced the terms ‘stimulus’ and ‘response’ but the term ‘mediation’ has remained. In reference to this study, I am transposing the ‘subject’ to be the ‘body,’ the ‘object’ of the task to be the ‘representation of a main idea’ and the ‘mediating’ act to be ‘tableau’ (see Figure 1).

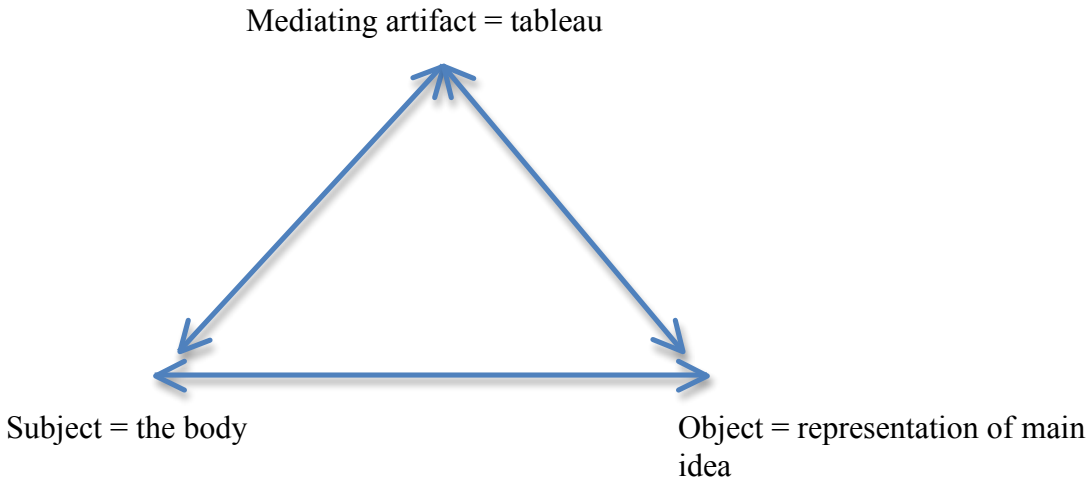


Figure 1. A reformulation of Vygotsky's model of a mediated task (see Vygotsky, 1978, p. 40).

Of importance here is that the mediated act is culturally determined and this changes both the subject's experience of the task and the outcome of the task, hence the bi-directionality of the arrows in the model. Engeström calls Vygotsky's original model the 'first generation' of CHAT and states that its weakness, as identified by Leont'ev, was that it was focused on the individual. Engeström reformulated the model to depict a directed activity as occurring in a community that has rules and a division of labor and this became known as the 'second generation' of CHAT. The 'third generation' of activity theory accounts for the complexity and diversity within a community and draws on Bakhtin's notions of dialogicality (1982). As is appropriate for a model based on culture as a dynamic 'artifact,' the model continues to undergo revisions in response to the dialectic of cultural changes and individual agency. Later reformulations of the CHAT model have included ideas of boundary crossing and 'third space' "where the seemingly self-sufficient worlds and scripts of the teacher and the students occasionally meet and interact to form new meanings that go beyond the evident limits of both" (Engeström, 2001, p. 136). But the presence

of culture as impacting both outward behavior and inward thinking processes has remained, as has the idea that these processes influence culture in return. In a classroom situation, CHAT means that student agency, teacher agency and the cultural artifacts of textbook, curriculum, technology (and tableau) are in constant flux with each other, agency 'inhibiting' (to use Vygotsky's word) artifacts and artifacts inhibiting behavior.

Expansive learning theory arising from CHAT. CHAT is a theory about activity happening in a cultural context, but importantly *activity* itself becomes a changing cultural dynamic as it responds to changes in history; individuals and collective groups begin to deviate from patterns of doing as tensions arise out of the activity itself. Engeström describes these tensions as the CHAT principle of 'contradictions', which are "historically accumulating structural tensions within and between activity systems" (p. 137). However, arising from structural tensions are the opportunities for *expansion* in terms of a new goal directed activity. In traditional learning activities, the "knowledge or skill to be acquired is itself stable and reasonably well defined… The problem is that much of the intriguing kinds of learning in work organizations violates this presupposition" (Engeström, p. 137). The 'intrigue' arises when the activities have not been accomplished before by a particular group of people, "they are literally learned as they are being created" (p. 138).

Regarding this study, there are many applications of expansive learning, however some distinctions need to be made. The 'tensions' did not arise from the teacher or the students of the class. As the researcher, I was the one who was frustrated with the traditional ways of learning and the absence of drama in the classroom. As the instructor, I framed the new activity system with its object goal of creating a tableau representation of a main idea in an informational text. But in line with the theory of expansive learning, this was new and undefined territory; as far as I

knew the students had not used tableau before in the classroom, therefore they learned as they created tableau - which is the defining characteristic of expansive learning.

Expansive Learning Theory Meets Embodied Learning Theory

There are several ways that embodied learning and expansive learning can be viewed as complementary theories. First of all, both are theories about non-traditional ways of learning, and secondly, just as Merleau-Ponty believed in the fluidity of perception among/between individuals and the material world about them, Engeström states that the "insertion of cultural artifacts into human actions was revolutionary in that the basic unit of analysis now overcame the split between the Cartesian individual and the untouchable societal structure" (2001, p. 134). Third, residing in both theories is the notion of collective connections that are bidirectional. For Merleau-Ponty the body operated in the world in as much as the world operated in the body and for Vygotsky the bidirectionality of these processes in a learning situation could be further impacted by the use of tools. Fourth, both also believed in the transactional relationship between inner speech (thought) and outer speech. Vygotsky said, "The relation between thought and word is a living process; thought is borne through words. A word devoid of thought is a dead thing" (1986, p. 255) and Merleau-Ponty spoke of their 'intervolved' relationship, "the sense being held within the word and the word being the external existence of the sense" (1962, p. 182). And finally, both Vygotsky and Merleau-Ponty held views that instinctively rejected hierarchical systems of development. In accordance with these beliefs, Engeström describes expansive learning as a 'sideways' or horizontal learning movement that pushes against prescribed contexts. An expansive view of learning holds in tension the reality of culture while simultaneously seeking to broaden and affect culture.

In this present study, the students worked within the given social and cultural situation of a classroom and used prescribed informational texts as a basis to create new representations. However, they physically expanded their bodies to represent roles and they were encouraged to expand their conceptions of what could be ‘done’ with main ideas in an informational text.

Chapter 2: Literature Review

"In Western culture, conceptions of mind frequently, and perhaps unwittingly, relegate the body to technical, utilitarian functions – an invisible handmaiden to the mind's bidding" (Powell, 2007, p. 1083)

The body is largely ignored in Western education systems (Wee, 2009) and drama as an essentially active learning tool has suffered as a result. False dichotomies between mind and body that privilege the mind as a site of learning have affirmed drama as a trivial activity.

In this study, I sought to privilege the *body* as an alternative focus for learning. Also significant is that the learning occurred within a collaborative context. Students considered the meaning making of their own bodies and the bodies of other students in the tableau. This collective approach to creating, along with the positioning of tableau as a mediating act, broadened the theoretical focus from embodiment to a cultural and historical view of the study activity. With this shift in focus, the learning activity became theoretically defined as 'expansive' because the students were working in and through a new mode that involved learning *in* the act of creating.

To achieve such pedagogical goals, I designed a formative experiment based on an intervention in which I applied the process drama convention of tableau to the representation of main ideas in informational texts. The research questions were:

1. How did students represent main ideas from science information texts as a tableau?
2. How did students represent main ideas when writing in role?

3. What were student and teacher reactions to tableau as an embodied learning experience?

In this chapter a review of the literature provides a background to the research questions and covers the teaching of main ideas, an overview of process drama, the teaching of science through drama, the application of tableau to text comprehension, and finally research on writing in role.

Focus on Main Idea

"A central goal of reading comprehension instruction at all levels is the development of the ability to identify or abstract the main idea" (McCallum and Moore, 1999, p. 21). But what exactly is 'main idea'? Writing in 1986, Joanne Williams claimed that "Even though this skill is acknowledged to be central, there is no consensus as to the proper definition of main idea, either in instruction or in research." (p. 163) In the research, main idea is variously reported as 'summarizing,' getting the 'gist' of a paragraph, finding the 'main topic' or 'theme,' and 'synthesizing' information (Kucer, 2011). However, amid the discussions of what 'main idea' actually is, " it has been conventional wisdom that the ability to identify and recall main ideas in exposition or central story elements in narratives is intimately linked to skilled reading comprehension" (Baumann, 1984, p. 94). With this in mind, I first of all present an overview of major developments in the research of reading comprehension since 1978, when the publication of a particular document initiated a new focus for research in schools.

Reading Comprehension

In 1978 Delores Durkin wrote a report about the state of reading comprehension instruction in American public school classrooms. The report *What Classrooms Reveal about Reading Comprehension Instruction* highlighted a lack of explicit teaching on how to comprehend a text and an over dependence on the completion of worksheets to assess student

comprehension. The report ignited a debate about the relationship between reading and reading comprehension - does reading lead to comprehension, or does comprehension enable one to read, or do they operate in synergy? Two major reports published after Durkin's study sought to keep the debate focused on the process of learning to read through the primacy of phonics instruction and the role of the teacher in providing explicit instruction. *Becoming a Nation of Readers: The Report of the Commission on Reading* (Anderson, Hiebert, Scott & Wilkinson) was published in 1985 and had 17 recommendations that covered parental responsibility, teacher instruction, classroom materials, school library resources, teacher quality, professional development and teacher education. Several of the recommendations continued to address concerns that Durkin had raised seven years earlier, namely "Teachers should devote more time to comprehension instruction" (p. 124) and "Children should spend less time completing workbooks and skill sheets" (p. 125). The next study of major significance was the National Reading Panel's report *Teaching Children to Read* (National Institute of Child Health and Development) published in 2000. Supported with findings from influential researchers such as Marilyn Adams (1990), this document focused on the importance of phonemic and letter recognition because "correlational studies have identified PA (phonemic awareness) and letter knowledge as the two best school-entry predictors of how well children will learn to read during the first 2 years of instruction" ("Findings and Determinations of the National Reading Panel by Topic Areas", para. 2). However, not all early childhood researchers were convinced by the emphasis on phonics teaching (Stahl, 2004) and the debate about the interplay between reading and comprehension continued after the report's publication, "Skilled decoding of words depends somewhat on comprehension" (Michael Pressley, 2000, p. 548). According to Pearson (2009), psycholinguists Kenneth Goodman and Frank Smith would not see the logic in either side of the debate "because

neither Goodman or Smith distinguishes between reading and reading comprehension. Their failure to make the distinction is deliberate, for they would argue that reading is comprehending (or that reading without comprehending is not reading)" (p. 11).

In regard to text comprehension, *Teaching Children to Read* (National Institute of Child Health and Development, 2000) highlighted the role of the teacher in direct instruction, "The rationale for the explicit teaching of comprehension skills is that comprehension can be improved by teaching students to use specific cognitive strategies or to reason strategically when they encounter barriers to understanding what they are reading" ("Findings and Determinations of the National Reading Panel by Topic Areas", discussion section, "Text Comprehension Instruction, para. 2). However, there has been ongoing debate about the definition of 'direct teaching,' because "the meaning of the term is embarrassingly elastic" (Scott, Hiebert & Anderson, 1988, p. 7). In *Becoming a Nation of Readers* direct instruction was described as "the teacher explains, models, demonstrates, and illustrates reading skills and strategies that students ought to be using" (1985, p. 66). However, one notable study characterized as a study on direct instruction was based on 'reciprocal teaching' where the teacher and the students *take it in turns* to lead discussions on the meaning of a text. And in 1988, three of the authors who authored *Becoming a Nation of Readers* wrote in a follow up report,

> The direct instruction motto seems to be, "Tell as much as possible." We are bold enough to suggest that research eventually will show that what may seem to be the opposite motto is the better guide for teachers: "Tell as little as possible." By this we mean that students should be left to make any discovery that they can and will figure out for themselves. (Scott, Hiebert & Anderson, 1988, p. 7)

So where does main idea figure in these 'reading wars'? Relevant to this literature review is how the teaching of main ideas has been researched within the reading comprehension discourse and what recommendations have been made for how to teach main idea identification.

Alternatives to Basal Readers

Commercial reading packages, also known as basal readers, have been widely used in American classrooms since the 1920s (Pearson, 2009) and continue to be popular today. The call for more direct teaching on reading comprehension has often been in reaction to the overuse of basal worksheets to teach skills that the researchers believe are too abstracted from an actual text (Anderson, Hiebert, Scott & Wilkinson, 1985; Baumann, 1983; Dewitz & Jones, 2013; Durkin, 1978; Taylor, Olson, Prenn, Rybczynski & Zakaluk, 1985). More recent research has continued to investigate the effectiveness of basal readers. Miller, Darch, Flores, Shippen and Hinton (2011) compared the results of teaching main idea using basal readers to explicit coaching. They concluded that direct instruction of main idea afforded greater opportunities for teachers to model procedural steps and reinforce metacognitive processes. Conversely the classroom reading series "did not offer any guiding rule statements or any governing procedure concerning how to attack the problem of main idea identification." (p. 20)

Realizing that many schools are unlikely to replace basal readers, some research has instead called on teachers to critically evaluate content and to reconsider adhering to basal methods alone (Afferbach & Walker, 1992; Jitendra, Chard, Hoppes, Renouf, & Gardill, 2001; Stahl, 2004). Dewitz, Jones and Leahy have even suggested that the kinds of assessment questions proposed in teacher handbooks might hinder rather than promote reading and comprehension, "The asking of an inference or main idea type question by the teacher may

undermine the very metacognitive process that students need to acquire, the decision to invoke a strategy when the reader needs it" (2009, p. 122).

Perhaps as a result of Durkin's negative critique of basal lessons, the 1980s was a particularly productive decade for research that looked at explicit instructional strategies as alternative methods for teaching main idea. Baumann's experimental study (1984) found that direct teaching yielded very positive posttest results of main idea identification compared to basal based lessons. In the study direct teaching took place over eight weeks and followed the same instructional model: "introducing the skill, providing an example, directly teaching the skill, providing application and transfer exercises…and administering practice exercises" (p. 96). In discussing the results of the experimental study, Baumann hypothesized that the direct teaching strategy was successful for two reasons; the students were exposed to a wider range of texts than the basal group and in the 'transfer exercises,' they were required to generate their own main idea statements. This was in contrast to the students who used basal worksheets and were required to identify correct answers by circling or underlining the main ideas rather than demonstrate an applied understanding. This notion of applied learning was also found in a study with students described as 'remedial readers' (Stevens, 1988). As a result of instructional training, the students were able to transfer the skill of main idea identification to *new* content, a result that Stevens described as "particularly important" (p. 25). And Williams (1986), working with a similar population of students, used almost identical instructional strategies as Baumann in her study of main idea identification and proposed analogous recommendations, "clearer and more consistent definitions of main idea, more explanations, more review, and practice on more varied types of text, including a good deal of *natural text*" (p. 167, italics mine). However a

challenge of 'natural texts' is they vary considerably in structure (Williams, 1984), a fact that researchers have attended to in their study of main idea teaching.

Main Idea and Text Structure

For Goetz and Armbruster (1980), analysis of text structure was an obvious strategy to include in direct instruction of reading comprehension, "Because reading always involves text" (p. 201). Kintsch and van Dijk's text comprehension model (1978) influenced several researchers who approached the generation of a main idea as a summarizing operation (Williams, 1984) The usefulness of the model was in viewing the structure of a text as a series of microstructures out of which a macrostructure is derived. The microstructure is comprised of the individual ideas and statements that if organized coherently enable a reader to form a 'gist' of the text (its macrostructure). In the formation of a gist, the reader applies 'macrorules' which are deletion, generalizing and construction processes that researchers have applied to the identification of main idea process (Brown, Campione & Day, 1981; Williams, 1984; Williams, 1986; Williams, Taylor & de Cani, 1984). Ross (1984) operationalized the skill of 'deletion' of unimportant information with very young students as the ability to find categories. She placed a variety of concrete objects for the children to sort into objects that belonged together and those that did not. Through choosing to discard items that did not go together, students were introduced to the concept that some ideas are redundant when looking for the main idea.

Genre. The structure of a text is a constituent of its 'genre,' (Papas, 2006) and different genres present main ideas in different forms. According to Jitendra and Gajria, (2011), a main idea in narrative text is regarded to be a theme that arises from the plot whereas in 'expository texts,' a main idea is a summary of content based on the presented facts. In recognizing the difficulty children had with locating the main idea in expository texts, Baumann suggested, "The

obvious way to rectify a lack of knowledge of textbook prose is to provide children more and earlier exposure to exposition" (1983, p. 329). Likewise Williams called for a greater exposure to a range of texts (1986) and this call has been taken up in the last decade by a number of researchers, most notably Nell Duke. In 2004, Duke wrote an article "The Case for Informational Texts" and recognized that many students struggled with comprehending such texts. Her four recommendations were simple and straightforward and centered on providing more opportunity for students to read and engage with informational texts.

Nonfiction text. Writing almost thirty years after Baumann's appeal (1983), the arguments for content area reading instruction have become more focused. Shanahan (2009) has pointed out that the distinction in text structure is not simply between narrative and informational texts but that within each discipline there are unique ways of presenting information. One specific content area text may include *several* ways of communicating information, for example a history textbook might include description, narration and exposition and a math textbook may be illustrated with numerous charts, tables and graphs. Pappas (2006) researched the textual structures of science books and developed a matrix of 'typical' science book features: topic presentation, description of attributes, characteristic events and final summary. She noted that informational texts tend to frame portions of texts or illustrations and their positioning and presentation on the page may influence the importance that students attach to them and this has implications for main idea identification. For example the size or prominence (foreground vs. background) of an illustration might imply added significance as a 'main idea.' Baumann (1986) compared science texts where a 'considerate' text had the main ideas made 'explicit' through hierarchical placement and visual cues but the other text had no such prompts. The fifth grade students were more successful at generating and constructing main ideas from the 'considerate'

text, a finding that Bauman said publishers needed to take note of. Cumulatively, the research on main ideas in content areas is clear; applying isolated strategies learned in one class may not carry over into another (Duke, 2000). Therefore, reading for content and being aware of how that content is structured are both crucial to main idea identification (Duke, Pearson, Strachan & Billman, 2011).

Visualizing and Annotating Main Ideas

Mark Sadoski has described visual imagery in literacy as seemingly "self-evident, but it was not that long ago that purely language-based theories on cognition and memory prevailed" (1998, para. 1). More than just 'self-evident,' Long, Winograd and Bridge, (1989) stated that imaging is a nativistic process and that mental images remain longer than verbal recalls of information. Visualizing as a comprehension tool has traditionally been taught through two strategies; the students are taught to construct mental images about the content of the text or they illustrate important ideas and concepts through drawn images, such as graphic organizers and maps. Taylor, Olson, Prenn, Rybczynski and Zakaluk (1985) criticized worksheets for teaching main idea in isolation. As an alternative strategy, the researchers recommended the use of graphic organizers such as maps and flowcharts for aiding students to sequence and summarize information in "natural" texts they were reading in class. In 2001, Duke and Pearson said that, "Children's comprehension improves through the use of graphic and sematic organizers" (p. 434). Visual representations often depict the relationship between main idea and supporting details and in Baumann's research on explicit teaching (1984), a teacher drew an image of a table with the main idea written on the table top and four supporting details written alongside each table leg. However, despite all the evidence that points to visualizing text as a strategy for

understanding text, tableau as a form of visualization was not referenced in any of the research literature about visualization and comprehension.

Both mental images and graphic organizers were included in studies that were analyzed for the *Report of the National Reading Panel: Teaching Children to Learn* (National Institute of Child Health and Human Development, 2000) and presented as valuable strategies for analyzing texts because they helped students *remember* important elements of the text. This idea of memory and retrieval had appeared in a report twenty years earlier. According to Goetz and Armbruster, (1980), student failure to identify the main idea in authentic reading material was because it had not been taught to them as a "connected discourse" which "permits the construction of highly integrated or interconnected representation in memory that is both easier to construct and more efficient at retrieval" (p. 203).

As well as representing texts through imagery, the annotation of text, for example underlining main ideas, has remained popular for teaching main idea identification. Goetz and Armbruster strategized the memorizing of the main idea of a text as a "realistic objective" which can be supported through "highlighting" and "underlining" the "important portions of text" (1980, p. 217). And in 2014, annotating texts was presented as a skill that helps students 'close read' a text and one of the three annotations suggested was "underlining central, key or main ideas" (Fisher & Frey, p. 223).

Main Ideas and Background Knowledge

Focusing on what students bring to comprehension through the activation of background knowledge is a strategy with a history. In the 1960s theories of reading comprehension continued to support Chomsky's (1957) 'transformational grammar system' model, which in effect claimed that humans are born knowing how to generate and process language. The following decade

underwent a revolution that has become known as the 'cognitive turn' when psychologists focused on the cognitive processes involved in reading. These researchers tended to follow one of two paths – studying 'story grammar' in narrative texts or the underlying text structure in expository text (Pearson, 2009), but neither approach satisfactorily answered the question of exactly what was *happening* when readers comprehended. The theory that emerged from wrestling with this question became known as 'schema theory' and it directly challenged the type of cognitive tasks that could be found in the basal reader worksheets.

Pearson (2009) cites Anderson (1977) and Collins, Brown and Larkin (1980) as eliciting the idea of the "reader as builder" (p. 13), i.e. a reader uses their own experience and knowledge as the building blocks for comprehension construction. Thereafter, schema theory became strategized as the explicit teaching skill of activating student experience and background knowledge as a method for enhancing comprehension, "The more one already knows, the more one comprehends; and the more one comprehends, the more one learns new knowledge to enable comprehension of an even greater and broader array of topics and texts" (Fielding & Pearson, 1994). It sounded promising but there were detractors. Some teachers interpreted schema theory as meaning that only material familiar to their students could be read. John Bransford (1994) provided a measured response to Richard Anderson's (1994) enthusiasm for schema theory and recounted tales of children moaning that all they ever read about in schools were stories involving milkmen and mailmen. Bransford questioned how student knowledge could be advanced if novel experiences and ideas were not presented to them. He understood that there was more to schema theory than only student background knowledge but his concerns addressed the wider problem of what happens when a theory is not properly understood and applied in the classroom.

With regards to uninspiring reading material and instruction, Robert Tierney (McGinley & Tierney, 1989) was a consistent voice through the 1980s reminding theorists and practitioners that explicit teaching of reading comprehension did not have to mean dull teaching. In a reflective appraisal of reading developments over the previous 20 years he commented "The research on engagement has moved us toward views of reading that reach beneath the surface to a fuller consideration of the reader's emotional, affective, and visual involvement" (Tierney, 1990, p.39). The explicit role of the reader, rather than the teacher or the text, was now garnering attention.

The Role of the Reader in Reading Comprehension

In the 1980s the study of the role of the reader in the reading process, along with a rising interest in the works of Vygotsky, gave birth to the description, 'the social turn' (Pearson, 2009). Until the 1980s, classroom discussions about literature had been guided by the notion that the true meaning in a text could be accessed by a close reading of all the literary elements contained within it. This idea originated with I. E. Richards (1929) and had remained dominant for a long time until 1978 when the author Louise Rosenblatt's positioned the reader as creating their own literature when they interacted with text. Her seminal work, *The Reader, The Text, The Poem: The Transactional Theory of the Literary Work* (1978) began a new trajectory in reading theory and teaching practice.

In Transactional Strategy Instruction (TSI) explicit coaching remains a critical component but student interaction and contributions are encouraged as the teacher begins to relinquish their role as 'knowledgeable other' and seeks student thoughts, interpretations and background knowledge in relation to a particular text. This negotiation of meaning between readers is based on reader response theory and can be used with narrative and informational

texts. Anderson's (1992) experimental study that infused TSI with content area textbook learning reported increased student verbal participation and performance on subsequent comprehension assessments. In a TSI context, main idea would be negotiated through a group discussion, with each member expressing an opinion informed by a unique interpretation of text.

As is the tendency of education policy, the pendulum is now swinging towards a return in practice, with an emphasis in the Common Core reading standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) on students to pay 'close' attention to the content of a text and to cite evidence in support of written or spoken ideas about a text. While reading 'closely' is to be encouraged, the danger is that in practice it will be used to shut down opportunities for students to voice their *opinions* about a text. With this in mind, what else does the Common Core future hold for reading and reading comprehension?

Back to Basals, Close Reading and Signs of Hope

Thirty-five years after the Durkin report was published, Klinger, Urbach, Golos, Brownell, and Menon (2010) concluded "that there are still gaps in research and what teachers are doing in practice" (p. 72). According to Education Market Research from 2010, as cited in Dewitz and Jones (2013), "seventy-four percent of schools and teachers use a basal reader, either reading it closely or sampling from its many components" (p. 392). The teacher featured in the review of basal readers by Dewitz and Jones (2013) worked in a school district that mandated the use of a particular reading series to meet the standards of the Common Core State Standards Initiative. In conjunction with the Basal Alignment Project (Liben & Liben, 2012/2013), more than 100 sets of materials were being revised to align basal readers with Common Core reading

standards. This signals a continued reliance on basal readers as the main medium for teaching reading in spite of calls for more balanced approaches (Fisher & Frey, 2012).

Although a range of strategies for teaching main idea have been researched since Durkin's report in 1978, very few have involved the use of the body. Henderson and Shanker (1978) recorded that students who had been exposed to 'creative dramatics' did better in comprehension tests that included questions about main ideas than students who had learned the comprehension skills through basal workbooks. But I believe there are signs of hope. More recent research and articles written by influential comprehension theorists suggest an open attitude to look outside traditional practices for interacting with informational texts. One study (Block, Parris & Whiteley, 2008) investigated the use of learned gestures to enhance comprehension learning in a primary classroom. Comprehension process motions (CPMs) "are kinesthetic hand placements and movements that portray the visual and physical representations of abstract, unseen comprehension processes such as finding main ideas, inferring, making predictions, and clarifying" (p. 461). In the experimental study, the treatment groups outperformed the control groups on basal assessments and standardized tests, creating data that the researchers hoped would "enable more teachers to deviate from basal approaches to meet more students' needs" (p. 469). The researchers attributed the results to the facility of hand gestures to make abstract comprehension ideas visually concrete, a theory that is very relevant to drama and this present study. And very recently, the November 2014 issue of *The Reading Teacher* carried an article by Fisher and Frey about the close reading of instructional texts at the primary level. They stated that informational texts needed to be read 'purposefully' and that, "Close reading should result in something" (p. 225). For both primary and upper grades the authors proposed that 'presenting' information found in texts motivates close reading. I believe

the time is right for drama to reconfigure itself as a (re)presentational mode of learning well suited to a new emphasis on informational texts. It needs to shed its 'narrative clothing' and show how it can respond to the challenge of helping students engage meaningfully with subjects, such as science, that predominantly use informational texts to convey content.

Process Drama

> "Process drama proceeds without a script, its outcome is unpredictable, it lacks a separate audience, and the experience is impossible to replicate exactly" (O'Neill, 1995, p. xiii).

As O'Neill's quote illustrates, process drama, is not about putting on a play and there is no sense of a 'fourth wall.' Students are simultaneously participant and spectator. The learning happens *as* it is experienced (Varelas et al., 2010) and therefore requires 'buy-in' by the entire class, "Drama operates best when a whole class together shares that meaning making" (Heathcote & Bolton, 1995, p. 4). This does not mean that a teacher is inactive in process drama and one of process drama's most influential figures, Dorothy Heathcote, makes clear the teacher's responsibility is to plan themes that will motivate the students, "Process orientation means devising programs and tasks which induct through first intriguing, then engaging and interesting our pupils" (1984, p. 179). One way of doing this is to scaffold the learning opportunities so that the students become responsible for the direction that the drama takes, "The drama thus always incorporates the students' ideas and suggestions" (O'Toole & O'Mara, 2007, p. 211). As such it mirrors the process of eliciting background knowledge to activate reading comprehension, "what children learn in a drama has to do with what they already know about the subject, but at the same time, [the drama] contributes to that knowledge" (Varelas et al., 2010, p. 304). In describing one of drama's unique attributes - seeing from another's viewpoint - Heathcote also aligns role play with activating background knowledge, by "putting yourself into

other people's shoes and, by using personal experience to help you to understand their point of view, you may discover more than you knew when you started" (1984, p. 44). However, as this quote suggests, drama has that 'something special' that goes beyond background knowledge and 'text to self' identification. In process drama, seeing from the perspective of another is about imagining alternative ways of being and has been researched as a tool for studying events and characters in a language arts and social studies context (Duffy, 2014; Schneider, Crumpler & Rogers, 2006; Wilhelm & Edmiston, 1998).

Often used to enhance reading and writing experiences, process drama's effectiveness is perceived to lie with its ability to give context (Mages, 2006) and its requirement for students to actively engage with texts (Crumpler, 2006; Wagner, 1998; Wolf, Edmiston & Encisco, 1997). And crucial to this sense of engagement is that it happens in a social context, "Together as students enter into their imagined contexts, they gain new insights whole collectively negotiating meanings and problems in spaces where my story is shaped by yours, and yours by mine" (Winters, Rogers & Schofield, 2006, p. 38). As this quote demonstrates, process drama fits well within a Vygotskian framework and a sociocultural perspective, because it explores situations and dilemmas as social, not privatized, phenomena (Bolton, 1985; Neelands, 2009).

Drama and Science

In schools, drama is more commonly integrated into language arts and social studies than science (Alrutz, 2004). This could be because drama and science represent the curriculum equivalents of the mind/body divide that has already been discussed. This divide in popular notions of the two subjects can be found in the following statements, "Most students see science as rational, cold, unexciting and lacking any emotional content" (Valeras et al., 2010, p. 322) and "Dramatic activity is seen as an exceptionally strong motivating device – it stimulates interest, it

activates new insights, and it encourages more open expression of ideas and feelings" (Koziol, 1973, p. 4). However, despite being perceived as polar opposites on the curriculum spectrum, a review of the literature on science and drama reveals a persistent body of research that has attempted to position drama as a tool that enhances the understanding of science concepts (Hendrix & Eick, 2014; Hendrix, Eick & Shannon, 2012; Littledyke, 2004; McGregor, 2014).

Hendrix and Eick recognized the disparate views of the two subjects when they wrote, "We wondered how science inquiry, when combined with an unlikely discipline like drama, could produce a better understanding among our fourth grade students of how a sound wave travels through matter." (2014, p.37) While acknowledging that the combination of science and drama is 'unlikely,' many researchers attempt to draw them together by emphasizing the creative aspects of science, "Science students need to know that scientists are creative individuals who use their imaginations to discuss, explain, and hypothesize in science." (Shanahan & Nieswandt, 2009, p. 64) And according to Hendrix, Eick and Shannon (2012) the elementary years are crucial for connecting creativity with science learning and thus impacting students' later attitudes towards science.

Attention has also been drawn to the prevalence of conceptual 'models' in science "to visualize abstract ideas" (Varelas et al., 2010, p. 303) and how drama, as a representational *mode*, can be used to "make thinking more explicit" (McGregor, 2012, p. 1161) and to present abstract concepts in science through analogy, metaphor and story (Shanahan & Nieswandt, 2009). MacCormac (as cited in Shanahan & Nieswandt, 2009) wrote of the power of metaphors to make abstract ideas accessible because they "have a hypothetical nature, they suggest possible meanings to us" (p. 64). Prain and Waldrip (2006) argue for students being able to represent scientific ideas through a *range* of multimodal opportunities, "From a pedagogical perspective

we assumed that student engagement with, and integration of, diverse representational modes was likely to enhance learning by encouraging students to make explicit their knowledge of underlying science concepts and methods across modes" (p. 1845). They believe that different modalities are suitable for different aspects of scientific knowledge and they list drama as being particularly useful for representing the topology of a concept. This belief was borne out in the results of research conducted by Hendrix, Eick and Shannon, "Dramatizing the science concepts by the children led to the connection that a sound wave is a rapid back and forth motion that produces sound" (2012, p. 835).

Previously I described process drama as a mode of learning that is driven by the creative decision making process of the participants and therefore has an unpredictable, 'of the moment' dynamic. Similarly, Pappas noted, "When children are engaged in hands-on science inquiries, they have here and now experiences" (2006, p. 229). As with process drama, scientific knowledge advances through *active learning* that leads to discovery. In 1992, Kase-Polisini and Spector made a case for the similarities between science and 'creative dramatics' as both 'doing' activities that involved problem solving, learning through discovery, open-ended questions and teachers building on background knowledge. Interestingly, the researchers believed that drama was "particularly valuable" (p. 18) to science because it involved cooperative learning, listening to others and "getting in touch with their own bodies" (p. 18). In a quote that invoked the notion of content area chiasm, the researchers stated that "In the process, arts experiences and science experiences become one" (p. 18).

In a quasi-experimental research study, drama teaching was found to make a significant impact on the ability of the students to explain and interpret scientific information (Metcalfe, Abbott, Bray, Exley & Wisnis, 1984). The researchers contended that the results gave credibility

to drama as "a vehicle for developing important insights" and asserted this was because it was taught in a "concrete (i.e. non-disembodied) form" (p. 80). They described the activities of students embodying the movements of molecules in response to heat and similarly Alrutz documented how students embodied positively charged atoms through their "walk, vocal choices and facial expressions" (2004 p. 31). And Varelas et al., (2010) reaffirmed the importance of the children's somatic engagement with the science content,

> Through their bodies they negotiated ambiguity and re-articulated understandings, thus marking this embodied meaning making as a powerful way to engage with science. Furthermore, children's whole bodies became central explicit tools used to accomplish the goal of representing this imaginary scientific world. (p. 302)

These are important words. Using their bodies helped the students understand abstract concepts, which is a finding with direct application to the present study on the use of tableau with texts about the Earth and the solar system.

Tableau and Main Ideas

Throughout the literature on reading comprehension, the importance of direct and explicit teaching was consistent. This is generally assumed to be a style of teaching where the teacher is the active guide, but in the creation of a tableau, the students are the more active agents, "Yet whether tableaux are used pre- or postreading, their most important contribution to comprehension may be that they allow readers to be active and generative" (Tortello, 2004, p. 207). The defining feature of a tableau is that it is a silent image, which "offers children a non-language dependent medium through which to think about ideas embedded in literature and to grow as thinkers" (Wilson, 2003, p. 375). In opposition to basal readers, Wilson positioned tableau as challenging the "verbo-centric scripted reading programs published by major

companies" (p. 375) and described its worth as "a thinking action" (p. 376), a term that resonates with the title of an article by Glenberg, Jaworski and Rischal called "Brains are for action!" (2007). Such claims dismantle notions of a mind/body divide that a growing number of researchers are seeking to refute (Lindgren & Johnson-Glenberg, 2013).

Earlier, I stated that main ideas in narrative texts emerge from the important events in a plot. Alison Downey described how she assigned seventh grade students the task of depicting the 'major events' of a poem through a series of tableau. For the students, "who tended to talk their way out of any situation, it was a challenge requiring greater focus to condense all they would say about an event into a silent image" (2005, p. 34). The focus poem "Hangman" by Maurice Ogden is about the consequence of failing to take a stand against the persecution of others. In the introduction to the article, Downey made the following observation, "One of the great difficulties in teaching about horrific periods in history, the underbelly of human experience, is addressing how to help students comprehend the incomprehensible" (p. 33). And after describing the application of tableau with the poem, she reported a greater *affective* comprehension of the poem, "The students seemed to recognize that in every image they were part of the problem; they participated in the violence" (2005, p. 37). I would describe this as an example of what Fountas and Pinnell call comprehension continuing after the specific literacy event; the readers "use their experience and extend from it" (1996, p. 156) which, according to Wilhelm "is exactly what highly engaged readers have been shown to do" (1998, p. 32).

As well as representing main ideas through tableau, the present study investigated the representation of main ideas through writing in role. The next part of the study therefore presents a review of literature on writing in role.

Writing In Role

In this section, traditional classroom writing is framed as a problematic form of text production for elementary aged children. As a remote sign symbol (Vygotsky, 1978), writing initially appears removed from their lived experiences. Teachers are therefore called upon to contextualize writing and to make it meaningful for their students. The literature that is reviewed deals primarily with studies that have investigated the impact of drama on writing composition.

Embedded context. "Dramatization however provides a tangible context for decontextualized language" (Mages, 2006, p. 335).

Vygotsky wrote about the importance of making writing relevant and meaningful for young children so that an "intrinsic need" to write is "aroused" in them (1978, p. 118). Drama practitioners and theorists have often viewed drama as providing those properties. In 1993, Neelands, Booth and Ziegler maintained that when "writing is embedded in a context that has personal significance for the writer, the motivation for writing changes drastically " (p. 10). Context provides a purpose and a motivation for writing and as Neelands et al. suggest, this in turn leads to a sense of personal investment in their writing by the students.

In research conducted by Cremin, Goouch, Blakemore, Goff, and Macdonald (2006) the writing in role 'fractured' traditional linear writing practices. The drama experience didn't *lead* to writing, instead the composition occurred at moments of high tension in the drama, and the 'embedded' context resulted in quality writing, "The writing which was rapidly produced often became a vital and connected part of the imagined experience" (p. 276). There is a sense here that the writing and drama enjoyed a symbiotic relationship.

Multiple voices. "The students were involved in a great deal of writing that required them to shift perspectives frequently." (Schneider & Jackson, 2000, p. 48)

According to the research, a sense of context also influences the 'voice' of the writing. An effective writing voice as defined by McNaughton (1997) is when "the characters sound more authentic and give the reader a sense of the writer's involvement with the character" (p. 79). Authenticity of voice in writing is enhanced by the experience of being 'in-role,' i.e. pretending to be someone else and to view the world through their eyes (Adomat, 2012). As an art form, drama uniquely operates through the perspective of 'another' (Heathcote, 1984), which has noted implications for writing, "Both in and out of role, the students learned many details of the immigrants' experiences, and, subsequently, these children were able to assume perspectives and write in roles that were very different from their own lives" (Crumpler & Schneider, 2002, p. 74). Also, because process drama is a collaborative practice, students are exposed to multiple perspectives, "Within process drama, their writing is open to the additional interpretations and transactions of other classmates and their teacher" (Crumpler & Schneider, 2002, p. 78). This exposure to other perspectives can also help furnish an individual's imagination.

Firing the imagination. "The time taken for the drama activities was offset by the ability of Group Two to start writing quickly. As Peg put it, 'they seemed to know exactly what to write and how to get it on paper.'" (McKean & Sudol, 2002, p. 34)

In McKean and Sudol's research study, the drama helped students overcome the initial 'I don't know what to write about' hurdle. Many drama practitioners have attributed similar findings to drama's capacity to stimulate the imagination. Imagination has been described as a cognitive function for realizing 'what if' possibilities (Broudy, 1987; Dewey, 2005; Eisner, 2002) and drama specializes in the realm of 'what if' (Boal, 1995). Tortello (2004) wrote that tableau offered a "concrete reference to spark writing activities" (p. 207) and Lenters and Winters (2013) spoke of multimodal approaches to composition that 'ignited' student writing.

Moore and Caldwell (1990) posited that the drama activity acted as a 'rehearsal for narrative writing' because it stimulated ideas, and as a consequence of imagination, Cremlin et al. (2006) alluded to the creative risks that students were more likely to take in their writing, such as "unusual associations" and "particularly evocative language" (p. 289).

Deep learning. "[T]he embodied practices of drama move the input space of the classroom curriculum to an embedded memory of doing. Drama is after all, doing. It turns out that that learning and transfer are too" (Duffy, 2014, p. 96).

In recent research on drama as a tool for learning in a social studies context, Duffy defined 'deep learning' as learning that blends curricular 'third person' material (i.e. textbooks) with a 'first person' orientation. The students in the study experienced this first person perspective by role-playing fighters in the Revolutionary War and subsequently writing from this stance. The research compared compositions written by students who had and had not experienced being in role. Duffy concluded that the 'treatment' of blending a third person and first person perspective facilitated the transfer and retention of historical information; in other words 'deep learning' that was both effective and affective.

In another content area study, the researchers investigated the use of process drama to impact 'the writing of science' (Warner & Anderson, 2004) The experimental study concluded that compared to a control group, both the quality and quantity of the writing was positively influenced by the experience of learning through process drama conventions. It was observed that the 'drama students' wrote in "phrases, sentences and drawn pictures" (p. 81) and were more motivated to write down their findings when compared with the control group.

Writing in role as an inclusive practice. "What is significant is that the students in this study were able to translate those experiences (namely those from the drama) into the paper and

pencil activity of writing and increase their abilities to succeed in the more traditional tasks of school." (McKean & Sudol, 2002, p. 30)

As a shared rather than privatized learning experience, drama can help students who are considered linguistically disadvantaged. McKean and Sudol's research (2002) claimed writing in role was particularly helpful for low achieving writers and they attributed enhanced writing quality to the experience of being in a tableau. Each student was required to think of a line of dialogue for the character they were depicting. When sharing their tableaux, the students were exposed to the dialogue choices of all their classmates and this "expanded their possibilities for word choice when they got ready to write" (p. 32). In addition, research about the use of drama with English Language Learners has positively reported the drama contextualizes language use for both speaking and writing purposes (Brouilette, 2012; Stinson & Winston, 2011; To, Chan, Lam & Tsang, 2011).

Summary

In presenting a review of the literature on main idea, I have outlined changes in the teaching of main idea that have occurred in response to shifts in the reading comprehension discourse. One consistency has been the view that the ability to find main ideas is an important reading comprehension skill and notable reports have called for the direct instruction of such skills. The meaning of 'direct instruction' has evolved over time but is generally understood to be the instructional modeling of a particular skill, followed by opportunities to practice and apply the skill. However, this kind of teaching involves mostly text-based representations and minimal research has been conducted on using the body to identify and represent main ideas. This study presents the embodied representation of main idea as an alternative strategy for making the

activity of main idea identification purposeful and representing main ideas in visual and tangible forms.

A review of the literature on science and drama reported on research that has sought to recognize the similarities between the subjects. Creativity and 'in the moment' learning were highlighted as dynamic experiences that both disciplines share. And the prevalence of models within science teaching has also been used as a rationale for teaching science through embodied dramatic structures. Tableau is such a structure but the review described how it has been under utilized as a resource that helps students visualize important events and concepts in texts. This study proposes tableau as a multimodal approach for studying informational text and representing main ideas.

Chapter 3: Methodology

Research Questions

In education, formative experiments have emerged to investigate the effectiveness of an intervention to achieve a specific pedagogical goal (Reinking and Bradley, 2004). My pedagogical goal was to privilege the body as a tool for literacy learning in an elementary classroom. Specifically, I selected tableau as a dramatic structure to serve as the instructional intervention to mediate students' learning of content from science information texts. My essential question was, "What does tableau do?" To answer that essential question I proposed the following research questions:

1. How did students represent main ideas from science information texts as a tableau?
2. How did students represent main ideas when writing in role?
3. What were student and teacher reactions to tableau as an embodied learning experience?

In order to research these questions, I planned an intervention of six sessions that combined the reading of informational text with the process drama convention of tableau.

Research Design

I based the intervention of tableau in a third grade classroom on a formative experiment (Reinking & Bradley, 2008). This methodology is particularly suited to classroom research and the theoretical framework for this study. According to Reinking and Bradley (2008), formative and design experiments and 'activity theory' "share common ground" (p. 27) because they both

recognize activity as happening in a particular, place, time and culture. Because of the design's connection with activity theory, the influence of Vygotsky is widely acknowledged in formative and design experiments. Reinking and Bradley (2008) reference neo-Vygotskian scholars such as Denis Newman and Michael Cole as believing that "the lack of ecological validity in conventional studies" (p. 28) does not represent learning as a socially dynamic practice. As a research site, a classroom is 'ecologically' complex (Bradley and Reinking, 2010), and in contrast to scientific experiments that seek to control for complexity, formative experiments are foregrounded with the understanding that a research intervention will shift and respond to the realities of an authentic setting. In a formative experiment a researcher not only records all modifications that are implemented, but views them as part of the data that will ultimately inform the research findings. In this study, I present all the modifications that were made during the study.

Research Context

The research was conducted in a charter school in a semi-rural area that borders a large southeastern city in the United States. The school is known for its ethos of environmental stewardship and this is reflected in campus features such as large, strategically positioned recycling bins, a butterfly garden and a vegetable patch that the students tend. The energy efficient classrooms look like wood cabins and the front office has the appearance of a building you would find at the entrance to an outdoors recreational center. When I visited the school for the first time I was struck by how much it differed in ambience and design from other schools I had visited in the same school district. It did not look utilitarian and functional, rather, welcoming and in keeping with its rural surroundings.

I met with the Assistant Principal in the semester prior to the research and explained my plans for the research. She was excited about the study and selected the particular class I was to work with and gave me the contact details of the teacher. I met with the teacher, Ms. Kay (a pseudonym), one day after school and talked with her about my research intentions. She responded enthusiastically and expressed excitement that the students would be reading nonfiction and learning science concepts in a different way. We discussed a timeline for the research and she explained that the unit on "Earth Science" had been planned for the beginning of the spring semester. I said I would be happy to plan a series of lessons based on that theme. She gave me a copy of the teacher's guide to help with lesson planning and five weeks later I started the research.

Participants

The participants were 21 third grade students and their teacher Ms. Kay. There were 12 girls and nine boys in the class; three of the students were Hispanic, three were Black and 15 were White. The teacher, Ms. Kay, was White and had been teaching at the school for six years. She had not taught anywhere else and was deeply committed to the values of the school having, in fact, attended the school as a child. As the class teacher and 'knowledgeable other' of the students and the curriculum, I regarded her voice as an important contribution to the research.

Researcher Background, Role and Influence

I am a White female with 21 years experience of teaching students from the primary years through middle school. I taught in public elementary schools in England from 1990 – 2001 and at a private Episcopal school in Florida from 2001 - 2011. I have been both a general classroom teacher and a specialist drama teacher and I was aware that I carried traces of that teacher's identity into the study site each week; I was uncomfortable when the classroom got

loud (which it did often) and mindful of Ms. Kay sitting at the back of the room each session, I wondered what she 'thought of me' as an instructor.

In this study, my role was both researcher and instructor. As the instructor I was responsible for planning and teaching six lessons about the Earth and its place in the solar system. As the researcher my pedagogical goal was to have students use their bodies, through the intervention of tableau, to represent main ideas. Operating within a formative design context I made changes during the research study, as will be detailed. This made my role particularly influential in affecting both the experience of the study for the participants and the final outcome of a research document (Postholm & Madsen, 2006).

My Asides

My decision to keep reflexive notes in the form of 'asides' was in part to track these changes that altered the trajectory of the research week by week. However, I was also mindful that in a study about embodiment, I needed to track my "self-perceptions, methodological setbacks, and mental states" (Heath and Street, 2008, p. 123) through the course of the study. Often written in the car, either at the school site or in the university parking lot, the reflexive notes were an immediate, personal response to what had just happened in the classroom and they describe the frustrations and celebrations that come with conducting research. Although short, their presence recognizes "researchers as a vital part of the action" through evoking "a closer connection between our research texts and the lives they represent" (Bochner, 2012, p. 157). Inscribed with a highly subjective voice that details my response to the research sessions, they remind us that research is as much about the researcher as the researched.

In this chapter, I call my reflexive notes 'asides' and I include them in their original format after each session description. I also include a poem I wrote after the fifth session. Donna

Alvermann describes asides as examples of narrative inquiry that provide "a temporary release from the constraints of academic writing" (2002, p. 51), and that is how it felt when I was writing them. The asides and the poem were embodied bursts of a spontaneous response that did not have to conform to the traditional rules of research reports. Asides are traditionally found in plays to reveal a character's inner thoughts, but in this study they 'show' my other researcher voice, a voice that I believe is more authentically mine and reveals the struggles I had with identifying myself as a researcher and the work I was doing with the students as 'proper research' (see Figure 2).

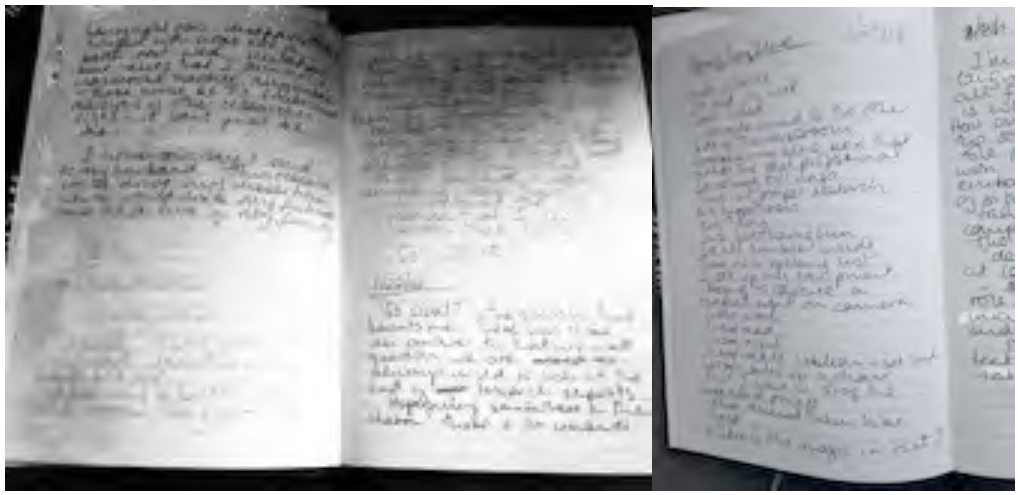


Figure 2. Images of my asides (left) and the poem "Rainy Day Blues" (right).

The Texts

The students in the class did not have individual science textbooks but the teacher used the *National Geographic* (2011) teacher's guide for Earth science as the curriculum guide. The teacher's edition showed what was on each page of the third grade student textbook and had supplementary information for teachers. I used the texts that were shown to be in the student textbooks as the basis for five out of the six texts that I gave to the students each week. The other text I used came from a book called *The Sun* by Seymour Simon (1996). This alternative text was

chosen because the information about solar eclipses (session 4) was accompanied by stunning close up photographs of the sun. I copied two out of the six texts directly from the primary source, and the other four were adapted to make them about the same length as each other. Mindful that the sessions could only last one hour, I was concerned that if some texts were longer than others, there would be less time to create and present a tableau of the text. (See Appendices A - F for the six texts used in the sessions).

Student Groups

Prior to meeting the students I used a class list to randomly assign the students into five groups; four groups had four students and one group had five students. I felt these group sizes would allow everyone to be able to contribute when planning the tableaux. I decided to assign groups because classroom drama is a collaborative activity that involves exposure to multiple viewpoints (Gallagher, 2007) and learning to work with those who students would not necessarily choose as 'friends' is a benefit of drama in the classroom. In a recent article titled "What's So Great About Drama Class? Year 1 Secondary Students Have Their Say" (McLauchlan and Winters, 2014), a reported finding was the students' appreciation of drama as providing opportunities for making "friends with people you thought you'd never be friends with" (p. 58). Although the students in my study were younger than those in the Canadian study, I hoped for similar outcomes as a result of the collaborative work.

The Sessions and the Asides

The intervention of using tableau as a dramatic structure to mediate students' representation of content from science information texts occurred over six sessions during a period of four weeks. Drama structures, such as tableaux, are easily learned, but given that they require students to respond in different ways, they are never consistently enacted. The procedures for tableaux

work were the same every week, but the evolution of the students' use of tableaux takes different forms over time. Given that I was a stranger and the students had not used tableaux, I felt that six sessions would provide students with enough time to become familiar with the techniques and for me to get to know them.

All six sessions took place in the afternoon and lasted about one hour. Each lesson had a similar structure that comprised four components:

1. Drama games
2. A read aloud
3. Tableau - preparation
4. Tableau – presentations

Each session described below is accompanied by an 'aside,' and session 5 by a poem.

Session 1 (01/15/14). Below I provide a detailed description of the first session using the four lesson components as headings. Sentences or parts of sentences in quotation marks have been taken from my lesson plan. Following the description of session one, I describe all subsequent modifications that I made in response to questions that evolved and events that occurred during each session. This method is consistent with a formative design study.

Drama games. While the students were seated at their desks, I introduced myself to the students and explained that the purpose of my research was to study drama as a means to learn about science. I invited them into a space that was free from desks and chairs and we played an icebreaker game so I could start to learn names. I followed this activity with a drama game that involved becoming different 'objects.' I asked them to each make the shape of a tree and then, as I counted to five, to transform into a rock, then from a rock to a house, from a house to an elephant, from an elephant to a pencil and from a pencil to "yourself." I wanted them to become

comfortable with using their bodies to represent a variety of objects and to get used to the idea that drama did not always involve speaking.

After this activity I asked them to sit on the floor and I explained we would be doing a lot of work through "tableau." I told them that "tableau" was a French word and in drama it means a "picture made from real people." I asked them to close their eyes and to imagine a park. I asked for a volunteer to be a "director" for a "practice tableau." I explained that the director would be responsible for placing five classmates in a space and asking them to pose either as a person, animal or object that could be found in a park. A student raised her hand and I asked her to create a tableau of a park. When she had positioned the five students in the tableau space, she explained what they were and I drew attention to the use of their bodies to depict objects, animals or people while being absolutely still and I made comparisons between a tableau and a photograph - a photograph is two-dimensional while a tableaux is three-dimensional; a photograph exists on paper or screens while a tableau exists in space; in photographs, the camera can zoom in or out on objects while a tableaux is human-sized (although objects can be represented in different proportions and through different mediums).

A read aloud. I explained to the students that over the next few weeks we would be "learning about the sun, the stars and the Earth" and that they would be working in groups to create tableaux of information from science texts. I explained the groups would stay the same for the six sessions and I read out the groupings. Then I gave each student a copy of the science text for the session and I read the text aloud.

Before the students moved into their groups to create a tableau I gave the following directions:

- In your group re-read the science text (I believed that familiarity with the text would help with the process of representing it)
- As a group decide on the main idea in the text.
- Write this main idea as a sentence on the sheet provided (I believed this would give them a focus for their representative tableau)
- As a group decide how you are going to show the main idea sentence through a tableau.
- Practice the tableau (I wanted the students to use their bodies to try out ideas rather than sitting and discussing ideas for presentation).

I advised them they would be given about ten minutes to plan and create their tableau and then each group would present it to the rest of the class.

Tableau – preparation. As they moved into their groups to begin planning for the tableau presentations, I turned on the audio recorders in the middle of each group. I gave a sheet to each group on which they were to write their 'main idea sentence.' During the planning time I circulated among groups, observing student process and answering questions.

Tableau – presentations. When all the groups had finished planning and practicing their tableaux, we gathered together as a class in the same area where we had played the drama games and created the 'park tableau.' I invited each group to present their tableau and as they did, I took photographs of the tableau as well as photographs of individual poses within the tableau. Then I asked the 'spectating' students from the other groups to guess a 'main idea sentence' that would match the tableau being presented. I asked the participants in the tableau to remain 'frozen' and listen to the suggestions without indicating if they matched with what their group had written. When several suggestions had been made, I asked for a participant of the tableau to read aloud

their group's main idea sentence from the sheet. The first session concluded when all the groups had presented.

> ***Aside (01/15/14):*** *I forgot to check they knew the term 'main idea.' I erased the recording of group four. I sound like a bossy English teacher. You can hear the irritation in my voice as they don't listen to me. Phew - I have not erased the recording of group 4 and you can hear them – most of it. Next week I shall return with a new science text, new drama games and technology firing on all cylinders. I have never read a research report where the researcher admits to erasing crucial data* [I had not but for a moment I thought I had] *or feeling irritated or not like a proper researcher. But these feelings I am having right now – disappointment tinged with hope for a better next week, relief that I am not a classroom teacher anymore – these must be the embodied reactions of other researchers right – it can't just be me?*
>
> *"A momentous day" I said to my husband. This research would drive my dissertation, which would drive my future and the future of my family.*

Session 2 modifications. As I reviewed the photographs at home from the first session, I realized that I had not asked the students to explain what roles they had been depicting in the tableaux. This would impact my ability to answer the research question, because if I did not know what they were in the tableau, I would not know how they were representing main ideas. Therefore I began the second session with showing the photographs that I had taken the previous week and asking each student to tell me what their role had been in the tableau. This was time consuming but the students enjoyed looking at the photographs.

Another modification also happened as a result of reflecting on the first session. I recollected that I had not determined if the students understood the term 'main idea.' I felt this

was a significant omission on my part because one of the directions I had given the students was to identify the main idea in the text. I apologized to the students that I had not checked to see if they knew what 'main idea' meant and I asked for suggestions. A student raised his hand and offered this definition – "what it's mostly about." I said this was a great explanation and I repeated this phrase in all future sessions when I needed to remind students what a main idea was.

The final modification took place when the students were presenting their tableaux. Due to time constraints I allowed the spectating students to suggest no more than three ideas for the 'main idea sentence' of a tableau presentation. In addition I asked each student to say what role they were depicting in the tableaux and I made a note of each student's role as this would help with the analysis of main idea representation in the photographs.

> ***Aside (01/21/14):*** *I gave recorder #5 to group 3 and vice versa. Typical. I was getting too confident, something had to humble me. Definitely a better vibe in the room. They started calling my name as I walked into the cafeteria. That made me happy. Of course I want them to like me. Observations – when I ask them to comment on a tableau of others, they often say what role they think their friends are playing. Why won't they behave and say amazing, deep things that will answer the "so what?" question that I fear haunts this research. So what!*

Session 3 modifications. With the first two lessons, I had been interested in how a group had collectively embodied their main idea sentence through tableau. With lesson three my interest shifted to the individual embodiment of roles so that I could look more closely at posture and gesture as representing main ideas (Branscombe & Schneider, 2013). Consequently, when groups presented their tableaux, I asked the spectating class members to look at each still pose in

a tableau and guess the role being depicted. After a couple of guesses from peers, the student playing that role announced who or what they were.

Aside (01/22/14): *"So what?" is the question that haunts me. There has to be an answer to that ultimate question we are always urged to ask at the end of research reports. Hopefully somewhere in the data there is an answer to that question.*

Today's technology glitch – I didn't have group 4's recorder so I had to use my phone. I hope it is at home…

Session 4 modifications. This session had two main modifications: a colleague filmed the students practicing and presenting their tableaux and the students wrote in role. Through the writing, I hoped to understand each child's perspective on the role he or she played within the scene and then look for connections back to main ideas. When each group presented their tableau, I asked the students to go back to their seats and write down the thoughts of their 'character' in the tableau, for example I said, "If you were the sun, write as if you were the sun, what were your thoughts at the moment you were in the tableau?" In writing about ways to foster and teach reading comprehension strategies of informational text, Duke, Pearson, Strachan and Billman (2011) call for a "bidirectional relationship" between reading and writing about informational text (p. 76). They believe that "revisiting and re-representing important ideas in many modes" will lead to "improved comprehension" (p. 79). Similarly with this modification, I was giving the students another mode (writing in role) to represent main ideas in informational text.

Aside (01/28/14): *Jenifer observed me today and encouraged me basically to just be myself. The 'main idea' idea has almost become unimportant – the kids are excited just to move and interpret and present. Harry showed me excitedly his science book which had*

pictures of the planets – that's when you know you are making an impact. The kids are loosening up and beginning to play more. It felt good. Today's lesson was about solar eclipses – the moon coming between the earth and the sun and blocking the light. I love that – so mystical – I wish I could go with that. It's also made me realize how interested I am in the solar system and how little I know.

Session 5 modifications. So far the students had remained silent and still as they presented their tableaux but at this stage in the study I wanted to know what would happen to the representation of main ideas if I changed the form of tableau. I was acting 'on a hunch' and out of a pedagogical desire to keep the drama work interesting for the students. Therefore I made two modifications that changed the presentation format of tableau. As the groups presented, I asked the participants to speak a thought that their character was having at that moment. Once everyone had done that, I told the students that their tableau could "come alive" for five seconds and each student could move in a way they felt was appropriate to their role.

***Aside (01/29/14) and poem**: Rainy day and you know what that does to kids. Quite antsy but not unreasonably so. I reviewed yesterday's work on the eclipse using 3 volunteers holding different sized balls – seemed to work quite well.*

When I told them they would be able to move for 5 seconds when they present their tableau, they were excited about this. But to me, the movement piece wasn't as successful visually as the tableau. I also had them speak their thoughts but again not as successful as having them write them. Some said they didn't have a thought and some didn't really reflect content.

(After writing the notes above, I felt inspired to write a poem. I remember sitting in my car in the USF parking lot by the Communications building. It was a wet, gray, cold afternoon and it reminded me of England)

Rainy Day Blues

Kids outside.

It's cold, it's wet.

Door locked,

I struggled round to the other side of the classroom

Carrying my blue box that

Makes me feel professional.

Something still nags.

This isn't proper research.

No hypothesis

No theory

Just kids having fun.

We all tumble inside.

They do a spelling test.

I set up my equipment

Hoping to capture a

Magical event on camera.

They work

They read

They argue

They create tableau and get loud.

Lauren falls off a chair

And I have to stop the creative process

And remind them to be safe.

Where is the magic in that?

Session 6 modifications. This was the final session of the research study and I wanted to return to a focus on embodiment through the original format of presenting the tableaux as silent and still representations of main ideas. After the presentations of tableaux, the students were asked again to write in role and to complete two different reflections sheets on the experience of the study.

***Aside (02/4/14)**: Last official Research gathering data altho' I will continue to go in. Voice recorder for group 4 – the one that I was using to record the presentation of tableaux piece - froze/jammed and I'm not sure if it recorded anything.*

I had a couple of them ask if they could do different groups. I said no. Quality didn't feel so good today – I think they have "peaked"! I don't know.

Summary

Table 2 summarizes all the modifications that were made over the course of the study that were made in response to evolving questions and events.

Table 2

Summary of Session Modifications

Session	Modifications for Session	Purpose of Modification
2	• The students told me what role they had played the previous week • We determined a definition of 'main idea.'	• To inform research question about representation • To have a 'go to' definition of main idea for future sessions.
	• The students told me their role as they presented tableau	• To inform research question about representation
3	• Spectating students guessed the roles being played by the students in the tableaux.	• To draw attention to the use of gesture and posture to represent role.
4	• The session was filmed • Writing in role after tableau presentation.	• Another source of data for recording student process • An alternative mode for students to represent main ideas from science text.
5	• Speaking in role and moving in role when presenting tableau.	• To see if this would affect the representation of main ideas. • Make tableau presentations more interesting for students.
6	• A return to tableau presentations as silent and still • Writing in role after tableau presentations • Reflection sheets on the study after writing in role	• Focus on representation through held poses. • An alternative mode for students to represent main ideas from science text. • To inform the research question about student reactions to the study.

Data Collection

Formative experiments allow for varied sources of data collection in pursuit of the pedagogical goal and research questions (Reinking & Bradley, 2010). It is understood that new sources of data may be added to the data collection process in response to the modifications that are made along the way. For example, I did not have the idea of incorporating writing as part of the research until I wondered whether writing in role would inform the research question about student representations of main ideas. The data I collected therefore sought to inform the representation and embodiment processes of students as they planned and represented main ideas through tableau and the data sets were:

- Audio data of the students planning tableau
- Photographs of final tableau presentations
- Time-lapse images
- Video of session four
- Student writing in role compositions
- Student response sheets
- Semi-structured interview with the teacher

This varied collection of data sources provided an opportunity to look at the experience of tableau from different perspectives and yet search for a common experience that would answer the essential question at the heart of this research, "What did tableau *do* in that third grade classroom?" Figure 3 shows the three research questions as separate inquiries that seek to answer the essential question "what did tableau do?" through overlapping connections. The overlaps between the domains indicate my curiosity to see if observations about representation in tableau

were also to be found in how they represented main ideas in their writing in role and if the students spoke of the process of representation in their responses.

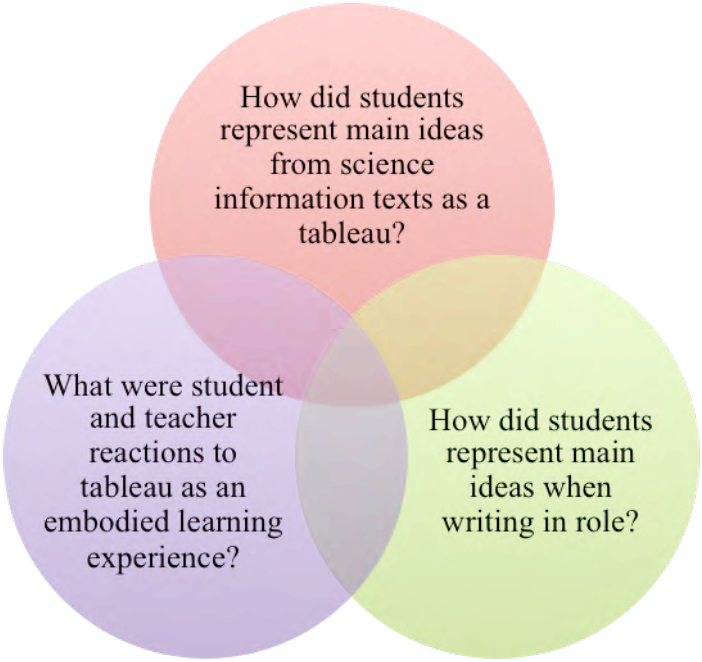


Figure 3. Venn diagram of research questions.

Audio Data

The collection of data through audio recordings was an important data source. Vygotsky believed the purpose of speaking was to communicate *with others* (1986). The audio data was therefore intended to be a record of students communicating with each other as they worked toward the shared goal of creating tableau. I recorded student talk by placing an audio recorder in the middle of each group. I switched the recorders on when the students gathered in their groups to make plans for representing main ideas through tableau and I switched them off when the students gathered as a class to present the tableaux.

Douglas Barnes (2008) believes teachers need to give greater consideration to the types of talk they make possible in their classrooms. He counsels that the way teachers organize communication in the classroom will affect the how and what of student learning. When

introducing new ideas, he advocates a constructivist approach that prioritizes 'exploratory talk,' which he characterizes as "hesitant and incomplete because it enables the speaker to try out ideas, to hear how they sound, to see what others make of them, to arrange information and ideas into different patterns" (p. 5). This notion of ideas being re-formed as they are spoken aloud is in accordance with Vygotsky's (1986) belief that speaking shapes cognition and particularly so when developing ideas alongside others (1978).

The discourse that resulted from student interactions was intended to provide an insider's perspective (that of the students) on the processes of representing main ideas as the students prepared their tableaux. I did not intervene in their discussions unless they asked a question. I made the methodological decision to not 'interrogate' the students about their creative choices and to not ask them why they showed ideas in certain ways in case I derailed their decisions. As Daniel Walsh writes, "[Children] have come to expect that when adults ask them questions, either the adult already knows the answer…or they are in trouble" (Graue &Walsh, 1998, p. 113). I hoped that any "why" questions I had would be answered in the recordings of their discussions.

Photographs of Tableaux

The photographs documented final tableau presentations and provided visual evidence of the students' physical embodiment of main ideas. I took a photograph of each group's tableau as they shared it with the rest of the class so that I could later use the photos to analyze how students used their bodies to represent roles and scientific concepts. Sometimes I photographed individual students within the tableau to focus on facial expressions and gestures. At other times I photographed a group from several angles to record details that could not be seen by standing in front of the tableau and taking a picture.

Time-Lapse Photographs

In the corner of the classroom, I set up a camera with a time-lapse function to capture each session. I positioned the camera to have the best scope of the room and I programmed it to take a picture every five seconds throughout the sessions. In addition, the 'fixed' position of the camera provided a different frame of the events compared to my perspective which was constantly changing as I moved around the room (Persohn, 2014). In total 3474 pictures were taken during five out of the six sessions (unfortunately the camera did not work for the second session) and the average number of pictures taken per session was 695. The pictures captured 'static action' and so I also converted them into 'movie' files to observe the "flow, patterns and shapes of movement" (Kozel, 2007, p. 220) within and across sessions. The average length of each movie file was 23 seconds.

Video

A colleague took video footage of the students in session 4. I did not direct the colleague but I asked her to record each group's process of preparing a tableau. As a data source, the resulting videos captured students' working practices in 'real time' as opposed to the intermittent capture of work-in-progress through the time-lapse photography. The video data also gave a visual backdrop to the audio recordings from session 4 and it captured some discussions that were missed by the audio when the students moved away from the recorder to practice their tableau. However, as Tobin and Davidson (1990) note, "We warn viewers not to view our tapes as unmediated pictures of reality" (p. 276) and there were moments when students performed for the camera and moments when students became self-conscious. These individual reactions to being filmed are discussed in chapter four as significant within a CHAT paradigm.

Writing in Role Compositions

I asked the students to write in role after they presented their tableaux in session 4 and session 6. The written compositions informed the research question: How did students represent main ideas when writing in role? (see Figure 4). I asked the students to write what their *character* (person, animal or object) had been thinking about during the tableau. I was interested to investigate the voice and the emotional content of their compositions and how these elements connected back to main ideas that they had just presented in a tableau.

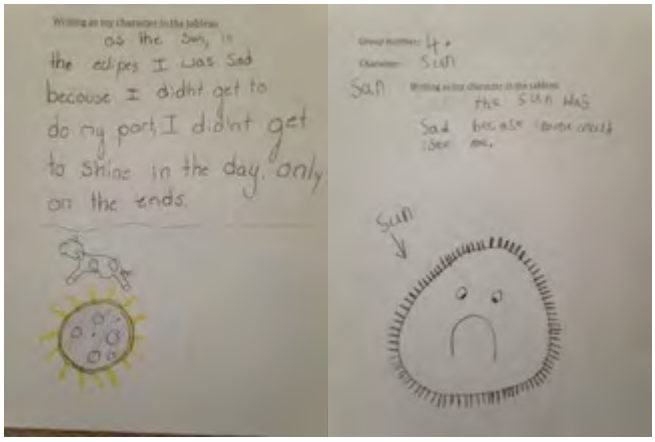


Figure 4. Student writing in role samples.

Student Reflections

Innes, Moss and Smigiel (2001) criticized drama reports that made claims on behalf of students yet rarely allowed the student voices to speak for themselves. The authors called for increased contributions to research reports by the students as this not only provides a "new perspective to the literature" (p. 220) but "generate[s] an awareness and responsibility for learning on the part of the students" (p. 220.) With this in mind, through the third research question about student reactions to the tableau work I sought to gain their perspective on the experience and promote an awareness of what they may have learned.

I asked the students to complete two 'reflection' papers. The first paper was about their personal experience of tableau and asked two questions:

1. What did you enjoy about the tableau work?
2. What did you not enjoy about the tableau work?

The second paper was more focused on the collaborative aspect of the work and the cognitive benefits of learning though tableau:

1. How did your group decide on the main idea for each text?
2. What did your group do when it couldn't agree on the main idea?
3. Did making a tableau help you understand the main idea of the science text?

   No – (say why)

   Yes – (say why)

My decision to put "no" first as an option for this last question was to dissuade students from thinking they had to answer "yes" automatically.

Semi-structured Interview with Teacher

The classroom teacher remained in the classroom throughout the study. She did not intervene in the sessions or contribute to the planning of the lessons but she was a 'knowledgeable other' regarding the participants. I conducted a semi-structured interview with her to capture her insights and views on tableau as a mode of teaching science. I was also interested in her perceptions of the students' processes and their learning progress. (See Appendix G for a list of the questions that guided the interview).

Data Analysis

The research questions guided the analyses of the varied sources of data. I was primarily interested to know what tableau *did* and given the context, I was able to observe student

behaviors and interactions in areas related to student embodiment, text representation, student writing and engagement. For the most part, qualitative content analysis (Schreier, 2012) was the guiding method for analyzing data. Schreier describes qualitative content analysis as "a method for systematically describing the meaning of qualitative material" (2012, p. 1) and in the following sections I describe how each data source was systematically analyzed in order to answer the three research questions that make up the essential inquiry – what did tableau do?

Analysis of Audio Data

I transcribed each group's planning and preparation of tableau discussions. Positioned in the middle of each group, the recording device documented the students reading aloud text, discussing the main idea of the text and making suggestions about the tableau presentation. At times portions of the discussions became inaudible due to classroom noise level, students talking at the same time or my difficulty in understanding what they were saying. And when they moved away from the recorder to start practicing the tableau, the audio data became increasingly hard to follow (as in noted in the transcripts). My concern with the analysis of the transcripts was to inform the research question, "How did students represent main ideas from science information texts as a tableau?" To answer this question, I focused on what the students *talked about* as they practiced their tableaux.

What did students talk about? Initially, I analyzed the transcriptions by focusing on the content of individual lines of speech. This resulted in 15 different codes across 30 transcriptions:

1. Talk about role in tableau
2. Talk about physical positioning of role
3. Talk about main idea
4. Agreement talk

5. Disagreement talk
6. Motivational talk
7. Researcher talk (my speech)
8. Talk about the audio recorder
9. Talk about time
10. Talk about the behavior of other group members
11. Chastisement of other group members
12. Directives to other group members
13. Statements about who they agreed with
14. Conflict talk (talk *about* the conflicts they were having)
15. Unrelated to task talk

Although these codes gave me a sense of the scope of the exploratory talk, the basing of codes on *individual* verbal statements did not capture the collaborative process of what the students were doing. In addition, analysis of individual statements disregarded the creation of meaning within an activity system, omitted the concept of expansive learning, and did not inform the research question. In light of these limitations, I revised my analysis process and focused on the verbal interactions *between* and *among* the students. Through this method of analysis, I acknowledged the collaborative nature of the work and yielded a focus on *episodes* of talk that were united by a common theme of content (Barnes, 1999). I uploaded the transcripts into a qualitative data analysis computer software package (NVivo) and coded the transcripts with the following episode descriptors:

- Main idea talk
- Social talk

- Tableau talk

(see Figure 5).

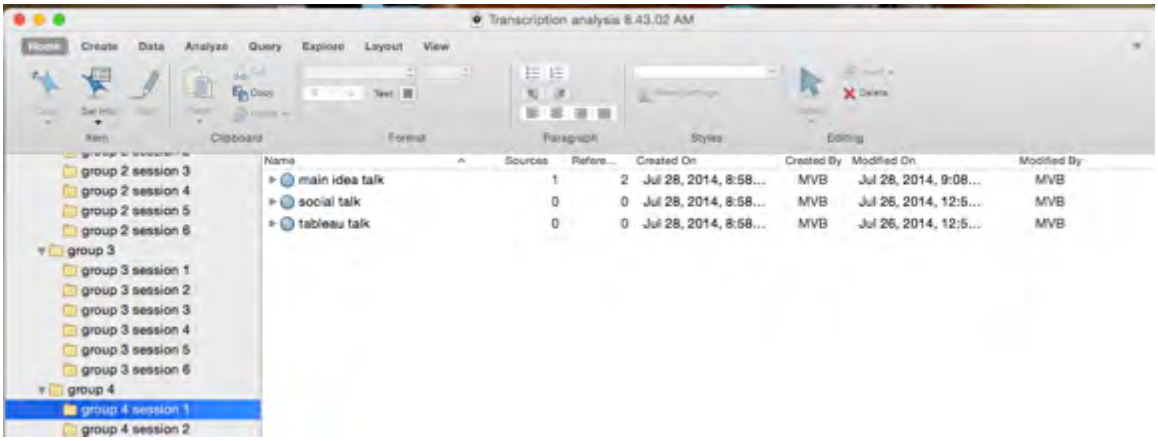


Figure 5. Transcripts were coded according to three episode descriptors

'Main idea talk' included any talk where the students referred to main ideas, debated what the main ideas were or discussed who was going to write the main idea sentence. Episodes of 'social talk' included any kind of discourse that was not about the task of creating tableau. Although this kind of talk did not directly inform the research question, a CHAT approach to research necessitates that *all* student discourse is culturally and historically relevant. Episodes of 'tableau talk' had two subcategories of 1) talk about role and 2) talk about the composition of the tableau itself and the content of these were analyzed separately. As I analyzed student talk about role my guiding question was, "What are student concerns regarding roles?" As I analyzed talk about tableau I focused on what students considered important as they planned a tableau, i.e. was it the overall image of a tableau or what they as individuals would be doing within the tableau?

The re-reading of text. Given that the goal of the task for the students was to represent main ideas from an informational text, I considered it important to know if they re-read the text

before planning their tableau. Therefore I analyzed each transcript and recorded the number of times that texts were re-read by the students.

Photographs of Tableaux

Although the data source was the photographs, the unit of analysis was the final tableau presentations of main ideas *as they appeared* in the photographs and I conducted the analysis to answer the research question: How did students embody main ideas from science information texts as a tableau?

Diderot, as cited in Barthes (1977), described a well-composed tableau as an image "in which the parts work together to one end and form by their mutual correspondence a unity" (p. 71). I applied this precept to the analysis of the student tableaux by analyzing student roles and gestures as the 'parts working together' to create a unified representation of a main idea.

Analysis chart. At the end of each session, the five groups presented their tableaux and I took a photograph of each presentation. The students told me their role in the tableau and I documented each student's role. I created an analysis chart where I recorded observations pertaining to each photograph of a final tableau presentation (see Figure 6) and on the analysis chart I recorded the role of each student, their gesture(s) and noted student positioning in relation to each other. I created a space for documenting observations about denoted and connoted 'messages' I found within the tableau image. These observations were in response to Roland Barthes' guidance regarding the analysis of images. He cautioned that an 'imitative art,' such as tableau, has "two messages; a *denoted* message, which is the analogon itself, and a *connoted* message, which is the manner in which the society to a certain extent communicates what it thinks of it" (1977, p. 17). In the particular tableau shown in Figure 6 the denoted message was the group's main idea sentence, "Is the sun" and the connoted message was the "stock of

stereotypes (schemes, colors, gestures, expressions, arrangements of elements)" (Barthes, 1977, p.18) the students used to communicate the denoted message. From Barthes' list, "gestures" and "arrangements of elements" applied to the tableau and the kinds of notes I made included an observation regarding the 'stereotypical' depiction of the sun and the star with the "classic, spiky shape" and the circular arrangement of the students to denote the solar system. Importantly, just as the main idea sentence was only about the sun, 'the sun' in the photograph positioned 'itself' on the floor, at the front of the tableau and spread wide, as if to connote its importance.

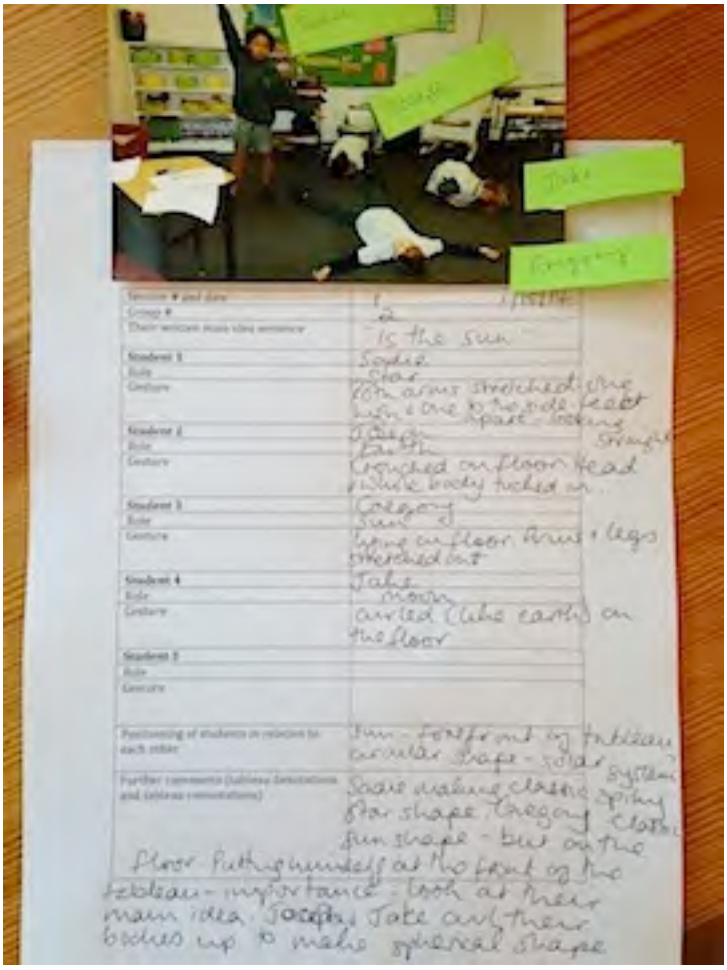


Figure 6. Completed data analysis chart for photographs of tableaux (see Branscombe and Schneider, 2013, p. 54).

After I completed a chart for each tableau presentation (30 in total), I used the data analysis chart for further analysis of role and gesture.

Roles. I recorded all the types of roles (as identified by student self-report) the students played across the six sessions and the frequency of their depiction. I then looked for connections between roles and the original informational texts to see how main ideas were represented in roles. I categorized these connections as follows and counted their frequency:

- Roles with direct connection to a text
- Roles with indirect connection to a text
- Roles with no connection to a text

Recognizing that 'counting' is a quantitative method, my rationale was grounded in the principle of 'repetition' as suggested by Ryan and Bernard (2003, p.89). My point of view regarding role type and role connection to text was that higher frequency counts denoted repetitions, which in turn denoted themes relevant to informing the research question about the representation of main ideas.

Gesture. In analyzing gesture I applied Ryan and Bernard's second principle on themes, "you know you have found a theme when you can answer the question, What is this an expression of?" (p. 87) Gestures that were immediately recognizable or common as an expression of role type or emotion were therefore categorized as a theme. For example, outstretched arms and hands became a theme that expressed the role of sun. Considering that a gesture can involve any part of the body, including the face, I also used Patricia Wilson's "four focal points" of gesture: hands, facial expression, posture and student positioning to guide my analysis (2003, p. 378). I analyzed each of these focal points in turn, looking across photographs for repetitions and themes and I report on each focal point separately in chapter four.

Time-Lapse Photographs

The time-lapse photographs were another data source for the research question "How did students represent main ideas in science information texts as a tableau?" The time-lapse camera photographed entire sessions but I focused my analysis on the photographs that captured the tableau preparation section of each session and therefore the creative process of evolving representations. I analyzed the data using a figure I created to record my observations (see Figure 7).

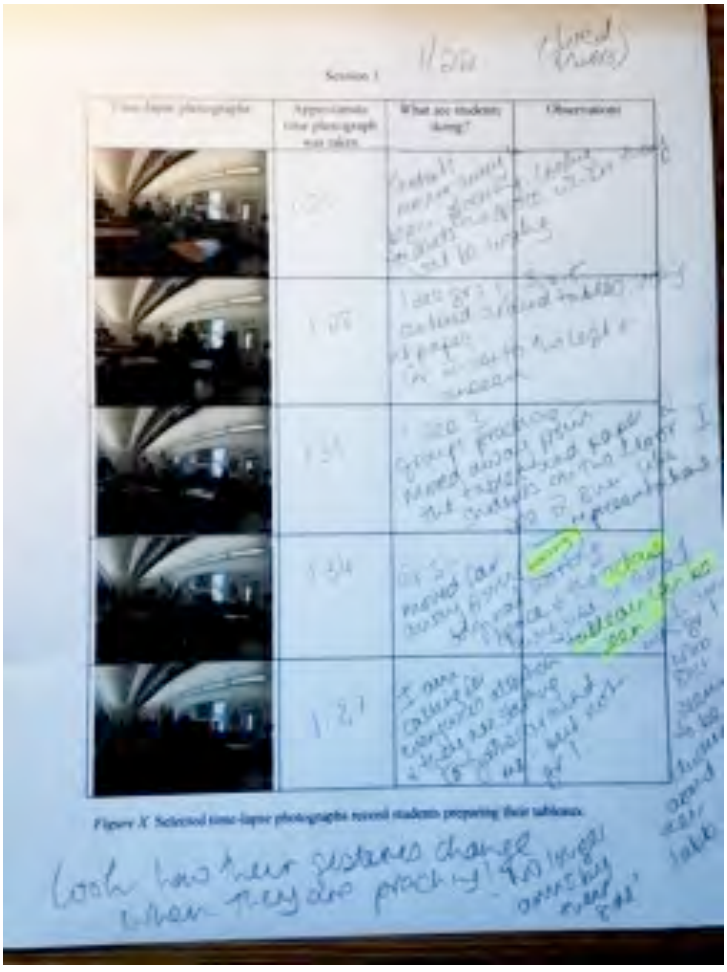


Figure 7. Time-lapse photographs from session 3 with annotated notes.

The figure included photographs taken at regular intervals accompanied by annotated notes that recorded what the students were doing. An example of a note was, " I see 3 groups practicing,

moved away from their tables and papers. 2 students on the floor. I see 2 sun-like representations." I observed frequent and changing patterns of embodiment and representation within and across the six sessions. These patterns related to how groups moved as *units* during the preparation time (movement patterns) and how individual body shapes changed during the course of a session (body patterns).

Video

The time-lapse images caught moments in time whereas the video connected those moments and 'filled in the gaps' between them. The video focused on different groups in turn practicing their tableau and therefore afforded a closer examination of differences between group working practices. My first analysis was deductive because I asked the following questions as I examined the video: 1) What is the audio data that the desk recorders did not pick up? and 2) What is the video showing about group process that the time-lapse images did not show? In other words I looked for additional ways to interpret experiences that had so far appeared incomplete.

My second analysis focus resulted from watching the video and noting how it captured the complex network of interactions between students. In my previous analysis of data sources I had focused on the collective responses to the work, but the video allowed me to observe individual behavior such as levels of vocal expression and participatory action. Citing the influence of Vygotsky's theory in their own work, Tudge and Hogan noted,

> new skills, concepts, and knowledge appropriated during the course of collaborative activities are never simply internalized as straight copies from another person or persons involved but are transformed on the basis of the individual's own characteristics, experiences, skills and knowledge. (2007, p. 104-105)

These observations were significant within a CHAT framework that acknowledges the transactional dynamics of individual agency, context, (historical) time and activity. In this analytical approach I was influenced by the bioecological theories of Bronfenbrenner and Morris (2006) who view an individual's disposition as a 'force characteristic' that influences and is influenced by a specific context.

I then broadened my analysis to observe group dynamics as occurring within specific spatial contexts while still examining individual agency within those groups and spaces. Again, this analysis was deductive in method because I watched with specific questions in mind: Which groups are working collaboratively? What are the dynamics of student involvement? Who or what is determining group practices? How is the space influencing group process?

Finally, I viewed the video as a data source that captured a 'felt sense' of the session; the noise and the frenetic activity of the students as they alternated between collaborating and bickering about the tableaux. As evidence of an ecologically vibrant research site, they were important elements within a CHAT paradigm and they contributed to the essential question that frames this study: What did tableau *do* in that third grade classroom?

Writing in Role Compositions

I conducted an analysis of student writing in role compositions to answer my second research question: How did students represent main ideas when writing in role? The data were two sets of writing samples from sessions 4 and 6 when the students were asked to write in role after having been in a tableau presentation.

Analysis process. I analyzed 17 out of 21 writing samples from session 4. One student was absent that day and I rejected three samples for analysis because the students had not written *in role* but rather about the experience of being in the tableau. Therefore these samples did not

inform the research question. I analyzed 20 out of 21 writing in role samples from session 6. I excluded one writing sample because the student had not written in role.

My focus was on the content of the writing and specifically how this was communicated through 'voice' and emotion. I chose to focus on the writer's 'voice' because according to Culham, voice is "the writer's ability to express personality in language, for a particular purpose and audience." (2005, p. 138) I wanted to investigate if the writing in role evidenced an awareness of audience as they represented main ideas in their writing. My secondary focus, emotions, came out of observations that I had made about the 'narrativizing' of main ideas in the photographs and I wanted to see if this was also present in students' writing in role. Wagner observed that compositions written from the perspective of another were more likely to include "insight into characters' feelings and empathy" (1998, p. 134). I thought a focus on the emotional content would be particularly interesting given that the source texts were about scientific concepts. How would emotion and science interact in writing?

Student Reflections

Students' written reflections generated information for the third research question: What were student and teacher reactions to tableau as an embodied learning experience? I analyzed their responses to five reflection questions:

1. What did you enjoy about the tableau work?
2. What did you not enjoy about the tableau work?
3. How did your group decide on the main idea for each text?
4. What did your group do when it couldn't agree on the main idea?
5. Did making a tableau help you understand the main idea of a science text?

No – say why OR Yes – say why

The first four questions called on students to describe individual experience and group process whereas question five prompted students to report their thoughts about the cognitive value of tableau. When analyzing questions one through four, I coded student answers with thematic descriptors, for example responses that described the experience as "fun" were coded with the theme of "engagement" and responses that indicated there had been problems in the group, were coded with the theme of "group dynamics."

For question five, "Did making a tableau help you understand the main idea of a science text?" I identified key words within each student's response. One student answered that the tableau had helped them understand main ideas because the tableau was "pictures of things in a text," so I chose "pictures" as the key word. Conversely, another student had said the tableau work had not helped them because "you just make a picture" and I identified the key word as "just." The final step of analysis was to code the key words by their related themes. I coded key words that inferred pictures as "visualization" and key words that inferred doubt about the learning value of tableau as "not real learning." I created a table to record all responses and grouped similar codes together. Although I regarded all student reactions to the work as valuable, I deduced that frequently recurring themes (Ryan and Bernard, 2003) would be most helpful in answering the essential question – what did tableau do?

Teacher Semi-structured Interview

I transcribed the entire interview with the teacher, Ms. Kay, but the research question, "What were student and teacher reactions to tableau as an embodied learning experience?" focused my analysis on excerpts where Ms. Kay spoke about her reactions to the tableau work. I used actual phrases she had spoken as category titles for these extracts (in vivo coding, Saldana, 2009). This way her voice became more present in the analysis process and the phrases

summarized the content of the extract. As I analyzed the content of each extract, I cross-referenced them with the reactions of the students. They had been participants in the study and she had witnessed their participation. I believed correlations between emic and etic views of the study would strengthen the case for answering the essential question – what did tableau do?

Summary

In order to answer the three research questions that guided this study I conducted a formative experiment in a third grade classroom. Table 3 provides a summary of each data source and its purpose in light of the research question. As can be seen in Table 3, the study design allowed for the implementation of modifications as I pursued the pedagogical goal of using the body to represent science concepts. I regard the first research question as the one that aligns most closely with this pedagogical goal and I therefore prioritized the audio and photographic data as the sources that were the most informative about how students used tableau to represent main ideas. However, as can be seen in Table 3, the additional research questions required supplemental data that took account of the written mode of representation and participant reactions to the study as a multimodal experience. Laurel Richardson uses the metaphor of a crystal to describe the effect of representing data through myriad sources because a crystal "combines symmetry and substance with an infinite variety of shapes, substances, transmutations, multi-dimensionalities and angles of approach" (2000, p. 934, see Figure 8).

Table 3

Summary of Research Questions and Data Sources.

Research Question	Data Sources	Purpose of Data Source
1. How did students represent main ideas from science information texts as a tableau?	• Audio data of the students working in their groups to plan the presentation of tableau.	• To inform what students talked about as they made decisions about the representation of main ideas
	• Photographs of the tableau presentations.	• To inform how students used their bodies to represent main ideas
	• Time-lapse images	• To reveal patterns of movement while students practiced the representation of main ideas
	• Video data	• To connect the audio and the visual data and inform on student working practices in 'real time.'
2. How did students represent main ideas when writing in role?	• Student writing in role compositions	• To reveal how main ideas were represented through student writing
3. What were student and teacher reactions to tableau as an embodied learning experience?	• Student reflection sheets • Semi-structured interview with teacher (see Appendix G).	• To gain student and teacher reactions to the collaborative practice of tableau and the effectiveness of tableau as a learning tool

Figure 8. Image of crystal with multiple shapes, dimensions and angles. Image retrieved from http://english.jschina.com.cn/Lianyungang/LianyungangCulture/201112/W020111220409988120169.jpg

Likewise, the varied collection of data sources provided an opportunity to look at the experience of tableau from different perspectives and then read across data sources for symmetrical and substantive patterns of representation that would answer the essential question at the heart of this research, "What did tableau *do* in that third grade classroom?" In chapter four I seek the answer to that question as I present findings related to the individual research questions.

Chapter 4: Findings

In this chapter I present my interpretation of the data and below are the research questions that guided this study:

1. How did students represent main ideas from science information texts as a tableau?

2. How did students represent main idea when writing in role?

3. What were student and teacher reactions to tableau as an embodied learning experience?

Each data source is addressed separately within the context of a specific research question. This approach enabled me to attend to the quantity of information within each source and be focused in my analysis. However, within the chapter I synthesize results and report on how the data sources and theoretical frameworks informed each other. This is intended to give context to the concluding exploration of the essential question in chapter five — what did the tableau do?

Research Question 1: How Did Students Represent Main Ideas from Science Information Texts as a Tableau?

The data sets used for this question were audio recordings, photographs of tableau presentations, time-lapse photographs and video recordings of session 4. With frequent references to final tableau presentations and the informational texts for the different sessions, I provide the informational texts on which the representational work was based in Table 4.

Audio Data

The audio data recorded the students working in their groups to prepare a tableau and I created thirty transcriptions from six sessions (five groups of students for each session).

Table 4

Informational Texts Used for Each Session

Session 1
The sun is just one of millions of stars in the sky. Why does it look bigger and brighter than any other stars? The sun looks so large and bright because it is the nearest star to Earth. It is about 150 million kilometers (93 million miles) away. If you could drive to the sun in a car, it would take you about 177 years! That is much closer than the next nearest star system, Alpha Centauri.
(National Geographic, 2011, p. 126) *

Session 2
The sun gives out different kinds of energy. One of these forms of energy is light. We can see light all around us. Sunlight has the ability to warm things. Do you like the feeling of the sun on your skin? Energy leaves the sun and travels throughout the solar system. This means that other planets as well as Earth benefit from the sun's light.
(National Geographic, 2011, adapted from pp. 129-130) *

Session 3
Gravity is a force that pulls objects towards each other. Gravity between the sun and Earth pulls Earth towards the sun. Then why doesn't Earth fall into the sun? Think about twirling a ball connected to a string. You start the ball moving by throwing it out in a straight line. Then right away you pull on the string and the ball. That pull keeps the ball moving in a circle around you.
(National Geographic, 2011, p. 136) *

Session 4
A solar eclipse happens when the moon passes between the sun and the Earth. When this happens, the moon blocks the light from the sun and the sky becomes dark. This darkness usually lasts for a few minutes. Birds think it is nighttime and stop singing! During an eclipse only the sun's atmosphere can be seen shining around the dark circle of the moon. The next solar eclipse visible from the United States will be Monday August 21, 2017.
(Simon, 1996, p. 17) **

Session 5
Have you ever walked on a blacktop surface on a sunny summer afternoon? It's hot! Light energy from the sun has transformed to heat energy and warmed the blacktop. If you walk on the blacktop in the evening it is much cooler. This is because the sun is no longer shining on it. The blacktop has lost heat energy. When sunlight hits an object, the heat energy from the light energy causes the object's temperature to go up.
(National Geographic, 2011, adapted from pp. 132-133) *

Session 6
The sun is very important to life on earth. It gives off energy in the form of light and heat. Plants need the light energy to grow. Animals, including humans, need plants for food. Without the sun's energy, plants would not grow and animals would have nothing to feed on and we would go hungry! Without the sun there would be no light, no heat and no living thing would survive on the earth. We depend on the sun for our life!
(National Geographic, 2011, adapted from p. T152g) *

* From National Geographic. *National Geographic Science Grade 3 Teachers Edition Earth Science - Florida,* 1E. © 2011
Heinle/ELT, a part of Cengage Learning, Inc. Reproduced by permission.
www.cengage.com/permissions
** Simon, S. (1996). *The sun.* New York, NY: HarperCollins.
Permission to reprint received in an email from HarperCollins on 10/13/14.

In order to examine the research question about how students represented main ideas from informational texts as tableaux, my analysis of data focused on:

- The re-reading of text
- Talk about main ideas
- Talk about role
- Talk about tableau

These areas of investigation enabled me to track student process related to the representation of main ideas and I shall present findings related to each one in turn.

The re-reading of text. During each session, the text had already been read aloud by me before the students went into their groups to prepare their tableau. However, I wanted to know if students re-read the text once they were in their groups as a step to deciding on a main idea (see Table 5).

Table 5

Number of Groups that Re-read the Text Aloud for Each Session

Session	Number of Groups that Re-read the Text Aloud	Number of Groups that Did Not Re-read the Text Aloud
1	0	5
2	4	1
3	4	1
4	3	2
5	3	2
6	3	2
Total	17	1

The table shows that based on evidence in the transcripts, groups re-read the informational texts in 17 out of 30 sessions. However, within these results there were interesting variations. My interpretation of the transcripts led me to conjecture that group 3 did not re-read the text at all until the final session and group 2 who re-read the text for sessions 2, 3, 4, and 5 did not re-read

it for the final session. Group 5 only re-read the text for sessions 2 and 3 and group 4 was the only group that read the text in sessions 2 through 6. As the table shows, no groups re-read the text for the first session. My lesson plan indicated that I had planned to advise the students to first of all re-read the text in their groups but there is no audio data to confirm if I did so. The varying nature of the numbers may point to shifts in confidence and attitudes regarding the need to re-read a text. Some groups may have felt unmotivated to re-read a text that had just been read to them or they may have felt confident that they understood the text after one read aloud. I also acknowledge that some groups may have read the texts silently or before the digital recorder was switched on.

How groups re-read the text also varied. Out of the seventeen occasions when the text was read aloud, fourteen of those were read aloud by one student in a group and the other three occasions featured group 1 students 'sharing' the text as a read aloud. Here is an extract that begins at the start of the session:

(Session 5, group 1)

Student 1: Miss Margaret, I don't have one of these.

Student 2: Now is it fair? Everyone has one. Ok group.

Student 1: Ok, I'll start.

Student 3: No, I don't have mine yet.

Student 2: Let's just start.

Student 3: No!

Student 4: We'll just share it.

Student 5: (*Reading from text*) Have you ever walked on a blacktop surface on a sunny summer afternoon? It's hot!

Student 1: (*Reading from text*) Light energy from the sun has turned, trained, tr…what? I don't get that one.

Student 3: Transformed.

Student 1: (*She continues to read*) Transformed to heat energy and warmed the blacktop. If you walk on the blacktop in the evening it is much cooler.

Student 2: Ok, stop. Let other people read.

Student 1: Ok.

Student 2: (*Reading from text*) The blacktop has lost heat energy. When sunlight hits an object, the heat energy from the light energy causes the object's temperature to go up (*finishes text*). Done.

Student 4: You read the whole thing. You're not supposed to read the whole thing. You're supposed to read two sentences.

Student 5: Give me my pencil back.

Student 4: Whose pencil's this?

Student 3: Whose pencil's this?

Student 5: No, but she only read one sentence.

The dispute was over the amount of reading assigned to each student. One student is chastised for reading more than the prescribed two sentences (although I do not see in the text where they agree on two sentences each). A closer inspection of his reading aloud reveals that he was unfairly chastised as he did only read two sentences. In this example, the goal of preparing tableau was not important to the students but an even distribution of 'reading aloud' was. When I planned this activity, it did not occur to me that the re-reading of text would be an issue. For this

group it was a real issue, with lengthy disputes about the re-reading of text occurring in three out of the five instances when the text was read aloud.

Talk about main ideas. The amount of time students spent talking about the main ideas varied between groups and sessions and sometimes discourse first focused on role or what the tableau could show rather than on a possible main idea on which to base a tableau. At other times groups did discuss main ideas first and I begin with such an example:

(Session 1, group 4)

Me: Don't touch any buttons please but it's now recording your voices

Student 14: Ok, so, I actually think it's truly about um

Student 15: The sun

Student 16: The sun

Student 14: Yea

Student 17: I think it's like how bright it is and how…

Student 14: Let's see, um how bright it is and

Student 15: I think it's how far away it is

Student 16: Well I don't think we're looking for facts. I think we're just like looking for…

Student 14: The main idea

Student 15: The main idea, yea

Student 16: I think it's just supposed to be about the sun

Student 14: Yea, that's what I think. What do you think?

Student 17: Yea, I agree

Student 14: Ok, we'll do that one (*inaudible*). Get the paper

Student 15: Mostly how big it is

Student 16: Where's the paper?

In this excerpt there is debate over what constitutes a main idea and which one of the various suggestions is the one to use for their main idea sentence. All of the suggestions for a main idea – the size of the sun, the brightness of the sun and how far it is from Earth – come directly from the text. Similarly, in a transcript from session 2, several students offer their suggestion of a main idea, which causes a group member to say, "let's read it and what it's actually saying, ok?" In a CHAT framework, it could be said that the *goal* of creating a tableau was activating this group to re-read the text.

In the majority of cases students made statements about main idea without feeling the need to justify where they got their idea from:

(Session 1, group 3)

Student 10: First, ok, I think the main idea is the sun

Student 11: I think the main idea is *(interrupted)*

Student 12: I think the main idea is the solar system

Student 10: I think the main idea is like if you would want to travel to the sun or if you don't.

Student 13: Ok, this is what I was thinking, it's about how close it is but how like long it is to get there

Student 11: *(inaudible)* position, the position of the cars

Student 12: I think the main idea is *(interrupted)*

Student 13: This is what you're going to be

However, minutes later, the students remembered that they were supposed to write a main idea sentence and the following conversation ensued:

Student 12: The main idea *(as if beginning to write)*

Student 10: Wait, we have to discuss what it is

Student 11: We know, the distance

Student 13: No, if you want to go to *(interrupted)*

Student 10: From the earth to the sun, the distance from the earth to the sun

Student 11: How about everyone should write their name and then write what they think the thing was?

Student 12: No, no, we all have to agree

Student 10: Ok, I think

Student 11: Why don't we just write the main idea was the Earth

Student 13: Or how about

Student 12: No

Student 11: Guys, the main idea is obvious the distance

Student 10: Between the sun and the earth

Student 13: Ok

Student 12: What about *(interrupted)*

Student 11: No

Student 12: What about if you want to go to the sun or not?

Student 10: What?

Student 12: Like, it says how far

Student 13: It doesn't say anything about that

Student 11: Why don't we just say the distance?

Student 10: Between the sun and the earth

Student 12: was *(beginning to write)*

Student 10: Yea, yea

In this discussion students are debating how they should reach a group consensus and what the main idea of the text is. Some responses are shut down abruptly or are interrupted as the students attempt to debate the evidence in the text. As students offer different ideas, the discourse remains focused on the content of the text.

In the last session, two groups decided very quickly on the main idea. As soon as I switched on the recorder, a student from group 2 announced, "Our main idea is no sun, so everything's dying out." There was no debate and this was the statement that the group used as their main idea sentence. In group 5, a student offered a main idea sentence near the beginning of the session, "The sun and keep peoples alive and is very important." Then the group responded with a debate about the roles that the students could play to represent this main idea sentence. In these instances, a single student's assertion appeared to prevent further discussion of the topic.

Talk about role. Talk about role featured frequently in the audio data. As I analyzed the episodes of 'talk about role,' my guiding question was, "What are student concerns regarding roles?" As I read the transcripts, I identified four themes that characterized talk about role: claiming role, assigning role, negotiating role and connecting role back to the informational text. I begin with an extract that illustrates the presence of all four themes in one group discussion. I have written the themes in italics as a way of showing my operational definitions of them:

(Session 1, group 2)

Me: Ok, it's recording

Student 6: Ok, we're going to do the sun, do you want to do the sun? (*assigning/negotiating)*

Student 7: Yea

Student 6: Do you wanna do the sun? Do you? *(assigning/negotiating)*

Student 8: I dunno, I guess *(hesitant claiming)*

Student 6: Ok, then I guess you're the sun *(hesitant assigning)*

Student 9: I know we make a stage (inaudible). You know we're getting recorded?

Student 8: Yes

Student 9: What do you want to do when we're doing the tableau? *(negotiating)*

Student 7: Uh, I want to be the sun *(claiming)*

Student 6: What do you want to do? I'll be a star *(negotiating/claiming)*

Student 8: I'll be a…*(was about to make a claim perhaps but was interrupted)*

Student 9: I'm the moon, I'm the moon *(claiming)*

Student 6: Who's the earth? *(negotiating)*

Student 7: No one

Student 8: Then she's a star *(assigning)*

Student 9: I guess I'll be another star *(hesitant claiming)*

Student 6: And you're the sun? *(negotiating)*

Student 8: No,

Student 6: Yea *(assigning).*

Student 7: So Gregory's a sun, Jake is the moon, Joseph is the earth and I am the star *(assigning)* and we are done. Goodbye now. Almost, ok, goodbye

(Inaudible talk)

Me (to class): How about I give you five minutes to finish your tableau?

Claiming role. In the example presented above, the first words spoken by a student are, "Ok, we're going to do the sun" and I am not sure if she means they are going to "do the sun" as their main idea or include the sun as a role in their tableau. However, the question that follows, "do you want to do the sun?" directs the subsequent discourse towards a focus on role. The answer, "I dunno, I guess" is a hesitant claim to a role that contrasts with assertive claims more typically found in the transcriptions. Here are all the claims to a role that were found in the transcript of group 1, session 1: "So, I'll be Earth," "I will be the sun," "I call the sun," "No I don't want to be one. I want to be the Earth," "I want to be Earth," ""I'll be the sun," "I'll be the rocket ship," "I want to be the Earth." As claims they are unambiguous and clearly convey the intent of the speaker.

Students frequently expressed a desire to 'want to be the sun.' In fact when I used NVivo (the qualitative analysis software program) to run a word frequency query based on all thirty transcriptions, the top result was the word 'sun' (see Figure 9) and I posit this was because of the frequency of the phrase "I want to be the sun" or close approximations.

The popularity of wanting to be the sun sometimes led to conflict between students as the following extracts show:

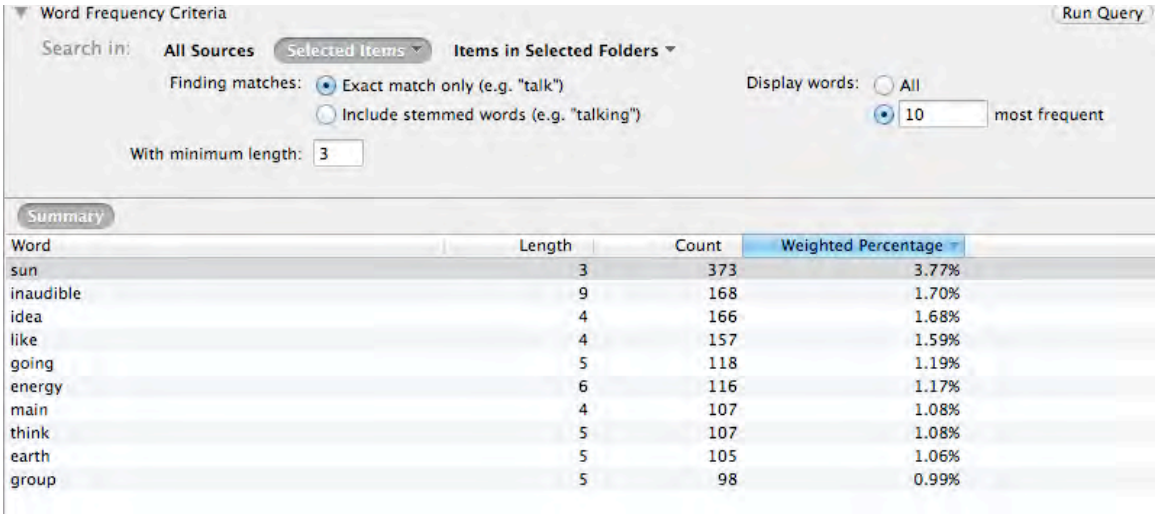
(*Session 3, group 1)*

Student 1: I'm sun, I'm sun, I'm sun.

Student 2: I'm the sun.

Student 1: I'm sun.

Student 2: I'm the sun.



Word	Length	Count	Weighted Percentage
sun	3	373	3.77%
inaudible	9	168	1.70%
idea	4	166	1.68%
like	4	157	1.59%
going	5	118	1.19%
energy	6	116	1.17%
main	4	107	1.08%
think	5	107	1.08%
earth	5	105	1.06%
group	5	98	0.99%

Figure 9. Word count of the ten most frequent words in the audio transcriptions.

(Session 5, group 2)

Student 6: I want to be the sun again.

Student 7: No, I want to be the sun. I've never been the sun.

Why was the role of the sun so important to the students? I have two possible answers. The first refers to the iconic status of the sun and the connotations that go along with that. According to Rodriguez and Dimitrova connotations that result from visual images are concerned with "the ideas or concepts attached to them" (2011, p. 56) and are therefore often steeped in cultural references. The sun is a universal symbol that represents concepts associated with themes of goodness, light and life and through role-play, it is possible the students wanted to be associated with such positive attributions. The second possibility is that in wanting to be the sun, the students were showing they comprehended the importance of the sun as a main idea in many of the texts and they were equating role-playing the sun with role-playing a main idea and therefore having a 'main part' in the tableau. Alternatively, the students may have possibly identified with

the main idea of the text similar to the process of identifying with the main character of a narrative text. The reader views the action through the perspective of the main character, in this case, the sun.

Assigning roles. When planning tableau, students often assigned roles to each other or suggested someone should take on a role. Here are separate examples from group 4 transcripts

"David can be the sunlight's energy." (session 2)

"You can be a ball, how about that?" (session 3)

"Yea, I just said, you're the force." (session 3)

"Someone should be an astronaut taking a picture of the sun." (session 4)

And sometimes the assigning of roles led to conflict within groups, for example:

(01/22/14, group 3)

Student 10: Ok, me and her will be energy again

Student 11: No, I'm the energy

Student 12: You two will be energy

Student 11: I'm just energy, I just said it

Student 10: I called dibs.

The argument persisted for a number of minutes because more than one student wanted to be energy and the other group members expressed frustration at the student who kept saying he wanted to be energy. In the end I had to intervene because this student was being pressured to conform by the group members. However, it was only when I listened to the transcript that I realized the extent of the frustration that was expressed towards him.

Negotiating role. In negotiating role, students asked each other what they would like to be or asked permission from the other students to be a particular role. Here are some examples from different transcripts:

" Can I be the sun?"

"Can I be one of the birds?"

"Can I be the guy running to the ice-cream truck?"

When students were unsure about what role they should play, they sometimes asked other students for ideas, "Wait, what would I be? What can I be?" Such a question opens up the possibility that the student does not comprehend the text or how the other group members are interpreting it. And when on occasions students asked each other what role they were going to play, the query served as a prompt for the creation of a role. In session 5, a student responded to this question with "I am going to be a guy suffocating from the sun." The text for this session was about the sun's heat energy and his idea for the role was based on an inferential understanding of that main idea.

Connecting role with text. Oftentimes the choice of roles reflected subjects that were explicitly mentioned in the text:

"So, I'll be Earth."

"I'll be a star."

"I want to be the moon."

At other times the choices suggested students inferred a role from the text. The text for session 6 did not mention humans specifically but stated that "without the sun there would be no light, no heat and no living thing would survive on the earth" and in response to this text one student announced, "I'm a person dying." Another example came from a discussion about roles based on

the text for session 4. The text explained what happens in a solar eclipse and referenced the effect of darkness on birds but not humans. Two students chose to be people reacting to the darkness, one student by carrying a flashlight and the other student by looking shocked and when I asked what her role was, she replied an "OMG human." In the transcript of the group practicing, she can be heard saying how she will use facial expression for affect, "I'll be the person who looks like 'wow,' like covering my mouth."

The text for session 5 was about the effect of the sun's heat on blacktop surfaces and many of the role choices had no obvious connection to the text. Group 3's final tableau featured a singer, a bird eating a strawberry, a sun and a moon and the transcript of the group's planning process reveals a lack of focus on a main idea because the students did not seem to know information about blacktop surfaces. This left a creative vacuum that the students filled with competing ideas about roles and action:

(Session 6, group 3)

Student 11: Wait, Mariella. We should do something about the blacktop.

Student 10: Ok, who's going to be a sun?

Student 11: She's the sun

Student 13: Wait, I want to be the sun

Student 12: Yes, you're the sun.

Student 11: I'm the moon, I'm the moon

Student 10: Come on, let's practice.

Student 12: Wait one second, what?

Student 10: You're the moon, no you're the (inaudible)

Student 13: I'm the sun, I'm the sun. I'm the sun, I'm the sun.

Student 11: Why don't both of you are the sun?

Student 12: No

Student 13: No

Student 12: He's the moon.

Student 11: Yea, I'm the moon

Student 10: You're the Earth.

Student 12: Whaaaaat?

Student 13: No, because it won't make sense if (inaudible). You can be in the background being a tent over me.

Student 10: Ok, when I get in between the sun and the…wait, when I get, wait, who's the Earth?

Student 11: Moon.

Student 10: No, I'm moon. Who's the Earth?

Student 12: She is a lady.

Student 13: I'm, no, what am I, what am I, what am I? I'm a tent

Student 10: A tent?

Clearly this discussion lacked focus and the introduction of the 'tent' idea caused me to wonder if the word 'blacktop' was being confused with 'big top.' Students from group 1 did ask me about the meaning of the word and here is an extract of that conversation:

(Session 5, group 1)

Student 1: What's the blacktop? What's a blacktop?

Student 2: Blacktop?

Student 1: It says blacktop.

Two students: I don't know.

Student 3: What is blacktop?

Me: That's the, you know what they put on the top of a sidewalk or a road, the gravel that you walk on, is the top of the sidewalk that you walk on.

Student 4: Ok.

Me: Ok?

Student 5: The main idea is about Stacey.

Student 4: Thanks Harry.

Student 3: Is it like dirt?

Me: It's not dirt.

Student 3: Does it cover the bricks?

Me: It's like tar.

Student 3: Oh!

A few sentences later and a student tries to summarize the meaning, "So this is what it is, it goes on, it's kind of like tar but it's on the sidewalk and it's kind of like tar, that's what a blacktop is. It's something that…" It is apparent from her hesitancy that there is still some confusion and I do not know what followed her words as the group moved away from the recorder. In the final presentation (see Appendix E – group 1) of their tableau two students played stars, one student was a girl walking, one student was heat and the fifth student was unable to specify what he was. Their main idea sentence was "The sun gets the heat to the blacktop" but the lack of connection between some of the role choices and the text, coupled with the uncertain role of one of the students, indicates that the confusion about meaning continued. Group 2's final tableau of this

text featured a “surfer guy” and a “painter” so I traced their discussion to look for reasons behind these role choices. Here is an excerpt:

(Session 5, group 2)

Student 6: Ok, let’s practice our tableau.

Student 7: What are you doing about?

Student 8: We should do the heat shining on…

Student 7: Everything.

Student 9: Yea, we should do the heat shining. We should do the sun shining on things.

Student 6: No, we should actually talk in the (inaudible).

Student 7: I want to be the sun again.

Student 6: No, I want to be the sun. I’ve never been the sun.

Student 8: I’m going to be a random person.

Student 9: Ok, let’s do it. Let’s do it guys. Jake, who are you?

Student 6: I don’t know.

Me: Don’t forget to write on your sheet the main idea.

Student 6: It’s here.

Student 7: Gregory is a person. Sadie is a person.

Student 9: He’s getting hot and Sadie is a person and Jake is the sun and Joseph is a person.

In the informational text for the session, the example of a ‘blacktop’ is given to illustrate the warming power of the sun and the word features three times. ‘Blacktop’ does not feature in this excerpt but there is evidence of the students grappling with the concept of heat coming from the sun and shining on ‘things.’ However, the lack of definition regarding roles, e.g. “I’m going to

be a random person," is an indication of confusion about what exactly is being shone upon. I made the methodological choice to not interrogate the students regarding tableau presentations, which in this session particularly, limited my access to their understanding of the text.

Talk about ideas for tableau. An analysis of the content of episodes coded as 'talk about tableau' revealed that students were aware that their tableau was a representation of text and a presentation of their collaborative ideas resulting from and connected to the text. Therefore they considered the *effectiveness* of their tableau in representing main ideas and its *affect* as an art form. The following example demonstrates how the talk of one group incorporated both of these considerations:

(*Session 5, group 5)*

Student 18: Ok, ok, ok. I think we should do something funny (*he roars*).

Student 19: You do something funny, maybe I'll do something funny.

Student 20: Wait, I got it.

Student 18: A disappointed bird.

Student 21: I think that we should, ok, I think that we should have someone laying down and someone pretending to walk on them.

Student 18: I'm walking, I'm walking.

Student 19: Ok and Joel's gonna walk on you.

Student 18: You can make a facial expression (*he can be heard gasping*).

Student 21: No, you're the hot (*inaudible*)

In this short exchange of ideas the students are considering the affective qualities of humor and facial expressions and effective connections back to the text by having someone lying down in role as a blacktop surface. The dialogue resonates with Engeström's and Sannino's view of

expansive learning as "an inherently multi-voiced process of debate, negotiation and orchestration" (2010, p. 5). In this case, the image originates out of the desire to do something funny which sparks the idea of a bird that is disappointed. Another voice then considers what they could be doing in the tableau and I surmise there is a connection back to the text when the suggestion is to have someone walk on them and finally this idea inspires the thought of expressing pain through a facial expression. The orchestration dynamic happens as each idea is built upon or adjusted through the multi-voiced effort of imagining a final image.

The text for session 6 was about the sun as a life-giving source and described what would happen to the Earth in its absence. Here a student in group 3 imagines a way to show life with and without the sun in a tableau that can 'come alive' for a few seconds, "Wait a second, we should have a sun, we should have a sun, like the sun should be standing here and then the sun should walk away." Her repeated assertion about the need to have a sun shows an understanding of the sun as a main idea in the text and her idea to have the sun walk away is theatrically effective because she is endowing the sun with human like qualities and using the symbolism of distancing and movement *away* to illustrate absence and withdrawal.

The text for session 2 was about the sun's light energy heating the Earth. Here a student from group 5 makes a connection between this concept and what the tableau could show:

> "So there's the sun who's turning the other way, so like everybody's freezing on Earth so you know how you need the sun or it would be really cold. The sun's turning this way, so the light's not facing the Earth so then everybody on the earth is freezing." *(Session 2, group 5)*

Through his ideas about which roles should be in the tableau, how they should be positioned and what their posture should be, the student shows he understands the information in the text. His

ideas are grounded in the text, "sunlight has the ability to warm things" (see Table 4 for full text) but there is an aesthetic quality in the image of the sun "turning the other way" that suggests a fusing of aesthetic and efferent reading (Rosenblatt, 1978) which is a point I shall return to in chapter five.

Based on the same text, but illustrating the diversity of interpretation, another group had a more culturally grounded connection with the concept of light energy as a heat source. The following discussion took place immediately after the text had been read aloud by a student in the group:

(Session 2, group 2)

Student 6: Ooh, I got an idea what we do. We should do an ice-cream truck and someone should be running after the ice-cream truck and um…

Student 7: Wait, what are we?

Student 8: Wait…

Student 9: You should make a tableau

Student 6: And then someone should be the sun and then we just describe that it's a hot day, it's a really hot day.

The immediacy of his response and the excited way he formulates the idea, alongside the recognition that they will need to describe their image, evokes Vygotsky's words about the "zigzag character of the development of fantasy and thought, which reveals itself in the 'flight' of imagination on the one hand, and its deeper reflection upon real life on the other" (1986, p. 39). The student's thought is momentarily interrupted but then he continues and the repetition of "it's a really hot day" suggests a thinking-in-action, or as Vygotsky believed, "Thought is not

merely expressed in words; it comes into existence through them" (1986, p. 218). Here is another example from session 1 that suggests the development of ideas as they are being spoken:

> *(Session 1, group 5)*
>
> "Go to the sun, like we're all going to go to the sun, so I think it should be like there's a driver in the car and there's like a bunch, there's like one or two babies in the backseat because you know it takes so long to get to the sun and then they keep going and going and going and then there's a road, and the sun" (he is then interrupted by another student claiming a role).

The student begins with first a bunch, then one, then two babies and then refers back to the text, "because you know it takes so long to get to the sun." The changes in content and context imply that the ideas are evolving as they are being spoken and that the verbalizing of ideas allows for the simultaneous consideration of image, role and gesture as ways to represent a main idea. In regard to his idea for an image, this group's main idea sentence focused on the length of time that it would take to drive to the sun and I wonder if the student was thinking their tableau could show the babies growing over time as the car drove to the sun (see Table 6).

Table 6

The Evolution of an Idea from Text to Tableau

Text	Student's Idea	Final Tableau Presentation
The sun is just one of millions of stars in the sky. Why does it look bigger and brighter than any other stars? The sun looks so large and bright because it is the nearest star to Earth. It is about 150 million kilometers (93 million miles) away. If you could drive to the sun in a car, it would take you about 177 years! That is much closer than the next nearest star system, Alpha Centauri. (National Geographic, 2011, p. 126)	"Go to the sun, like we're all going to go to the sun, so I think it should be like there's a driver in the car and there's like a bunch, there's like one or two babies in the backseat because you know it takes so long to get to the sun and then they keep going and going and going and then there's a road, and the sun."	

The two previous examples showed the influence of one student's thinking, or the evolution of one student's thinking, on the creative process. In the next example, student ideas were simultaneously verbalized and embodied and the students did not just have ideas for themselves but for the other group members as they practiced a tableau about the sun's light energy:

(Session 2, group 3)

Student 10: You go here and then (inaudible).

Student 11: You go like this and then like that.

Student 12: You both, I'm going to be behind you.

Student 10: Ok, put your feet here.

Student 11: (Inaudible) the sun and then me and Owen face each other.

Student 10: Yea!

Student 13: I'm gonna be like this.

Student 10: Yea, you go like that and then (inaudible).

Student 12: Yea, that's an awesome idea!

Their ideas focus on positioning and gesture and as I look at the final tableau image (Appendix B – group 3), I see that the importance of the two students facing each other was to embody the concept of the Earth receiving heat energy from the sun.

Social talk. I categorized episodes of 'social talk' as talk that was unrelated to the planning of tableau. However, within a CHAT framework, to ignore the 'social talk' of the students would be a serious omission. In the following excerpt, three out of the five instances of 'social talk' occurring at the beginning of a transcript was from group 1. The transcript of their first planning session is included here because it illustrates student discourse as "clashing fireworks of different speech types and languages" (Engeström & Sannino, 2010, p. 5):

(Session 1, group 1)

Me: Please do not push any more buttons, it's recording your voices

Student 1: Hey, hey, baby, baby

Student 2: Stop it

Student 1: Baby, baby, baby (*starts to laugh*)

Student 3: Guys, we're all the team captains

Student 4: Boo

Student 2: Stacey, you go first

Student 1: Uh, buh buh

Student 2: I think

Student 3: Go swim in your swimming pool

Student 2: I think the main idea is that (*trying to talk over chatter of rest of group*)

Student 4: Guys!

Student 2: (*continuing*) It's about the sun and stars

Student 5: What?

Student 4: A spider just fell off you

Student 1: It's still recording

Student 2: Anyway, my idea is the sun and the stars

Student 5: I agree with S.

Student 4: Ok, I feel like it's about the sun because

Student 1: What?

Student 3: Cos it said it took 177 years

Student 4: I love your earrings

Student 1: Did you hear that, uh huh

Student 3: (*inaudible*) you're recording Andrew.

Student 5: I'm going to tell on you

Student 4: And I feel like

Student 2: You know they can hear all of your voice? You know that right? So we're going to like share it with the whole class.

In this extract cultural 'speech types' clash with more traditional school type talk as students grapple with the responsibility of the task and the awareness that they are being recorded. This awareness brings out the dare in some students, a reaction that makes other students very uncomfortable, "You know they can hear all of your voice? You know that right?" The 'freedom' that I was giving them to create a tableau was also being constrained by the recorder and the adult authority that it represented; as Grau and Walsh write, "The boundaries of children's experiences are patrolled by adults in a way that makes any researcher-child relationship a strange mix that must be reconciled explicitly within the data collection and analysis process" (1998, p. 12). Furthermore, a CHAT framework reminds us that young students, like adults, do not act in a cultural vacuum and their talk is impacted by cultural references that may not make sense to a researcher. Grau and Walsh describe this as children behaving with agency, inventing "within adult-created contexts, their own subcontexts, which most often remain invisible to adults but are most visible and salient to children" (p. 12). This is the case for me as I read the transcript. I have no idea of the cultural context behind the phrase "go swim in your own swimming pool" and if the student was saying/singing the words to a popular song at the beginning. The words represent a culturally bound speech type that separated

the researched from the researcher, and reminded me that although I was in effect 'listening in' on student talk, it didn't mean that I had full access to the meaning of their talk.

Photographs of Tableaux

My analysis of the tableaux photographs focused on role and gesture and was aided by the creation of a data analysis chart (Figure 6, chapter 3).

Roles. In the context of the tableaux, 'role' describes the person, animal, plant or object that the students depicted. As documented in Chapter three, when the students presented their tableau, I had them announce what role they were 'playing,' therefore when I refer to particular roles, the references are based on what the students told me.

Types of roles and frequency. Using the documentation of student roles as recorded on the analysis chart described in chapter three, I categorized student roles according to 'type' and counted the frequency of types of role (see Table 7).

Table 7

Types of Role and the Frequency of their Depiction in the Six Sessions

Type of Role and Examples	Frequency
Space objects - sun, moon, Earth, stars, asteroids, meteors and planets ('objects' is the term used in the Next Generation of Science Standards (http://www.nextgenscience.org/next-generation-science-standards)	43
People (e.g. astronauts, singer, mom, baby)	33
Animals and plants (e.g. cockroach, bird, flower)	12
Energy sources and forces (e.g. heat, light, gravity)	9
Earth bound objects (e.g. truck, tower, ball)	7
Total number of roles in six sessions	104

Considering that the informational texts were based on a unit about Earth science and the solar system, the high frequency of roles depicting space objects was not surprising. However, the frequency of roles representing people was significant because humans were not explicitly referenced in any of the texts. It is also important to report that 'people roles' became increasingly descriptive as the study progressed with the students adding adjectives to their reported roles; for example, in the first session, a total of two people roles were depicted and described by the students as "driver" and "baby in the back seat." Tableaux based on the final text (session six) had a total of 12 people roles and the students gave these roles the following descriptors: frozen guy, frozen teenager, frightened girl, frozen person, frozen lawyer, a man dying, person, guy trying to open coffee, a mommy helping her son, a frozen baby, dying person, dead lady. The use of adjectives and actions to describe characters in the tableaux indicated that the students were imbuing people roles with backgrounds stories and relationships. I posit this finding as an indication that the students were narrativizing informational text by adding human activity and relational dimensions to an efferent reading of the informational text (Rosenblatt, 1978).

Roles and their connections to the informational texts. As the tableaux were representations of texts, I analyzed roles along a spectrum that went from roles with a direct connection to a text to roles with no explicit connections to a text (see Table 8) and I categorized the roles accordingly. The heading "Roles with direct connection to a text" described roles that were indexed explicitly in the text; for example in the statement, "The sun is just one of millions of stars in the sky", roles based on the sun or a star or the sky would fit into that category. "Roles with indirect connection to a text" is the description I used for roles that were inferred from the text, for example the informational text for session 4 stated, "A solar eclipse happens when the

moon passes between the sun and the Earth. When this happens the moon blocks the light from the sun and the sky becomes dark" and one student chose to be in role as a "guy holding a flashlight." "Roles with no connection to a text" described roles that *appeared* to have no obvious connection; for example in the text about the heating up of a blacktop surface during the summer heat (see Table 4, session 5), depicted roles in this category included a bird and a singer. I italicize the word *appeared* because the students who chose these roles would have had their reasons for choosing them but I do not have data to determine their reasoning.

Table 8

Frequency of Roles in Relation to the Texts

Total number of roles to depict main ideas in six texts	Roles with direct connection to a text	Roles with indirect connection to a text	Roles with no connection to a text
104	50	20	34

Table 8 shows that the majority of roles chosen to represent a main idea in the final tableau presentations came directly from the text. I believe that the high number of roles with no reference to a text concurs with an earlier point that the inclusion of people roles enhanced the narrative and relational dimensions of the tableau representations.

Having discussed roles within the tableaux, I now present the findings related to gestures.

Gestures. When analyzing the gestures within the photographs of the tableaux, I used Patricia Wilson's "four focal points" (2003, p. 378) as the gestural units of analysis: hands, facial expression, posture and student positioning in relation to each other and I begin with findings related to the use of hands.

Hands. The gestural use of hands was a major signifier in the embodied representations of 'space objects.' The most frequent role depicted by the students was the 'sun' and although students presented it in a variety of ways, the stretching of arms and hands away from the body, and the resulting expansion of the body either vertically or horizontally, was integral to almost *every* representation (see Figure 10). This commonality in the expressive use of hands is an example of what Wilson calls a "culturally established gesture" (p. 378) and Barthes defines as a "universal symbolic order" (1977, p. 18), a "historical grammar" (p. 22) and an "iconographic connotation" (p. 22). When attending to the connotation of an icon, Barthes directs us to "look for its material in painting, theatre, associations of ideas, stock metaphors, etc., that is to say precisely in 'culture'" (p. 22). In religion, mythology, art and science the sun is a dominating, life-giving symbol and in the tableaux, the sun's literal and figurative centrality in our lives was denoted through expansive gestures that mirrored iconic representations of the sun with extended 'rays' of light. At times, the sun became an even bigger presence in a tableau when *pairs* of students formed a singular representation. In these paired structures one student stood behind the other but both students had their arms pointing in different positions. The visual effect of four outstretched arms and hands denoted the intensity of the light from the sun and connoted its power to give and sustain life (see Figure 11). Hands were also used to represent a source of energy or a force. In the text about gravity, students who depicted 'gravity' held their hands away from their body and gestured the emission of a force. In a tableau with the main idea sentence "The energy the sun gives off," two students stretched their hands forwards and legs apart to denote their roles as "streams of energy" (see Figure 12).

Figure 10: Student representations of the sun.

When representing people, the placement and orientation of hands denoted action. In Figure 13, the students are shown using their hands to drive, to point and to mime holding a

flashlight. At other times, students used their hands to reinforce an emotion. In Figure 14, the student in the middle of the picture was in role as an "OMG person" and used her hand in an exaggerated way to express the feeling of surprise at witnessing a solar eclipse.

Hands were also used to show a relationship with others. In Figure 15, a student in role as a mom used her hand to comfort her son as they both experienced the withdrawal of the sun's heat.

Facial expression. Students used facial expressions in role as people to communicate emotion (see Figure 16). Students exhibited more neutral expressions when in roles other than people. Figure 17 shows students from group 1 in role as space objects and using gesture rather than faces to express intention.

Figure 11. Pairs of students combined individual asymmetrical gestures to form symmetrical representations of the sun.

Figure 12. Students used outstretched arms and hands to represent energy or a force.

Figure 13. Students used hands to show action.

Figure 14. Students used their hands to reinforce emotion.

Posture. Students used height to posture the status of their role, i.e. importance. The largeness of the sun often contrasted with the smaller postures of those in other roles and showed an understanding that the sun is the largest object in the solar system. In Figure 18, the student on the left represented the sun by stretching her hands above her head and standing on a chair to make herself even taller and thereby denote the sun's magnitude. The student on the right was also in role as the sun but in contrast to the usual portrayal of the sun, she used a downward orientation of her hands, head and shoulders to denote that the sun was no longer emitting any heat.

Figure 15. Hands were used to express relationship with others.

Figure 16. Students used facial expression to communicate emotion. Facial expressions from L-R: a student in role as a baby crying on the backseat of a car; a student expressing surprise at a solar eclipse; a student in role as an exhausted "guy running away from the sun."

In another tableau (see Figure 19), students wanted to show what would happen on Earth if the sun no longer shone. The student in role as the sun stood with a powerful, expansive and heightened posture but had her back turned on "the freezing cold people" who, in contrast, showed their suffering status with kneeling and closed in postures that resonated with Barthes "historical grammar" of representation (1977, p. 22). Of interest also is the 'flatness' of the sun's representation, almost as if students are so used to drawing a 2D version of a sun that, by turning her back to the people, she is mirroring the action of turning over of a piece of paper and making the 2D image of the sun become but a trace.

The informational text for session 6 (see Table 4) was about why living things need the sun and the students used curled up or lying on the floor postures to denote states of freezing or dying in the absence of the sun (see Figure 20).

Figure 17. Students in role as space objects with neutral expressions.

Figure 18. Contrasting images of the sun through posture.

Figure 19. The sun's reversed posture denies life to the humans on Earth.

Figure 20. Students used curled up or lying down posture to denote the effects of an absent sun on living things.

Student positioning. Students used positioning to denote main ideas and/or information about their roles. I examined students' positioning in the tableaux along a spectrum of 'closeness' to each other. Close positioning was used to denote connectivity between roles based on ideas to be found in the texts. In a tableau about the gravitational force between the sun and the Earth, students used positioning in ways that reflected iconic representations of villains and victims. Two students in role as "gravity" stood either side of, and very close to the sun, as if they were the sun's 'heavies' that did its 'dirty work.' The Earth was also close to the sun, but the tightly curled posture as 'it' lay on the floor connoted a status of victim and a sense of being at the mercy of the sun's bidding (see Figure 21).

Figure 21. Students used high and low positions to denote status. Compare with classic image of villain and henchmen. (Image retrieved from http://apurvbollywood-a.blogspot.com/2011/08/bodyguard.html)

In a tableau based around the main idea sentence "The energy the sun gives off", two "streams of energy" positioned themselves as if they were coming from the sun. The sun's expansive pose indicated 'its' power as the source of the energy streams. The student in role as "the Earth" positioned himself on the same level as the streams of energy and faced the energy/sun/energy trio as if happy to accept and receive the transfer of energy from the sun (see Figure 22). The idea of transference through physical contact was evident in many of the tableaux. In tableaux where three students were physically (or very nearly) connected, the student positioned in the middle was the conduit of a force or energy (see Figure 23). In Figure 24, the tableau was an image of a solar eclipse. The three students were very closely positioned and the student in the middle represented the moon blocking the light of the sun (on the ground) from reaching the Earth (behind her).

Figure 22. Close positioning denoted connection between roles. The Earth (on the left) faced and received the streams of energy that come from the sun.

When students placed themselves far away from each other in a tableau, I looked at the overall shape that was created by the isolated positioning and I saw both circles and linear arrangements. Figure 25 is a tableau that represents the Earth, sun, moon and a star and although the text did not mention the circular formation of the solar system, the students placed themselves that way. Figure 26 shows a more linear arrangement of the sun and two stars but their isolation as separate entities indicated the vastness of the universe. The student in role as an astronaut also placed herself in an isolated position but her crouched down posture behind a chair denoted her diminutive size in comparison to the stars, and her peeping over the top of the chair denoted a sense of fear about getting too close. As a major presence in many of the texts, the sun's importance was sometimes shown in the tableaux through other roles keeping their distance so that our attention as spectators was drawn to the sun (see Figure 27). The isolated positioning of roles showing death or suffering reinforced a lack of human contact as contributing to a sense of doom and hopelessness (see Figure 28). Frightened, suffering characters occupied solitary spaces and avoided eye contact with others, preferring to stare “into space” and “hug” themselves.

Figure 23. Students took up middle positions to denote the role of a conduit. Clockwise from top left: 1) The student positioned in the middle is in role as "heat" being transferred from the sun behind her to a bird in front of her. 2) The student on the floor is in role as the "string" of gravity positioned between the sun and the Earth. 3) The student in the middle is "gravity" reaching towards a "guy running away from the sun." 4) The student balanced on one leg in the middle is "gravity" being pulled by the sun as she touches the Earth curled up on the ground.

Figure 24. Students used a middle position to represent a blockage. Roles from L-R: the Earth, the moon and the sun. The student positioned in the middle is blocking the light from the sun to show what happens in a solar eclipse.

Figure 25. Isolated positioning that created a circular pattern. Roles from L-R in clockwise direction beginning with standing student: star, Earth, moon, sun. The main idea sentence for this group was "is the sun." The sun is the student on the floor in the foreground and it is interesting how his very large shape, while lying down, corresponds with being the object in their main idea sentence.

Figure 26. Linear arrangement of the sun and two stars in a tableau. Each student occupied an isolated position in the vast universe while an astronaut (far right) looked on from an equally isolated position.

Having presented an analysis of the final tableaux as shown in the photographic data, I now move on to presenting findings related to an analysis of the time-lapse photographs.

Time-Lapse Photographs

I analyzed time-lapse images as evidence of the incremental steps that students took towards the final representations of main ideas in a tableau and in keeping with a focus on

Figure 27. The sun remains distant from the other roles. The student's use of a chair and his gesture emphasized the sun's dominance in the universe.

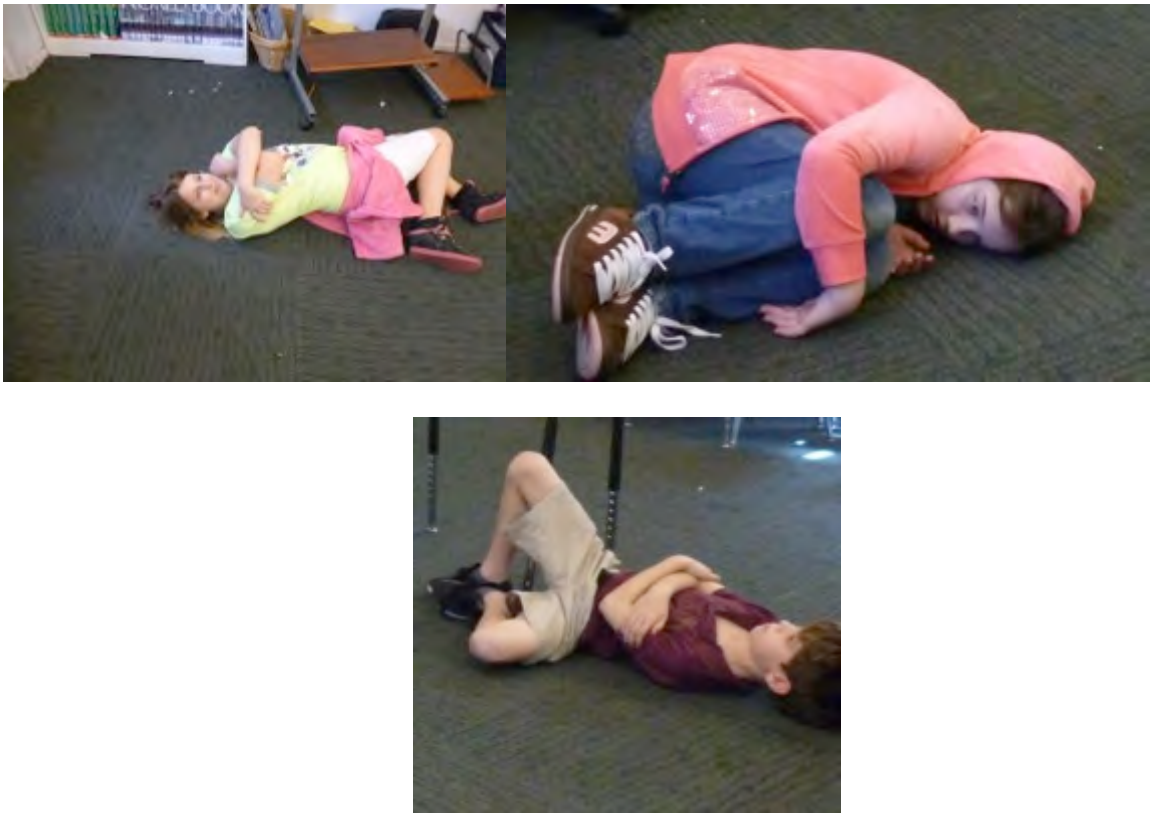


Figure 28. Students used isolated positioning to show death and suffering. Roles clockwise from top left: a "dying person," a "frightened girl" and a "frozen lawyer." Note the self-comforting "hugging" postures and the lack of eye contact with others.

embodied learning, I examined positioning and use of space. I documented patterns related to students' creative and working processes within sessions and specifically: (a) movement patterns of groups and (b) body patterns of individuals. A marked shift in working patterns *across* sessions in relation to (c) time was also noted as a significant finding.

Movement patterns. Students began their preparation of tableau in clustered groups, drawn together by the digital recorder that had been placed on a desk for each group, copies of the text for the session, the sheet on which they wrote their 'main idea sentence' and the purpose of discussing the text to identify a main idea. Regarding the presence of circular shapes in classrooms, Branscombe and Schneider have observed that, "Bodies, positioned in circular shapes, became the semiotic sign for a community of learners" (2014, p. 16). In Table 9, the students begin the activity by creating small circles to read the text but the time-lapse images show that after a time, the clustered shape patterns broke apart as the students practiced their tableau, tried out different ideas and consulted with each other. The timing of this movement pattern differed between groups, with some groups breaking away to practice earlier than others.

Body patterns. As groups broke out from their clustered working patterns to begin practicing their final tableau presentations, there were observable changes in body patterns. When students stood around their tables at the beginning of their collaborative deliberations over text their arms were at their sides and their heads were downwards. As they broke away from proximity to the 'discussion' table, body shapes became more varied as they experimented with height, posture and gesture. These experimentations showed the evolution of ideas that were actualized in the final tableau photographs and in effect the time-lapse photographs were the tracings of a collaborative product. In the time-lapse images I saw students trying out different

shapes, such as the girl in Table 9 who experimented with one arm then both arms in the air to represent a star.

Table 9

Movement Patterns of Students in Session 1

Time-lapse Photographs of One Minute Intervals	Observations
	6 minutes into preparation time. Most of the students are clustered around tables. The group on the left has papers on the table and one of the students seems to be looking at them.
	7 minutes into preparation time. Most of the students remain in a circular formation around their tables. The student with his arms out is practicing a shape that he uses to represent the sun in the group's final tableau (see Appendix A).

Table 9 Continued

Time-lapse Photographs of One Minute Intervals	Observations
	8 minutes into preparation time. The group on the left has spread out and the student with her arm up is practicing a shape that she uses to represent a star in the group's final tableau (see Appendix A).
	9 minutes into preparation time. This group remains clustered around their table. This student still has his arms spread out in the sun shape. In the final tableau, the student lying on the floor represents the sun by lying down and stretching out both arms and legs.
	10 minutes into preparation time. This shape is similar but not identical to the one she uses in the final tableau. Students from the 'clustered' group have broken away and seem to be practicing. These two students are practicing different shapes.

Table 9 Continued

Time-lapse Photographs of One Minute Intervals	Observations
	11 minutes into preparation time. Student from the 'clustered' group is balancing between the doorposts as she practices being the sun. In the final tableau she made the same shape, but stood on the floor (see Appendix A).

Table 10 presents my analysis of time-lapse images from session 3. My analysis focuses on group 5 experimenting with different gestures to show the gravitational pull between the sun and the Earth. The next example set of time-lapse photographs in Table 11 illustrates the evolution of a final tableau as students in group 4 experimented with different body shapes and different group members before deciding on a particular image.

Table 10

Body Patterns of Students in Session 3.

Time-Lapse Photographs of 10 Second Intervals	Observations
	Three students from group 5 stand in a linear position to practice their idea for a final tableau. The student at the front is using his arms to gesture a running position. Note how students in other groups are experimenting with different heights as two students in group 4 practice a shape on the floor.

Table 10 Continued

Time-Lapse Photographs of 10 Second Intervals	Observations
	Now we see how the 'runner' from group 5 has introduced a facial expression into his pose. The other group members remain in a linear position behind him and seem to be in discussion with each other.
	We see a group at the back experimenting with height as two of the students stand on a chair. Two students in group 5 now use their bodies in reaching and stretching gestures to denote the 'runner' is trying to get away from 'gravity' behind him.
	This group is also in a linear formation and there is physical contact as one student holds on to the feet of another student. The 'runner' is now on the floor. The third member of the group moves forward to look at him.

Table 10 Continued

Time-Lapse Photographs of 10 Second Intervals	Observations
	The student in role as the sun experiments with the gesture of stretched out arms. She appears to be looking down at her group partner whose arm I can see on the floor. This is the first time this group has been clustered around the table and they appear to be consulting the text in the middle.
	Photograph of group 5's final tableau presentation. Note how actions from the previous photographs were incorporated into the final tableau. There are changes though, such as the use of the chair for the sun to stand on and the 'gravity' to reach from. This could indicate the influence that other group tableau preparations had on final tableau presentations. * Not a time-lapse image

Time. By watching the movie formats of the time-lapse photographs, I was able to observe that over the course of the study, groups changed their working practices. In session one it took about eight minutes before students moved away from their desks to practice their tableau whereas the QuickTime movie of session 6 show diminished clustering around desks and that tableaux were being practiced within three minutes of students gathering to begin the activity (see second image in Table 12). A faster creation of tableau may have resulted from a growing

confidence about the task itself, effective collaborative practices and a more intuitive approach to the creative process.

In summary, the time-lapse images showed where students worked, how students manipulated their bodies and tried out different shapes, and how ideas evolved into the final tableau presentations. I now move on to findings from the video data.

Table 11

Group 4 Experiments with Different Body Shapes and Students for their Final Tableau

Time-Lapse Screen Shot	Observation
	The image shows two students as they practice representing a solar eclipse.
	A new student appears in the paired image and a new image is created with different body patterns.

Table 11 Continued

Time-Lapse Screen Shot	Observation
	The two students standing one behind the other represent the moon (in the front) and the sun (behind). The student on the left is practicing his gesture as someone "holding a flashlight." The image gets closer to the tableau presentation (see final image).
	The 'moon' has changed her hands to be arched above her head. The sun's posture remains the same. Note how another group member seems to be adjusting the shape of the 'flashlight holder.'
 * Not a time-lapse image	Photograph of final tableau presentation about a solar eclipse. The student on the left represents an "OMG human."

Table 12

Time-lapse Images of Session 6.

Screen Shots from Session 6 Movie (QuickTime)	Approximate Time Taken	Observations
	12:25 p.m.	One student is at her desk looking at the text. Most of the other students remain on the carpet with their texts.
	12:28 p.m.	The student who was at the desk has joined her group (right of the picture), which although in a circular formation, cannot be described as a "cluster." From looking at other students it appears that they are already embodying ideas from the text. I see students using gestures and different heights.
	12:31 p.m.	Most of the students are seated. This is a foreshadowing of the final tableaux where many of the students chose to lie down or curl up on the floor to denote life without the sun.

Table 12 Continued

Screen Shots from Session 6 Movie (QuickTime)	Approximate Time Taken	Observations
	12:33 p.m.	Eight minutes have passed and the students are ready to join me in the 'performing space' for final tableau presentations.

Video

Whereas the time-lapse images showed movement and positionality patterns as static data, the video allowed me to view tableau in real time and through multiple modes simultaneously. My analysis of video had two foci (a) what it revealed about students process that had not been revealed in the audio and photographic data and (b) how individual student actions fitted within the CHAT framework for this study.

Student process. The viewing of video revealed a working practice that I was unaware of until I watched the video; group 2 practiced their tableau before writing the main idea sentence. When asked by my colleague who was doing the filming why they did this, one student replied, "because we can get different ideas along the way" and another student joined in, "yea, better ideas." This reminded me of Barnes' definition of exploratory talk as enabling "the speaker to try out ideas, to hear how they sound, to see what others make of them, to arrange information and ideas into different patterns" (2008, p. 5). In this instance the students were using exploratory action, not talk, but the effects were the same: they too were trying out ideas, to see what they looked like, to see what others made of them and to arrange their bodies and ideas into different shapes. They were concerned that their tableau reflected an idea they were all happy with before they committed their main idea representation to paper as a sentence.

Individual actions within a CHAT framework. The video data confirmed how students reacted differently within the context of the collaborative activity that had been assigned to them. My comments focus on the outward aspects of 'personality' as exhibited in the video. The first relates to observations regarding those students who were more vocal than others. Their vocality was expressed through initiating the re-reading of the informational text, directing other students as they practiced the tableau, writing the main idea sentence and saying it out loud while they wrote it (see Figure 29). These were findings that were also evident in the audio data but the video data showed what those activities actually 'looked like.' For example in Figure 29, a student can be seen physically maneuvering another student into position as they tried out an idea. This would not have come across in the audio, a fact that affirmed the presence of multiple modes of data capture.

Figure 29. More vocal students took on active roles.

Researcher gaze. How students reacted to being videoed also underlined differences between students. In contemporary culture, the ability to take video on smartphones makes the likelihood of filming others or being filmed much greater but in the video of the students, some students 'performed' for the video while others shied away from it. As my colleague approached a group, one of the students stopped mid-conversation, turned to face the camera, struck a pose and said "photobomb!" One of the other group members joined her and the student who had initiated the pose held it for at least ten seconds while looking directly at the camera. As an event captured on video, it exemplified the agency of children as described by Tudge and Hogan,

"They clearly influence their own environments, for example by initiating new activities, drawing others into them, while at the same time being influenced by those around them" (2005, p. 105). This quote also illustrates the interaction between a student and her culture at any moment in time, an important belief in CHAT, and with the 'photobomb' word, the event shows the influence of contemporary culture on that particular student at that particular moment in history. In a year's time the word 'photobomb' will probably be 'old' and replaced perhaps by another word to accompany a pose. Although another student joined in with her for a shorter period of time, the other two members of the group looked decidedly uncomfortable, aware of the camera but in a different way. Their discomfort suggested a twofold awareness; that their peer had behaved 'inappropriately' (for a school context) and had done so 'for all to see' (see Figure 30). It reminded me of a transcript in the audio data when a student chided another for off task talk and said, "You know they can hear all of your voice?" In another contrasting example, as the video got closer to a group, one student said to another, "No, keep talking." This prompted another group member to thrust the digital recorder under the mouth of the student who had been talking. She went quiet, blushed and pushed the recorder away (see Figure 30).

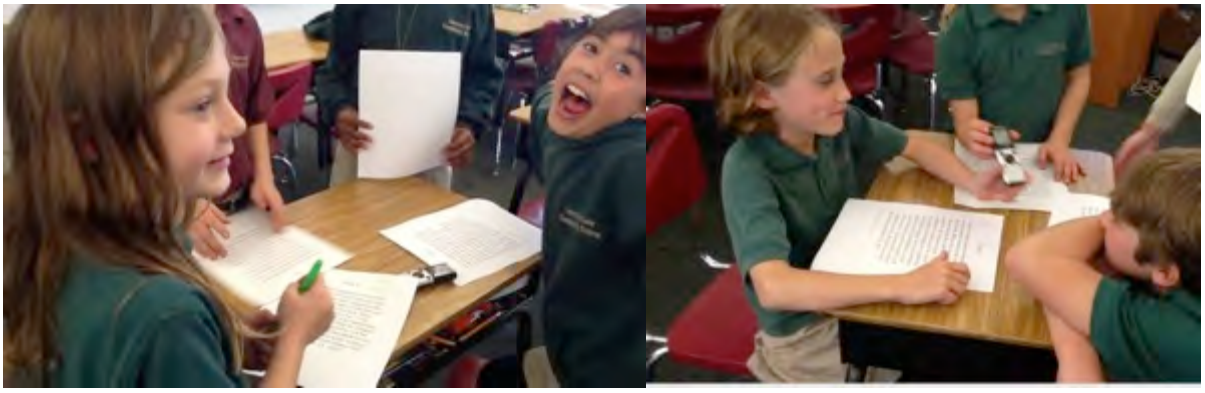


Figure 30. Students react differently to the video.

Leadership and power. Less vocal students appeared as passive bystanders to 'leadership' roles that the more vocal students tended to adopt, neither withdrawing from the

situation nor challenging the lead of others. These observations are not criticisms of more vocal children, as being non-vocal is also an agentive choice and may *cause* others to step forward and initiate action and dialogue. The video showed two groups that seemed to be having a very productive working time. They were practicing their tableaux and the discussions were about the task. During the study I had noticed how one student in group 4 often took on the role of leader; she assigned roles and decided on the order of readers when they read their text aloud. The video showed her adjusting the position of one of the other members of her group and going over to another student who was moving in role and showing him how to stand still with his action (see Figure 31). In the video her manner was friendly and the group members accepted her guidance; one boy held his pose perfectly still as "the sun" throughout the adjustments of other group members.

The other group in the background of the video was also practicing their tableau. They had a student who was focused on making adjustments to the student who would be physically holding her in a role as the sun. She indicated a gesture for the student to copy. The other two group members watched and did not make any suggestions of their own but waited for the other two students to decide on a pose.

Figure 31. Students in leadership roles guided other students' positioning in their tableau.

Throughout the study there was a particular group that frequently experienced problems with the collaborative nature of the work. They often argued about the mechanics of tasks such as the reading of text or the writing of the main idea sentence and this sometimes resulted in group members carrying out disparate activities. The video showed one student writing the main idea sentence, watched closely by another student. He advised her that the main idea should only be a couple of words but she continued to write and told him, "No, it can be a full sentence." The other students sat passively in the background (see Figure 32). When my colleague asked "Who writes the main idea?" the boy who had been watching the girl write said, "We fight over it." Then when asked if they had already practiced their tableau, the group seemed unsure and I heard both a "yes" and a "no" answer on the video. As I looked at their positioning in the classroom, I remembered that their assigned place (by me) had been in the far corner of the room, furthest away from the space where the tableaux were shared at the end of the session. The video data highlighted the tightness of the space and for the most part, the students appeared to be engaged in different activities. Behind them was a table that looked to be the 'dumping table' for assorted backpacks, lunch bags and coats. These observations caused me to wonder about the impact of the environment on working patterns (see Figure 32) and if my decision to put them in a cluttered, crowded space had suggested to them that I did not value their work and affected their ability to engage as a group.

Figure 32. A group is assigned a small, crowded working space.

As a summary, the video data showed students' actions as occurring at an intersection of individual characteristics, a particular classroom context and within a particular historical moment in time. I want to stress that the video data were filmed during one particular session, therefore within a CHAT framework, different influences may have played out in different sessions leading to different observations. What I want to emphasize is the fluidity of classroom research; a child who was quiet in session 4 may have been more vocal in another session, a group that did not collaborate well may have done better in another space and cultural vernacular used in one session may have been out of date in a later study. However, it is the fluidity of events inside a classroom that underscores its ecology; it is a site of interaction between many influences that are constantly shifting, as "context and individual undergo dialectical transformation" (Tudge and Hogan, 2005, p. 104).

Finally, from a personal point of view it is hard not to watch the video without noticing the noise in the classroom. It is not an earth-shattering finding, but it needs to be said; classroom drama is a noisy activity. Students raised their voices to be heard when they became enthusiastic or were upset with another student. As a former teacher I was often conscious of the noise but as a source of data it speaks of the energy that was unleashed when students were asked to collaborate and create.

Summary and Synthesis

Having separated the findings according to data source, I now synthesize the findings in order to answer the question: How did students represent main ideas from science information texts as a tableau? The synthesis is divided between the **process of representation** when students discussed the text and practiced their ideas for a tableau and the **product of representation** when they presented their tableaux of main ideas.

Process

When discussing the text and practicing their tableau ideas, the students represented main ideas from science information texts by:

- Rereading the text
- Using talk to negotiate all aspects of the project— roles, tableau composition and the collaborative process.
- Using talk to build upon each other's ideas
- Using exploratory action to try out different ideas for their tableau
- Referring to the text as the source of information for role and tableau ideas.
- Manipulating their own and other bodies into different shapes
- Using different group members in practicing a particular image
- Commenting on the effectiveness of each other's poses and gestures

Product

When students presented their tableaux, they represented main ideas from science information texts by:

- Choosing roles that were either directly referenced in the text (the sun, the moon, the Earth), inferred from the text (an ice cream truck in a tableau about the sun's warmth), or not referenced at all but made sense within the context of the text (an "OMG human" reacting to an eclipse of the sun).
- Enacting the text through gesture – using their hands, facial expression, posture, and positioning in relation to other students. These embodied moves helped students make sense of the text (showing energy by stretching out arms and legs) and shaped their understanding of text (people in shriveled, curled up isolated positions without the sun).

- 'Narrativizing' the main ideas by including people conducting specific actions ("a guy that's trying to shade from the sun" or imbuing roles with emotional content ("a disappointed bird")
- Using gesture to denote emotion (a mother tenderly comforting her dying baby as the sun withdraws its warmth)
- Using different postures to denote main idea roles – height for the sun and low levels for the roles subservient to the sun's power (the Earth, people on Earth)
- Using iconic representations of the sun to denote its role as a high status object and sustainer of life
- Positioning their enactment in time (an image of a long car ride to show the distance between the Earth and the sun) and space (students in the middle position of a tableau depicting gravity as a force between the sun and the Earth).

Research Question 2: How did students represent main ideas when writing in role?

I analyzed 17 writing samples from session 4 and 21 writing samples from session 6. The writing in role responses were written after being in a tableau about a main idea based on an informational text. Tables 13 and 14 show the informational text and the student responses. The elements of voice and emotional content were the focus for my analysis and the tables are followed by the findings related to these areas.

Table 13

Student Writing in Role Responses from Session 4

Session 4 Text		
A solar eclipse happens when the moon passes between the sun and the Earth. When this happens, the moon blocks the light from the sun and the sky becomes dark. This darkness usually lasts for a few minutes. Birds think it is nighttime and stop singing! During an eclipse only the sun's atmosphere can be seen shining around the dark circle of the moon. The next solar eclipse visible from the United States will be Monday August 21, 2017. (Simon, 1996, p. 17)		
Writing Sample #	Role (as written by the students)	What the Students Wrote (corrected spellings but the punctuation is in the original)
1	Sun	As the sun, in the eclipse I was sad because I didn't get to do my part, I didn't get to shine in the day, only at the ends.
2	Sun	I was the sun. I thought like the sun should not be blocked by the moon.
3	Sun	I thought oh my I'm being covered.
4	Sun	The sun was sad because no one could see me
5	Sun	I was the sun and the moon was blocking me
6	Sun	I was thinking it's hot in here. Is my hair ok? Oh, I forgot, I don't have hair!
7	Earth	I was having a hot day but not too hot. But then it got dark. I looked at the sun but in front of it was the moon. I said it's cold, can you move over? and he did.
8	Earth	I the Earth was thinking, wow, why is it so dark? It's so quiet. I was sad.
9	Moon	In the tableau I was thinking, wow, it took 100 years to get in front of the sun, but I did it. I'm in front.
10	Moon	I was thinking ah! I was blocking the earth and I felt happy because now everyone can see me! Yay!
11	Star	People can see me now because it's dark
12	A human saying OMG!	My thoughts were…why was the sky black and dark? It was mostly always light. Is it nighttime? Did I just didn't notice it?
13	Guy with flashlight	I can't see anything even with the flashlight!

Table 13 Continued

Writing Sample #	Role (as written by the students)	What the Students Wrote (corrected spellings but the punctuation is in the original)
14	Spaceman	I was thinking wow as a spaceman looking at that.
15	A disappointed bird	A disappointed bird because the sun got blocked
16	A little girl	A little girl staring at the moon and the sun
17	A little girl looking at the solar eclipse	What is that!

Voice

Most of the responses were written in a first person voice but the *style* of voice varied throughout the responses, from a poetic lament, "I didn't get to shine in the day, only at the ends" to a very direct "I was the sun and the moon was blocking me." Some of the pieces were conversational in style, "Is my hair ok? Oh, I forgot, I don't have hair!" and as this example shows, the more conversational pieces were punctuated with question marks and exclamation points that showed an awareness of audience as perhaps students imagined themselves saying the words aloud.

The conversational pieces tended to be longer in length because they included more information about the events of a solar eclipse and the other space objects involved. The following example has all the elements of a story structure with an initial sentence that sets the scene followed by a conflict and a resolution, "I was having a hot day but not too hot. But then it got dark. I looked at the sun but in front of it was the moon. I said it's cold, can you move over? and he did." However, all the basic processes of a solar eclipse can be found within the 'story'; the darkening of the sky because the moon has moved in front of the sun, the resulting drop in temperature on the Earth and the return to full sunlight as the moon no longer eclipses the sun. As such, it was a narrativizing of an abstract scientific concept.

Table 14

Student Writing in Role Responses from Session 6

Session 6 Text

The sun is very important to life on earth. It gives off energy in the form of light and heat. Plants need the light energy to grow. Animals, including humans, need plants for food. Without the sun's energy, plants would not grow and animals would have nothing to feed on and we would go hungry! Without the sun there would be no light, no heat and no living thing would survive on the earth. We depend on the sun for our life!

(National Geographic, 2011, adapted from p. T152g)

Writing Sample #	Role (as written by the students)	What the students wrote
1	A frozen lawyer	I was a frozen lawyer that wanted to see his clients.
2	A frozen person	I was a freezing person because the sun was gone.
3	A dead lady	Oh my, I am dead! Why me
4	Guy trying to get my coffee	Open, open, victory!
5	A mommy helping her son	"It's ok sweetie," "I'll die with you."
6	Dying person	I'm dead.
7	Frozen baby	My character was thinking I am going to die.
8	Person	I'm so cold.
9	A man dying	Help! Get an axe!
10	Frozen guy	Um, can anybody help
11	A frozen teenager	A teenager bundling up to keep warm.
12	A frightened girl	I am thinking I am scared.
13	Best flower	I was having a beautiful day when suddenly I froze the sun went.
14	A chipmunk	I was alone scared frightened. No one left run!
15	Bird	Hungry and scared.
16	Frozen polar bear	I was a little bit too cold so I froze and I was thinking hot cocoa please.
17	Dead cockroach	I was thinking of apple pie.
18	Asteroid	I was thinking I would hit the sun.
19	Sun	I'm going on vacation.
20	Sun	I was the sun and I felt bad.

Narrative elements. Evidence of 'narrativizing' was also present in the extra details that students provided about their role, such as the "frozen lawyer that wanted to see his clients" and the "guy trying to get my coffee" and expressing "victory" when he opened it at last. Also, the use of adjectives enhanced the narrative voice of some responses. A student writing in role as a flower "was having a beautiful day when suddenly I froze the sun went." Being in role, and subsequently writing in role, had enabled the student to think about a scientific concept as a narrative event enhanced by the use of adjectives.

Some of the writing pieces were written with an impersonal voice that read more like statements of fact than narrative, for example, "I was the sun and the moon was blocking me" and "A little girl staring at the moon and the sun." However, these details still accurately reflected the processes involved in a solar eclipse and the likely reactions of people to an eclipse. Even the simple exclamation, "What is that!" implied a student totally caught up in the moment of witnessing a scientific phenomenon and the sense of wonder that comes with the experience.

Emotional Content

Expressions of emotions ranged from short statements of fact, "I am scared" to more descriptive statements, "I was alone scared frightened. No one left run!" and the highly emotional words of a mother trying to comfort her son, "It's ok sweetie, I'll die with you." The effect of attributing human emotions to space objects and animals made the student writing engaging and provided evidence of student understanding of scientific concepts. A student writing in role as the sun expressed regret, "I was the sun and I felt bad." Clearly, the sun does not "feel bad" but the choice of language demonstrated an understanding of the sun as essential to life on Earth. Similarly, the presence of a triumphant moon ("now everyone can see me! Yay!"), an indignant sun ("I was the sun. I thought like the sun should not be blocked"), a

"disappointed bird" and a cockroach "thinking of apple pie" were appropriate and imaginative responses given the informational texts and the main ideas in them.

Summary

An analysis of voice and emotional content in student writing in role found elements of narrative in the use of a conversational voice, the inclusion of adjectives and sentiments that incorporated emotions. In this finding there are echoes of earlier findings related to the presence of narrative in the students' tableaux. It could be surmised therefore that the effects of being in a three-dimensional narrative became incorporated into a two-dimensional mode of words on a page. Although some scientists would balk at the idea of approaching these concepts through emotion, the process of identification—the process of a child trying to understand complicated science concepts—can be aided by identity stances and these stances are created through emotional and embodied bonds that carried over into student writing.

Research Question 3: What Were Student and Teacher Reactions to Tableau as an Embodied Learning Experience?

With the rationale of wanting to include student voices in the research, I asked the third grade students to complete response sheets at the end of the study. As a 'knowledgeable other', I also wanted to investigate Ms. Kay's perceptions of the six sessions. This study was an intervention that positioned drama as an alternative way to engage with informational texts. But for this to happen on a regular, non-interventional basis, classroom teachers like Ms. Kay need to see the benefits for themselves and I wanted to know her thoughts on this matter.

In chapter three I explained that I categorized student responses according to content themes and key words. Tables 15 and 16 present the student responses and the themes that I assigned to each one. These are followed by findings related to the content theme and key words.

Student Reactions about Individual Experience

The first two questions asked: What did you enjoy about the tableau work? and What did you not enjoy about the tableau work? Tables 15 and 16 record their responses.

Table 15

Student Responses and Content Themes for Question One

Reflection Question # 1	Student Response	Thematic Descriptors
What did you enjoy about the tableau work?	I enjoyed that I was funny in the tableau.	Engagement
	All of it, because it was fun.	Engagement
	It was fun	Engagement
	Having fun and being who you are.	Engagement Tableau experience
	To be funny.	Engagement
	Being funny with my friends and deciding what we will do.	Engagement Group dynamics
	It was just so fun.	Engagement
	That it was so funny!	Engagement
	Being funny.	Engagement
	I enjoy when I fall down.	Tableau experience
	I enjoyed when we came alive.	Tableau experience
	My poses.	Tableau experience
	Acting in the tableau.	Tableau experience
	I liked saying what I was.	Tableau experience
	When I froze in an ice cube.	Tableau experience
	We got to act as a living something.	Tableau experience
	Everything to do the tableau	Engagement
	Everything. Being silly, excitement	Engagement
	Everything.	Engagement
	All the info I took in!	Knowledge
	That we got to (incomplete)	(Unknown)

Table 16

Student Responses and Content Themes for Question Two

Reflection Question # 2	Student Response	Thematic Descriptors
What did you not enjoy about the tableau work?	Nothing	Engagement
	None of it	Engagement
	Nothing	Engagement
	I didn't have anything I didn't enjoy.	Engagement
	Nothing.	Engagement
	I enjoyed everything!	Engagement
	Nothing.	Engagement
	I enjoyed all of it.	Engagement
	I liked all of it.	Engagement
	Nothing	Engagement
	Nothing	Engagement
	Nothing	Engagement
	Nothing	Engagement
	Nothing	Engagement
	Some or two people were jafing (?) off	Group dynamics
	Some two was joking around.	Group dynamics
	My group, not saying I did not like the kids, just that it would be better if I was with my BFF.	Group dynamics
	Me being dead.	Tableau experience
	Staying still.	Tableau experience
	Staying still.	Tableau experience
	How tiring it was.	Tableau experience

Engagement. According to student responses, "having fun" contributed a lot to student enjoyment of the tableau work. None of the students defined what they meant by "fun," but five students named the opportunity to "be funny" as enjoyable. When asked what they didn't enjoy, I classified student responses of "nothing" and "I liked all of it" as indications of engagement. Fourteen students out of twenty-one indicated that they enjoyed all aspects of the work.

Tableau experience. Responses that referenced something about being in a tableau, either as enjoyable or not, were classified as "tableau experience." Eight students named an

aspect of the tableau experience as enjoyable but only one specifically named a role they had played. Four students named an aspect of being in a tableau as not enjoyable. Two of these "not enjoyable" responses cited "staying still" as a reason. Staying in one position for a length of time can be uncomfortable, boring and perhaps particularly challenging for children, and at times this essential element of tableau may have caused the students to feel frustrated.

Group dynamics. One response was classified as "group dynamics" in the question about what they enjoyed and this was about the planning of tableau. This contrasted with the two responses that indicated group dynamics had been a problematic experience in the planning stages. Frustration with the behavior of other group members was evidenced in the transcriptions and I would suggest this is an inevitable reality of group work.

One student expressed disappointment that she had not been able to work with friends. I believe her caution when expressing this, "not saying I did not like the kids," showed a high degree of interpersonal awareness; she did not want to appear unfriendly in her comments about the group she had been assigned to but at the same time she wanted to express her preference for working with friends, "it would be better if I was with my BFF."

K**nowledge.** Only one student referenced the acquisition of knowledge as something she enjoyed about the work, although she didn't clarify the kind of "info she took in." I am unsure if she meant information related to the science work or the art form of tableau or if it was a comment on the whole experience. However, it was encouraging to read that this particular student felt she had acquired new information through the experience and that this had been what she enjoyed the most.

Student Reactions about Group Process

Questions three and four on the reflection sheet were about group process: How did your group decide on the main idea for each text? and What did your group do when it couldn't agree on the main idea? Tables 17 and 18 record the findings.

Table 17

Student Responses and Content Themes for Question Three

Reflection Question # 3	Student Response	Group Number	Thematic Descriptors
How did your group decide on the main idea for each text?	We all decided as a group	1	Group process
	We worked together.	1	Group process
	As a group.	1	Group process
	We all agreed on them.	2	Group process
	We worked together to come up with one.	3	Group process
	We read the text and then came up with a summary	4	Group strategy (reading the text)
	We read it then we decided.	3	Group strategy (reading the text)
	We read the text.	3	Group strategy (reading the text)
	We looked at the text and got it off of there.	2	Group strategy (reading the text)
	We just talked about it.	2	Group strategy (discussion)
	We all said an idea and chose which one was best.	5	Group strategy (discussion and voting)
	We listened to ideas, then agreed.	5	Group strategy (discussion)

Table 17 Continued

Reflection Question # 3	Student Response	Group Number	Thematic Descriptors
	Talking with the group	1	Group strategy (discussion)
	We thought about things we could be.	5	Group strategy (tableau role)
	We thought what it was mostly about.	5	Group strategy (main idea)
	First we had to vote!	3	Group strategy (voting)
	We just put it on the paper.	2	Group strategy (writing)
	Well, Kathryn asked us what we thought the main idea was and what we said most of that's what we would go with.	4	Leader
	Kathryn told all of us what to do, but the last time I took a stand and refused.	4	Leader
	There was a director	4	Leader
	Because Sarah put everyone in order	1	Leader

Group process. Statements about group process tended to be vague on details about how a group "worked it out." There were more of these unspecific type answers to the first question about group process than the second question about resolving conflicts. This finding caused me to look again at the wording of the questions. The first question about group process was a "How did your group…" question whereas the second one was a "What did your group do…" question. Perhaps third grade students are more familiar with "what" questions than "how" questions and respond more specifically to questions that ask about action taken (what did your group *do)* rather than process (*how)* questions.

Table 18

Student Responses and Content Themes for Question Four

Reflection Question # 4	Student Response	Group Number	Thematic Descriptors
What did your group do when it couldn't agree on the main idea?	We worked it out	1	Group process
	We worked it out	1	Group process
	We voted	5	Group strategy (voting)
	We voted on two main ideas	3	Group strategy (voting)
	We took a group vote of what we thought	4	Group strategy (voting)
	We thought of something else	5	Group strategy (changing direction)
	We and they said we will try something else.	1	Group strategy (changing direction)
	We thought of other things	2	Group strategy (changing direction)
	We changed it up.	3	Group strategy (changing direction)
	We made another	2	Group strategy (changing direction)
	We talked it out	4	Group strategy (discussion)
	Talking with the group	1	Group strategy (discussion)
	Did what we wanted to be then put it together	5	Group strategy (from individual to collective)
	Well that's never happened before	4	Always agreed
	We agreed on all of them	2	Always agreed
	We never disagreed	5	Always agreed
	We did agree	2	Always agreed
	We did agree	3	Always agreed
	Kathryn told all of us what to do, but the last time I took a stand and refused (student put the same answer to #3).	4	Leader
	First we argued then we picked someone as a director	3	Conflict Leader
	Everyone just went crazy and when it was our turn we will just do anything.	1	Conflict

Group strategy. In answering the questions, "what did your group do when it couldn't agree on a main idea," it became clear that groups undertook a variety of strategies to negotiate collaborative practice. Some of these were more process oriented such as reaching a decision or solving a conflict through discussion; other types of strategy were more about taking action and included referring back to the task, voting and abandoning an idea that was causing conflict and starting with a new idea. One student wrote that when their group couldn't agree on a main idea, they "did what we wanted to be then put it together." This statement suggested that group members were able to pursue their own ideas and then blend them together collaboratively.

Leaders. As corroborated by the video and audio analysis, not all groups worked collaboratively. A few students indicated that another student in their group took on the role of a leader and decided what the main idea was and made the final decisions when conflict arose. Of interest to me is that out of five responses that referenced a leader, only one student disclosed that they found this unacceptable and "the last time I took a stand and refused." It seems as if the collaborative nature of the work had placed this student in a difficult position. He suggests that inwardly he did not accept the leadership role of the other student but it took a while before he was able to articulate this. From a CHAT standpoint, he was constrained by the social mores to 'keep the peace' and yet his sense of agency ultimately became the deciding factor to 'take a stand' (Tudge and Hogan, 2005).

Always agreed. Some students indicated that the question about conflict in the group was invalid because their group "always agreed." From my point as view as the instructor and as recorded in the audio data, all groups experienced a disagreement at some point in the study. However, the question specifically asked about disagreement related to the choosing of a main idea, so perhaps this was not a source of conflict for some groups. It could also be that it was

easier to say a group had always agreed rather than detail the process of overcoming difficulties. Perhaps some students, aware of the collaborative emphasis of the work, felt that to admit to disagreements was to acknowledge some kind of failure. Another possibility is that from their perspective, there truly were no moments of disagreement and this leads us into the next point.

Consistencies and inconsistencies. One of the reasons I included the group numbers in the tables, was to see if there were consistent answers among a group. For the most part this was not the case. This underscores that experience of (group) process is personal and that although operating within a social framework of a classroom, students' individual characteristics, described by Tudge and Hogan as "their directive beliefs, their activity level, their temperament, and their goals and motivations" (2005, p. 105), still matter. I regard these inconsistent reactions to group process as a corroboration of the complexity of collaborative work. When diverse individuals are called upon to work in a collaborative activity, a network of complexities is set in motion. Ultimately, I believe this complexity is worth it, whether it takes place in the classroom or the workplace or the home, for as Jean-Luc Nancy said, "The plurality of beings is at the foundation of Being" (2000, p.12). This quotation comes from a chapter called "Being Singular Plural" in which Nancy presents the case that we can only validate ourselves as individuals when we instinctively recognize the collective essence of our existence as humans. Working in a group, and in ways inconsistent with our personal preferences, exposes us to the plurality of individual characteristics that constitute the human experience.

Student Reactions to the Cognitive Value of Tableau

The last question informed a component of the essential question: what did tableau do or not do to aid student learning? The actual question, as shown in Table 19, had two options – yes and no – and student responses, key words and related themes are presented in Table 19.

Table 19

Student Responses and Themes for Question Five

Reflection Question # 5	Student Response	Group Number	Key Word(s)	Related Theme(s)
Did making a tableau help you understand the main idea of a science text? **No** – say why **Yes** – say why.	**Yes** – it was pictures of things in a text	5	Pictures	Visualization
	Yes – because the tableau was an activity and I do best when I get to see what I'm supposed to be doing	4	See	Visualization
	Yes – because it gave us a picture of what it looked like.	5	Picture	Visualization
	Yes – because we would see what it looked like.	5	See	Visualization
	Yes – I think it helped because we could actually show what our main idea was.	4	Show	Visualization
	Yes – it was a movie of the passage (text).	3	Movie	Visualization
	Yes – because we showed it.	1	Showed	Visualization
	Yes – because it showed us what it was.	4	Showed	Visualization
	Yes – we made it first.	2	Made	Action
	Yes – it helped me by acting out and that I felt like I really was that thing.	3	Acting	Action
	Yes – because we got to try to act it out.	2	Act	Action
	Yes - because all did the main idea.	1	Did	Action
	Yes – it gave me more energy in my brain.	1	Energy	Action
	Yes – I learned all about it because we read it and went over it.	5	Went over it	Purpose
	Yes – because I get the texts.	2	Get	Comprehension
	Yes - it made more sense	3	Sense	Comprehension
	(Student circled **no** and **yes**) **No** – it was harder because sometimes I didn't understand the forms. **Yes** – I could see it in person.	3	Harder See	Comprehension challenges and Visualization
	(Student wrote "**Sometimes**" between the yes and the no) – because they don't always look like the main idea.	2	Don't always look like	Disconnect

Table 19 Continued

Reflection Question # 5	Student Response	Group Number	Key Word(s)	Related Theme(s)
Did making a tableau help you understand the main idea of a science text? **No** – say why **Yes** – say why.	(Student circled **no** and **yes** and wrote one sentence) Because we learned it being funny and fun people were being too funny.	1	Funny	Not real learning
	No - because it seemed like fun.	4	Fun	Not real learning
	No – because you just make a picture.	1	Just	Not real learning

Out of 21 responses to the question "Did making a tableau help you understand the main idea of a science text?" 16 students said "yes," two students circled both "yes" and "no," one student wrote "sometimes" and two students responded "no." I will now analyze these responses based on themes related to the key words.

Visualization. Nine students indicated that actually "seeing" a main idea in a tableau format helped them understand the main ideas in the text. The use of mental imagery has been documented as an assist in the comprehension of main ideas (Mc Callum & Moore, 1999; Wilhelm, 1995) but the presentation of tableau was a step beyond mental imagery; it was concrete, three-dimensional imagery, viewed and created by the students. Ken Byron (as cited in Wagner, 1998) noted a "paradox about drama …is that its strength resides both in its *concreteness* and in its *power to encourage abstraction*" (italics in original, p. 82). This idea of drama concretizing abstract ideas strengthens the case for its application in science and other curriculum areas that deal with abstractions, such as mathematics.

Action. Five students denoted the idea of "action" in their key words of "made," "acting," "act," "did," and "energy." To embody the main idea was to be actively involved in its representation through both the planning and the presentation of tableau. Miller (2013) reporting on the experiences of students acting out scenes from *Romeo and Juliet* included a student's

perspective on being *in* a scene, "When you write, you kinda' get a visual picture, but *they're just words*. And then when you actually shoot the film, you get to be in the *action* of seeing what you're doing and how it's gonna' end up" (italics mine, p. 417). I believe the experience was the same for the five students who reported that being in the tableau helped them understand the informational text. Identifying a main idea by standing around a table and looking at a text is a very different kind of action from becoming a representation of that main idea. In this study, representation was about using the body to interpret and gesture a concept. There is much research about the use of gestures to strengthen cognitive functioning (Block, Parris & Whiteley, 2008; Glenberg, Jaworski & Rischal, 2007; Lindgren & Johnson-Glenberg, 2013; Sadoski, 2009;) and the idea that "meaning is tied to action" (Glenberg at al. 2007, p. 223) and the student responses about action in this study confirmed that when they acted out an idea, they felt connected to it. And when one student responded, "Yes – it gave me more energy in my brain" I believe this student exposed the importance of physically engaging with text and it reminded me of Glenberg's conclusion that "brains are for action!" (Glenberg et al., 2007, p. 222) This theory is built upon by Lindgren and Johnson-Glenberg, "If physical movement *primes* mental constructs, such as language, then it may be that increasing an individual's repertoire of conceptually grounded physical movement will provide fertile areas from which new knowledge structures can be developed" (italics in the original, 2013, p. 446). By answering "yes" to the question about tableau and cognition, the student communicated that an energized brain was an engaged brain and an engaged brain, as the Lindgren and Johnson-Glenberg quote tells us, is a brain that is open to the development of new knowledge.

Purpose. One positive response about the reading of texts was coded as "purpose." With the response, "I learned all about it because we read it and went over it," I propose that the re-

reading of text was undertaken because students were given a purposeful task to accomplish – the creation of a tableau. In writing about purpose and research with multimodal learning, Miller writes that the, "Successful teachers engaged students in *purposeful* activities of transmediating for multimodal composing that required social and cultural resources to compose multimodally. In this way, teachers further created an environment that prompted a felt need for interpretation and representation" (2013, p. 423). In the context of this study, an interpretation and representation of tableau depended on the students having read the text first. I am not sure if students would have felt so inclined to re-read the passage if not called upon to do something purposeful with the information.

Comprehension and comprehension challenges. Two students indicated that tableau helped their comprehension. One student used the phrase "made more sense" and the other student claimed they "got" the texts. According to the responses this was not the experience for all students though. When a student answered "No – it was harder because sometimes I didn't understand the forms," I was unsure what the student meant by "forms" – the forms of the texts or the forms of the tableau? This student answered both "yes" and "no" and next to the "yes" wrote **"** I could see it in person." The positive comment about visualizing tableau leads me to conclude the "forms" were the texts. If this is the case then the comprehension difficulties may have arisen because the reading material was too difficult for this particular student or the ideas in the text were not expressed in a way they found accessible.

Disconnect. According to some of the responses**,** not all students found the visualization of ideas connected with the main ideas.. The student who wrote, "Sometimes" as an answer to the question about tableau and main idea comprehension, justified their middle ground position with "because they don't always look like the main idea." This suggests the student experienced

a disconnect between their visual conception of a main idea and ones that were presented in a tableau. This could be construed as an argument against the concrete visualization of abstract concepts and is a useful reminder that "seeing" is not always helpful for some people, especially if what they see is unclear to them or does not fit a mental construct.

Not real learning. One student said "no" and "yes" to the question and then wrote, "Because we learned it being funny and fun people were being too funny," which makes it sound as if the fun both engaged and distracted the student. One of the other students also had a problem with "fun" in a learning context and their answer of "no – because it seemed like fun" was a clear rejection of the idea that learning could be fun. The other student who reported "no" continued with "because you just make a picture." For this particular student, creating a tableau had been a simple task that had not helped them understand the main idea of a science text. Perhaps it was too far removed from their perception of what "real learning" should be like or perhaps they just didn't enjoy the experience that much.

Summary

Based on the information provided in Table 19, the majority of students, 16 out of 21, reported that making a tableau helped them understand the main idea of a science text. From these 16 responses, nine students attributed their understanding to the presentation of a main idea as a visual image and I therefore claim the visual representation of abstract concepts as an important pedagogical affordance of tableau.

The active component of making a tableau was reported by five students, which is interesting considering that tableau is a completely still structure. I assume these students are referring to the movement that came from practicing their tableau and the opportunities to try out different gestures and postures. Their reaction about the importance of action in understanding

main ideas corresponds with theory related to the effects of physical movement on cognition. Other positive responses included the purposeful re-reading of text and that tableau made the main ideas make "more sense." Five students were either unsure or negative in their reactions to tableau as a learning experience and there was a sense that the experience did not correspond with their view of learning; they either experienced a disconnect between text and tableau representations or the "fun" factor arising from group work was distracting. However, as a summary of student reactions to the tableau work, the majority of students reported the visual, active and purposeful affordances of tableau assisted their understanding of main idea in science texts and this has implications for the teaching and learning of abstract concepts across the curriculum.

Teacher Reactions to the Tableau Work

Ten excerpts from the semi-structured interview with the class teacher were analyzed in order to answer the research question: What was the teacher's reaction to tableau as an embodied learning experience?

Excerpt 1: "they really want to see what you are talking about." When asked about her views on arts integration generally, Kay responded

> I think it's extremely important, it gives them, like you were talking about today, it's a hands on opportunity for these kids and you know most people are visual they really want to see what you are talking about so I think that's really important.

This reaction supported those of her students who appreciated the visual component of tableau as a representation of main idea. I was reminded of one student comment in particular, "the tableau was an activity and I do best when I get to see what I'm supposed to be doing." In this excerpt she also spoke positively about the "hands on opportunity" of tableau and as a result underscored both the active and student directed nature of the work.

Excerpt 2: "Get up and do something."

Margaret: What do you think about the work that I have been doing with your students?

Kay: I think it's really cool, um, it's a great opportunity for them to get up and do something which is important, um, I never thought to do it with science, that just wasn't something that I, I mean I did it with language arts before but not with science so to me that was something that I was able to learn um from you and I think that that's awesome, I think it, I think its just a positive thing I'm like excited to hear what you gain from your research, so I think that'll be interesting to see.

Kay's positive response to the work affirmed the unusual combination of drama with science and the opportunity for the students to "get up and do something." Kay's affirmation of the active nature of the work correlated with those student who named the opportunity to be active as an important factor in helping them understand main ideas in text.

Excerpt 3: "Are they just playing or really getting it?"

This excerpt continues from excerpt 2 but was significant enough to be analyzed separately:

Kay: Because at a certain point you are not sure if they are just playing or if they are really getting it? You know I was really proud of them today.

Compare Kay's words above with the following quote by Gavin Bolton (as cited in Duffy, 2014, p. 89)

> What a teacher has to appreciate is the children taking part in drama do not set out with an intention to gain new insights, to break habits of conceptions and perceptions. It is in this respect that drama education differs fundamentally from traditional pedagogy. The participant's mental set in entering drama is not 'an intention to learn.' It is an intention to create or take part in or solve something.

Kay's honest question gets to the heart of drama as a pedagogy and addresses common concerns of teachers. The participatory nature of drama means that the participants learn *in and through* the activity and often remain unconscious of the learning until they step outside the drama frame and are called upon to reflect on the experience. This can be unnerving for observers who are not caught up in the drama and from a distance are left to wonder, "but is it really learning?" I believe Kay's wondering reflects a traditional view that associates learning with being detached and objective. Drama is the antithesis of this, it embraces, indeed *requires*, attachment and subjectivity and thereby sets educational alarm bells ringing because it doesn't "look" like learning. And yet, as the "playful giant," the rigor of learning in drama is to be found in its very subjectivity, "The work operates at the level of subjective meaning, but serves the development of the intellect as well as emotion" (Heathcote, 1984, p. 12).

Excerpt 4: "A lot deeper than I was expecting." If the previous excerpt showed Kay grappling with the playfulness of the tableau work, the following excerpt shows her surprise at the quality of the students' work:

> *Margaret:* So did, um, you see a different side to any of your students, did anything surprise you about your students, or how they reacted at all?
>
> *Kay*: Some of their tableaux I thought were really interesting, er, it was a lot deeper than I was expecting some of them.

This idea of "depth" is an important one for drama and relates to the previous paragraph. 'Attachment' and 'subjectivity' as requirements in drama come about from the insider perspective of being in role. Such an 'immersion' *in* content, informational or fictional, allows for a depth of insight *on* the content. The example I gave in the section on writing was the student writing in role as the moon and rejoicing that at last "it" was getting more attention than the sun. I do not believe this imaginative insight on a scientific process would have come about

through any other means than by acting as the moon first. I believe it is examples like this that Kay was referring to (although I wish I had asked her for a specific example of what she meant).

Excerpt 5: "My shy student did well today." Kay's comment here speaks to an idea that drama can be particularly liberating for students described by their teachers as "shy." The following excerpt continues from excerpt 4 and Kay speaks in more detail about the "shy student."

> *Kay:* Some of their tableaux I thought were really interesting, er, it was a lot deeper than I was expecting some of them. But I have this really outgoing group, so…
>
> *Margaret:* What do you mean by outgoing?
>
> *Kay:* They like to participate, they like to um kind of be in the spotlight so this was perfect for them because this is something they enjoy doing. My shy student did well today… he's typically pretty shy um but he did really well throughout this, the last couple of weeks. He's really shy with people he doesn't know, so if somebody were just to come in he's gonna decide whether he likes you or not and then if he doesn't like you he would have been like that the entire time… but he was the only one I was kind of nervous about, he would really participate, he did he enjoyed it, he was an active participant the entire time.

Downey (2005) believes the silent aspect of tableau makes it particularly suitable for "shy" students and as a creation that is borne out of "team effort," Tortello makes the claim for tableau as helping to build the self-esteem of "even the shyest of children" (2004, p. 207). As a former drama teacher I would support both of these claims and add that in my experience, the more reserved children were often the ones who positively flourished in drama class.

Excerpt 6: "But it was mostly about how they were going to show." I was interested to know what Kay had gleaned from the conversations she had overheard while grading papers during the sessions, so I asked her,

> *Margaret:* Um, so I know I didn't ask you to be involved in the research, just from what you saw, from what you could hear, and I know it got pretty loud at times in here, did you catch anything that seemed interesting in their conversations or that they seemed to be

> talking about main idea or did there seem to be a lot of off topic conversations going on, do you think?
>
> *Kay*: I wasn't paying a lot of attention, because I was back here and I had the (inaudible) here but you know there were some, sometimes they were arguing but it was mostly about how they were going to show, how they were going to do the tableaux, so you know clearly they were arguing about the main idea whatever, they were talking but I didn't hear a lot of off talk conversation which is extremely common, especially with this age group, so it's gonna be interesting to hear what you hear because it could be anything, they could be talking about the weather.

She was right, there was a lot of arguing at times and students did get frustrated with each other, but her comments support the audio data; most of the disputes were about the mechanics of the task they had been given, "how they were going to do the tableaux." Therefore I would say the majority of arguments derived from the *purpose* of the task and were not "off talk conversations" that would have indicated a level of boredom with the work.

Excerpt 7: "I would definitely try tableau work." I asked Kay if she would ever try tableau herself in the classroom, to which she responded,

> I would definitely try tableau work um I would, you showed me I could do it in science so I, I would more than likely use it in language arts, especially with their books that we are reading, but like you know, you've shown you can use it in different areas too, so I think that it's something that I learned, and I'll, and I'll incorporate into my teaching style.

Her answer suggested that having *seen for herself* how tableau can be used with science, she would try it in the future. I think this says something very important about drama that goes back to its experiential quality. You can talk about drama and read about drama but you have to *see* drama being used in the classroom to experience its power as a pedagogical tool. Writing about drama does not adequately communicate the noise, the energy, the engagement of the students. Experiencing drama does.

Excerpt 8: "this is something that they are gonna remember." The following excerpt comes from a discussion where I explained that two school districts had turned down my application to do research in their schools. She replied,

> That really is sad because yes it took a long time and it was teaching time but it was an experience for the kids, this is something that they are gonna remember, um you know when you are like little you remember certain things about school and this I think was really important to the kids and so who am I to take that away from them, that's crazy.

Kay's reaction speaks again of the experiential quality of the drama work and how it *remains* with the participants. Theatre director Peter Brook writes, "More than ever, we crave for experience that is beyond the humdrum" (1968/1984, p. 53) and in an era of high stakes testing, drama may satisfy this craving even more so *because* of those ideas captured in the student reactions - the action, the playfulness, the purposefulness, and the collaboration that led to a sense of "we created this." Dorothy Heathcote reminds us that "beyond humdrum" experiences do not have to be based on fantastical ones, because what drama does is to "make ordinary experiences significant" (1984, p. 24). It is work of *significance* that Heathcote believes students crave the most, "The ones I meet are not asking for less work, or easier work, they are asking for more meaningful work" (p. 30). Kay believed the students would remember the tableau work because it was "an experience*"* that was "really important" to them.

Excerpt 9: "it's more than just science concepts though." Aware of the realities of teachers being held accountable for student learning, I asked Kay the following question,

> *Margaret:* Do you think that they've learned anything about the science concepts?
>
> *Kay:* I do, I definitely do, um it's more than just science concepts though, it's working together, it's self control, you know it's not just did they get the information about stars, you know I think that there's, there's lots of different things they could have learned from this opportunity.

Kay's reaction here was about the holistic experience of being involved in the drama, not just the academic part. She mentioned collaborative learning and then learning about "self-control," as if to acknowledge that collaborative learning is a great way to learn self-control. The audio data provided evidence that listening to the ideas of others and waiting for your turn to contribute ideas was challenging for some of the third grade students. Kay's response indicated that she values interpersonal and intrapersonal learning as much as the academic learning, "it's not just did they get the information about the stars." This expansive view of learning affirmed tableau as an embodied learning tool and confirmed Kay's importance as a "data source." As the teacher of the class, she had more knowledge of her students than I and she could testify to their development in important social domains.

Excerpt 10: "I was disappointed with some of the students." Not all of the students displayed self-control and when I gathered them together at the end of each session to present the tableaux they were often restless and chatty. I wanted to know Kay's reaction to these more challenging moments and here is an excerpt from our conversation about student behavior,

> *Margaret:* And with some of the more um challenging students, but you know what I mean, were you surprised that some of them didn't act out more than they did or did some of them kind of act in the ways that you were expecting them to?
>
> *Kay:* I was disappointed in some of the students, um their behavior, they know the expectation that I have for them and, you know I was really hoping that they, well a few would have handled themselves more appropriately when the opportunity came up for them to work independently or you know when you were talking and they were you know rolling on the ground and talking and saying things I just was very disappointed in the lack of respect cos that's…
>
> *Margaret*: Well I didn't take it like that at all.
>
> *Kay*: I'm glad.
>
> *Margaret*: It took me back, I remember now the time when I was a teacher, you have to deal with this all day long, and I just came in for an hour and could leave again. So um, it

> all came, it all came back, but no I thought they were, I thought they were great. I really, really did enjoy working with them.

Kay's reaction (and mine) says a lot about teacher expectations and experience. When visitors come in, teachers are anxious that students behave and are respectful. As the visiting instructor, I did not want her to "feel bad" about the way some of her students behaved when under my supervision. I was also concerned that the nature of the tableau work would be held responsible for student misbehavior. But was it misbehavior or were the students continuing with the playfulness outside of the drama frame? And if so, is this an argument against giving students greater freedom through creative work? Perhaps we need to flip the argument and say students need to be given more creative type learning opportunities so that collaborative and active learning ceases to be a novelty and more of a constant.

Summary

Ms. Kay reacted positively to tableau as an embodied learning experience and many of her reactions were similar to those expressed by her students. She affirmed the active and visual nature of tableau, its ability to develop interpersonal and intrapersonal skills, and its function as a representation of knowledge. Significantly, she believed it was an experience that would remain with the students. From a teaching standpoint she was open to using it herself in the future. When prompted, she raised concerns about some aspects of student behavior and asked the question that educators often ask, "but is it real learning or are they just playing?" I believe she came to see that her students were playing and *really* learning at the same time.

The Researcher's Voice

In chapter three, I explained that spontaneously written, the asides and the poem were composition spaces where I could be free from the constraints of academic writing. I did not

know at the time what purpose they would serve but as 'unrestrained writing' they give a 'behind the scenes' look at research as a process and subjective experience. As a 'data source' for the modifications that took place and evidence of my agency as a researcher and instructor, I felt it was important to analyze this subjective voice to see what it might contribute to the essential question: What did tableau do?

Duncan (2004) wrote of her autoethnographical writings as spaces to acknowledge the often 'unacknowledgeable' aspects of research. This concept became the overarching theme for the analysis of my asides and I specifically applied her four purposes for reflexive writing as a priori constructs to the asides and the poem. I present each of the four themes separately and then draw the findings together to determine what drama did for all the participants, myself included.

Externalized Assumptions and Reactions

The asides were places where I vented emotions and reactions seldom mentioned in empirical research. I was troubled that the students didn't say things that would "answer the 'so what?' question" of research (aside 01/21/14). This shows that I was already thinking ahead to the reporting of data and how the lack of "amazing, deep" student quotes would frustrate my attempts to use their words to support my findings. Interestingly, Kathleen Gallagher is critical of such an approach, "Too often this 'reality syndrome' of empirical classroom-based research is devoid of the imagination and theoretical probing necessary to produce new knowledge in the field" (2007, p. 130). She appeals instead for researchers to let student words, "not simply 'illustrate' but also interact with the complexities of the research, the philosophical dimensions of our inquiry, and our own theoretical constructions as researchers" (p. 130). This is a powerful challenge to the assumption I had at the time that the "so what?" of research would be found in the students' words rather than in my theorizing of them.

In the same aside (01/21/14), I abandon any pretense to an assumed researcher's objective stance and describe how happy I felt when the students called my name as I walked into the cafeteria. This is followed by, "Of course I want them to like me"; an admission that speaks of the relational 'variable' in classroom research that often goes unacknowledged. The relationship I had with the students was important to me because I believed a positive relationship would improve the *experience* of the study for them and for me. As an advocate for drama in the classroom, I also felt a responsibility towards drama as a pedagogical tool and I wanted the students to like 'the message' as well as 'the messenger.'

This 'need to be liked' removes assumptions of researcher distance and is part of a bigger discourse on the performativity of unbiased research. Gallagher writes about the struggle of researchers trying to remain neutral in a heated discussion on sexuality in a high school classroom. In the end, the traditional researcher stance left them feeling "culpable, disappointed in ourselves that we hadn't intervened more. We were struggling with some futile notion of 'objectivity,' and with our position as researchers in the classroom" (2007, p. 123). She kept reflexive notes in which she documented that after "a 76-minute class on reasoned, justified, hatred of gays" she and the other four researchers "instinctively brought the five chairs together, emotionally drained; each in our own turmoil but collectively carrying the burden of witnessing" (p. 124). In the reflexive space she was able to externalize the 'self' that she had felt unable to present in the classroom. In looking back on her 'objective' researcher stance, she alludes to the performance of being a researcher and asks, "How did I not break down every second?" In traditional empirical research, relational and emotional distance is considered a reliability factor when making claims to knowledge. However, I would argue that in educational research, an acknowledgement of the complexities of classroom life and an explication of a researcher's 'self'

in relation to the students reveals "the expertise and cultural familiarity of the author" (Wall, 2006, p. 8) and therefore strengthens any claims to knowledge.

Inner Dialogue of the Creative Process

In my asides I refer only once to the science content of the lessons and on 01/28/01, I express a personal interest in the "mystical" elements of a solar eclipse. I write, "I wish I could go with that," meaning I wanted to stay with that particular text and explore more fully the creative potential of showing the solar /lunar spectacle. As a teacher I may have been able to do that but as the researcher I was aware that the defined data collection period limited my creative choices.

On 01/29/14 I reflect on the tableau work and conclude that having the students move is not as "successful visually" as having them be still. This links to the lesson six modifications in chapter three where I record, "This was the final session of the research study and I returned to the original format of tableau as a silent, still representation of main idea." In this instance the aside became a useful data source for tracing the origin of a decision about the creative process.

The asides gave me a space to comment on the ambience and quality of the creative work without feeling the need to qualify my judgments. Comments such as "Definitely a better vibe in the room" and "Quality didn't *feel* so good today – I think they have 'peaked'!" convey a perception of being attuned to the non-tangible elements of creative work that are felt rather than empirically observed.

Defining and Resolving Inner Conflicts

In my asides I express inner conflicts about my identity as a researcher. I wonder if examples of procedural incompetence reveal I am not "a proper researcher" and why we don't read about procedural mistakes more often in research reports. I also wonder if my "sense of

relief that I am not a classroom teacher anymore" is common to classroom researchers who were former teachers? There is a sense of the confessional in these statements and a hope that by confessing them, I will discover that "it can't just be me." Since writing those words I have found that it isn't 'just me.' Kathleen Gallagher writes about a drama teacher who was very dedicated to the work and her students but struggled to maintain order in the classroom. Gallagher reflects, "As researchers we head off, back to the university, feeling almost guilty about the world we leave behind. It is a privilege and a challenge to watch a teacher work so hard" (2007, p. 96). While Ms. Kay did not struggle with maintaining order, I was aware of the privileges that the research afforded me as a visiting instructor and this did leave me with a sense of guilt.

Several of my inner conflicts are related to the recording equipment and my inability to use it effectively, "I gave recorder #5 to group 3 and vice versa. Typical. I was getting too confident, something had to humble me." I seem to be unsure at what or who I should direct my annoyance – the equipment or myself? I also express self-consciousness when listening to myself on the recorder and comment on my accent and tone of voice. I felt disappointed that I was irritated with the students in the first place and that the irritation was detectable. While I knew I could not stop the feeling of irritation, I resolved not to 'show' it in my voice again. But for whose sake was I seeking to improve my 'performance' as a patient teacher? I had become the audience to my own research and it was not always a comfortable experience.

Turning Points

In the asides I experience personal turning points, "that's when you know you are making an impact," research related turning points, "The 'main idea' idea has almost become unimportant, the kids are excited just to move and interpret and present" and creative process

turning points, “But to me, the movement piece wasn’t as successful visually as the tableau.” These turning points convey the phenomena of unexpected data that emerge in the drama classroom, a place that Gallagher describes as a “space of many chances, many possible directions, many aborted plans, many reconsidered chances” (2007, p. 23). Such unanticipated happenings are not generally associated with other school subjects, an observation that prompts Gallagher to ask, “Does drama, by nature, stand for something different in the highly disciplined and regimented routines of ‘school’” (Gallagher, 2007, p. 109).

The observations also record turning points in the students and their attitude towards the drama. On 01/28/14 I note that they were “loosening up” and “playing more.” I do not explain why I think this was happening, it was satisfying enough just to be able to document that it *was* happening. But in retrospect I can look at the date and note that it was the fourth session and the students were relaxing into the rhythms and expectations of the work. However, my very last statement of the final aside (02/14/14) reads, “Quality didn’t feel so good today. I think they have ‘peaked!’” Fluctuating motivation is a staple experience in the classroom; turning points can be highs and lows but they give what Mark Johnson describes as “cyclic patterning” to the teaching experience (1989, p. 369). He goes on to say that these cyclical patternings “*are known rhythmically through our bodies”* (italics in the original, p. 369). Perhaps the students in the class were experiencing a waning interest in the work because it was the sixth session and the novelty of tableau had come and gone. Or maybe, recorded in those words is actually *my* perception of the students because that’s how *my* body was rhythmically responding to the knowledge that this was the final session. If so, then the cycle of the study was affecting my researcher’s gaze, and imposing my rhythmic pattern onto the experience of others.

The Poem

Written in the car on a cold, wet, January afternoon, I wanted to capture how my yearning for research "magic" was off set by the more mundane realities of research. Anne McCrary Sullivan uses poetry as representations of knowledge (2005) and writes of the importance of "incorporating highly concrete observations" in poems to enhance the "accuracy and power of traditional field notes" (p. 287). I believe the kinds of concrete details I include in the poem describe the vagaries and mundane aspects of research that are often unacknowledged in research documents. These include the effects of inclement weather on mood (researcher's and participants'), the physical challenges (of carrying equipment to the study site), the small annoyances (such as being locked out) and the unexpected happenings (for example when a student fell off a chair and the lesson had to be brought to a standstill). By describing these incidents, they ceased to be less mundane and became instead sources of data that acknowledged my embodied reactions to them.

Regarding the students, I list their actions in bursts of short active sentences,

"They work

They read

They argue

They create tableau and get loud"

and by doing so, I depict classroom life as ecologically complex and rich in sentient experiences. However, aware of assumptions about what counts as "proper research" and affected by the apparent disorderliness of the students as they create tableau, I voice a concern that the research is really just about "kids having fun." But, this self-deprecation is actually my way of *acknowledging* a belief in myself as researcher and the research itself; for to name the fun and

the mayhem is to take responsibility for it, knowing that ultimately I will be able to make significant claims about the study. When I ask at the end "where is the magic?" (in having to stop a lesson because someone has fallen off his/her chair), I know that I have already answered the question, for what could be more magical than "kids having fun" in a classroom?

Summary

In summarizing my researcher's voice, I also ask the essential question, What did tableau do in that third grade classroom? According to the poem, the drama caused the students to "get loud," and fall off chairs, leaving me to wonder where the "magic" was? But I do I believe the drama caused "magic" to happen on 01/28/14 when I write the most subjective of statements, "It felt good." But what was "it"? The answer to that question can be found earlier in the aside,

> The "main idea" idea has almost become unimportant – the kids are excited just to move and interpret and present. Harry showed me excitedly his science book which had pictures of the planets – that's when you know you are making an impact. The kids are loosening up and beginning to play more. It felt good.

The implementation of tableau caused the students to be engaged, collaboratively and individually. They were excited to be away from their desks and to move about as they worked on their tableau interpretations. Ironically, perhaps the tableau didn't do anything in the classroom for Harry, but it did do something for him outside of the classroom; it caused him to do extra research at home about the solar system and for me this was evidence enough that the drama "was making an impact."

Chapter 5: What Did Tableau Do?

> Clearly we need to **create spaces** in elementary schools for a range of expressions, especially because each form of representation communicates its own unique meanings and integrates its own assemblage of skills – skills that also directly relate to the CCSS." (Lenters & Winters, 2013, p. 228)

I have chosen this epigraph to open the chapter because it summarizes many of the points I wish to make in the conclusion of the study. I use the phrase 'create spaces,' to guide my concluding points. The headings are intended to answer the guiding question for this research: What did the tableau do in the third grade classroom?

The Tableau Created A Space For…

Literally and metaphorically, the tableau work created space for the students' bodies and minds. Literally we pushed aside the desks and chairs and reconfigured a traditional classroom space into a space for students to move, practice and represent. Metaphorically the study created space to fulfill Helen Nicholson's call from chapter one for drama in schools to be 'educationally beneficial.' I elaborate on this claim by describing the educational spaces created by this study.

Expanded Notions of Literacy

Lenters and Winters write that "Current research in the area of literacy and 21st century learning urges elementary educators to expand notions of literacy teaching and learning beyond the focus on reading and writing with paper-based print texts" (2013, p. 227). They describe non-

print based texts as 'nonlinear texts' and believe that students must gain proficiency in 'interpreting' such texts because they are increasingly surrounded by them. The corollary of an expansive view of literacy is that students be exposed to a wide variety of texts and expansive conceptions of what constitutes a text (Varelas, Pappas, Tucker-Raymond, Kane, Hankes, Ortiz & Keblawe-Shamah, 2010). I believe this notion was introduced to the students through exposure to tableau – a three dimensional text. Although I did not refer to their tableaux as texts, the study introduced the students to the idea that their tableaux conveyed both content and meaning (Barthes, 1977) and they could be 'read' by others.

Chiasmatic Reading Practices

In chapter one I described Merleau-Ponty's notion of chiasm as an act of bringing together separate activities while allowing them to remain distinctive in property. An analysis of the findings from chapter four leads me to hypothesize that the goal of creating tableau gave space for a chiasm of Louise Rosenblatt's efferent and aesthetic reading stances (1978). Transforming the informational passages into tableau representations meant that the students read the texts *efferently* - as texts communicating scientific principles – and aesthetically – as texts that could be interpreted into artifacts of meaning. Neither reading stance subsumed the other but both were necessary in the creation of tableau and both occurred in connection to each other but based on one textual source. One student wrote in response to the question about group practice, "We read the text and then came up with a summary" and importantly this 'summary' was the basis for an aesthetic representation through tableau.

Purposeful Reading

In light of the Common Core Reading Standards and the emphasis on 1) informational texts and 2) close reading as an approach for finding meaning in the text, I propose tableau as a

tool to use with informational texts because it gave a purpose for a close *and* interpretive reading of text. Fisher and Frey recently commented on the importance of motivating close reading through having a clearly defined purpose, "Close reading should result in something" (2014, p. 225). They suggest that students may "want to present their ideas to other people" (p. 225) which is exactly what the students did in this study. The varied sources of data document that purposeful reading occurred through re-reading text, discussing text and embodying text. Of importance also was that this purposeful reading happened in a group context and therefore counters Smagorinsky's description of an education system that has a myopic focus on individual achievement (2014).

Collaborative Practices

The creation of tableau was a collaborative activity system positioned in a particular cultural and historical context. This dialectical relationship between activity and context was evidenced in the audio and visual data that captured the fluctuations in student focus and content as they negotiated a combined representation of a main idea. This was not always harmonious, as can be seen the following written response, "Kathryn told us all what to do but the last time I took a stand and refused" and conflicts showed that collaborative work can generate frustration and negative attitudes (Barnes, 1999). In chapter four, I documented how frequent disputes broke out in one group over the re-reading of text. When I planned the structure of the sessions, it did not occur to me that this would be a problematic activity. Therefore, the disputes represented a disjuncture between a researcher's planned activity and how the students carried out that activity. However, I do feel it important to note the *passion* with which students often argued and debated over roles and ideas for tableaux. I believe there is evidence in the transcripts that the goal of creating tableaux unleashed a surge of creative energy that sometimes spilled over into putting

pressure on individual group members to conform to the ideas of other group members. While acknowledging this as a negative outcome of the group work, I believe it confirms the need for *more* collaborative activities in elementary schools so that students can learn how to talk and work together (Mercer, 2002). I would also say that collaborative work in the classroom is not only desirable but necessary considering that, "The plurality of being is at the foundation of Being" (Nancy, 2000, p. 12). Mercer reminds us that as social beings we "gain much of what we know from others" (2002, p. 153) and to create the tableaux, the students were exposed to the ideas of others. The transcripts showed that the sharing of ideas was a dynamic element of the creative process that led to final tableau representations.

Expanded Comprehension Practices

In chapter two I explained how main idea has been viewed consistently as an important comprehension skill. In this section I position tableau within an expansive space of what it means to comprehend.

Embodied comprehension. According to one student, the physical activity of creating tableau "gave me more energy in my brain" which is a statement that I believe powerfully negates the mind/body divide that dominates education practice. Although tableau is a still art form, it comes into existence through participants trying out different positions and gestures as they practice. It does not involve sitting behind a desk. Kelner and Flynn (2006) make the case that creating a tableau is an act of comprehension, "Through the planning and presentation of a tableau, students strengthen their ability to visualize the written words, develop and present sensory images, and thus gain a deeper understanding of the text's meaning" (p. 151). This study expanded what it is to comprehend text by having the students embody a new text based on information in the original text. More than transposing information, the students were

transforming information across media and showing comprehension in and through their bodies, such as portraying streams of energy from the sun through extended arms and leg gestures that pointed towards the Earth. In response to the question about tableau and comprehension, one student wrote, "it helped me by acting out and that I felt like I really was that thing."

Visual comprehension. When asked if the tableau had helped them understand the main idea of a text, one student responded, " Yes – it was pictures of things in the text." In the literature review visualization was reported as an important tool in teaching main ideas. In this study the students re-constituted the written text through visualizing ideas for a tableau. According to Vygotskyian theory, the transformation of a written text to a visual text makes tableau a first order symbol system which according to Duke and Pearson, has significant educational benefits,

> The point about visual representations is that they are re-presentations; literally, they allow us to present information again. It is through that active, transformative process that knowledge, comprehension, and memory form a synergistic relationship – whatever improves one of these elements also improves the others. (2002, p. 219)

This is a powerful claim borne out in the many student responses that referenced the visual aspect of tableau as helping them understand the informational texts.

Narrative comprehension. It could be argued that learning from a textbook is a decontextualized experience and even more so when the information is about abstract concepts. Conversely the tableaux gave space for the students to give context to the abstract ideas within informational texts and *tell stories* about them. According to Garcia Landa, 2008, "Narrativization involves a structuring, narrativizing activity exerted on non-narrative material" (p. 4) and I believe evidence of such activity could be seen in many of the tableaux. One student

commented on the response sheet that the tableau "was a movie of the passage" which suggests that although a tableau is a still representation, they had "narrative functions" in them (Castle, 2009). In one tableau decontextualized language about heat and energy became contextualized in a narrative familiar to students – wanting an ice cream on a hot day. An informational text about the power of the sun to sustain life was narrativized in tableaux through the inclusion of people and their relationships to one another. In this way, the students operationalized a chiasmatic understanding of the scientific and the aesthetic (Varelas, Pappas, Tucker-Raymond, Kane, Hankes, Ortiz & Keblawe-Shamah, 2010) and thereby blurred the false divide that has been set up between the arts and the science.

Disrupting the Routine of Classroom Learning

> "in the everyday life that surrounds us, creativity is an essential condition for existence and all that goes beyond the rut of routine and involves innovation, albeit only a tiny amount, owes its existence to the human creative process." (Vygotsky, 2004, p. 11)

As Vygotsky's words suggest, creativity is essential for confronting the routine. Learning shouldn't be routine but the reality of classroom life often is. Drama as an active and expressive art form gives space to disrupt the routine of classroom practice and often has the appearance of play. I believe the many student responses that commented on the experience being 'fun' or 'funny' were seeing analogies to playing in what they were doing, "Being funny with my friends and deciding what we will do." In this study, play was 'legitimized' through role-playing that allowed students to "shed those roles that others assign them (e.g., that of *child, student* or *pupil.)"* (Heath & Wollach, 2008, p. 6, italics in the original). These words capture a sense of the expanded experience that comes with role-play, the opportunity to be someone or something else is a novel experience in an environment where you are traditionally expected to perform as a

student and not a ‘disappointed bird’ or a mother comforting her son because the world is coming to a catastrophic end. These experiences came out of reading a text and then extending the content into tableau representations. This has implications for the way that reading is taught and how an expansive view of literacy practices can motivate students to engage with a wide variety of texts. Drama, ‘the playful giant’ needs to be allowed across the threshold and welcomed as a literacy practice that can extend the experience of reading into imaginative and playful spaces.

So What Did the Tableau Do?

Creating tableau was an engaging and active experience for the students. It gave the third grade students an opportunity to get out from behind their desks, read and discuss informational texts collaboratively and then use their bodies to represent a main idea. In viewing the tableaux created by classmates, students saw different ways of representing text. It is my belief that embodying main ideas and *seeing* main ideas embodied by others helped to make the scientific concepts less abstract and more concrete. As a result of this I make a final claim that the embodiment of main ideas supported the students in their comprehension of key concepts.

Limitations of the Study

The texts the students read for this study were provided by the teacher and connected to their science curriculum. I extracted specific passages from the textbook and the short passages were often void of many of the rhetorical cues that traditionally suggest ‘here is *the* main idea.’ In addition, it could be inferred that the students’ variable experiences with main idea support the premise that these texts did not have one singular main idea. Reading theorists may view the provision of texts that lacked a clearly identifiable main idea as problematic. However, this study was not about representing *the* main idea of a science information text. This study was my

exploration of tableau as an embodied tool for representing main *ideas*. As described in the study, reading comprehension was operationalized as the *interpretation* of the texts in order to represent *a* main idea agreed upon by the group.

Regarding the interpretation of texts, I made the methodological choice to not ask the students to explain their tableaux but to audio and video record their creative work in progress. I felt at the time this would be more likely to elicit revelations about student(s) process than if I asked them questions. I have my reservations about this now. Given the findings of the current study with regard to the focus on the body as an interpretive tool, I envision future studies using more expanded versions of text to examine more closely the reasons behind students' interpretive choices of main ideas. These studies would add to the growing literature on the deep connections between mind and movement (Tulk, 2015) and the body as a source for expressing and comprehending.

And Finally…

I am choosing to end chapter five with an extract from the interview with the classroom teacher who was present for each session but did not intervene during them. According to a CHAT framework, we participate in an activity just by being present, and as a participant she says something important here about drama in the classroom:

> MB: OK, so do you have any reservations about the place of the arts in education, so just generally from what you've seen is there anything you would…
>
> KB: No, you should have more of it.
>
> MB: Really?
>
> KB: Absolutely, it just, it's, everybody learns differently and this seems like a way that the majority of the people are able to connect, to relate and learn so why not have more of it?

Why not indeed?

Epilogue: Crossing the Threshold

> The body is a thing that can be alienated from the mind and the heart; when we pull them together and make simple gestures as a group, I believe that there is something that is unlocked. The Ancient Greeks knew it, people have known it in all sorts of traditional societies, there is something that gives us strength there. (Bill T. Jones – choreographer, 2001)

01/07/15

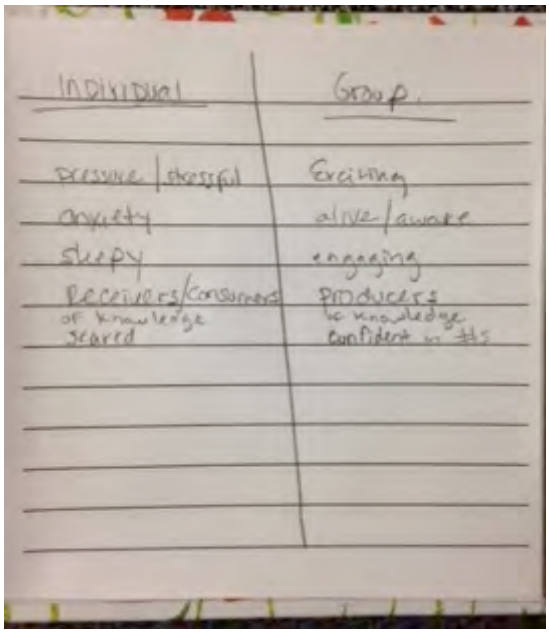


Figure 33. Notebook showing the beginnings of our creative process

Where do ideas come from? Where does the creative process begin? Sometimes in little notebooks like the one above (see Figure 33). Last night I met with members of Revolutions Dance to start planning a movement piece that will accompany the defense of this research. I met

with Marion, Eric, Calandre and Katie, people I hardly know but expect much from! I had met them in November to talk about my research and my wish to work with them and now, at the beginning of the new year, we were going to try and create a dance, a movement piece, a performance piece, a presentation, a representation – SOMETHING to SHOW at my defense!

We met in a cold dance studio in Oldsmar, the thumping of music coming through the walls from the adjacent ice-skating rink. It is a space I know well but in my other identity as a mom. Every Saturday I bring my two daughters for their dance class and I sit at the side with the other parents, dividing my time between passing pleasantries, looking at my phone and watching my daughters in the mirror so I see them from the front and not the side. And now I am in the same space - but not sitting at the edge - and I am facing *myself* in the mirror. Not being a dancer, of course I am self-conscious, but if I am to live out what my study is calling for and truly embody embodiment then I need to let go of myself as subject and regard myself as object in the creative process.

Marion led the warm up and it actually felt really good to warm up and S-T-R-E-T-C-H. Why do we not do more of this? Our poor neglected bodies. Hunched over computers all day, active minds and active fingers and a stationary body. After the warm up we sat in a circle and I gave the condensed version of my research. I know Marion works with kids but I know nothing of the backgrounds of Eric, Calandre and Katie, so I tried to keep my summary free from academic jargon. I explained what a tableau was and I focused on the collaborative nature of the tableau work as being in opposition to the stress on individual achievement in schools. And so we began with a little notebook and wrote down words that we associated with the terms 'individual' and 'group.' We each picked a word from the 'individual' list and let our bodies

respond to that word. Then we walked around the room doing the movements and a dance was born…from ideas that emerged in our BODIES.

01/14/15

Marion was sick and she canceled the dance class. Even dancers' bodies get sick and tired… Although it is only January I already felt aware of the countdown to my defense in March and I hoped there wouldn't be many more canceled classes.

01/21/15

Not so self-conscious this time warming up in front of the mirror and again it felt good to move, I even began to feel like a 'real' dancer when I successfully learned a short routine of steps. And then we began with a review of our movements from last time – movements that were meant to contrast dull individual learning with exciting and engaged group learning. But how should we transition from one to the other in an artful way? How do we make this presentation aesthetic as well as a re-presentation of research? Eye contact I suggested. Not very original but it could work. So we tried emerging from our individualized learning poses by making eye with each other. Never easy. Why is it so awkward to make eye contact? It suddenly becomes the most intimate of acts. But we did it and then Marion had the idea of showing some kind of boundary that was a threat to our newly achieved sense of group. Use chairs! Perfect - they are found in every classroom and represent a resistance to embodied work – their very presence suggests that students should sit and not move. So we made a line of chairs (see Figure 34) and practiced scrambling over and through them to get to the 'other side' where we showed our contrasting 'group' movements. And that was as far as we got that night but when I left I said I would return next week with some quotes from the students in the study.

I drove home thinking about the chairs and how perfectly their blockade represented so many blockages related to this study.

Figure 34. The line of chairs

01/28/15

"Drama, the playful giant, is knocking at the door, but despite its protean wiles, it is barely over the threshold yet" (O'Toole and O'Mara, 2007, p. 215)

As I drove to the practice tonight my mind was back to the symbolic potency of the chairs and how our 'border crossing' idea from last week fitted perfectly with the quote above. I came across the quote when preparing for my dissertation proposal and I had been drawn to the juxtaposition of 'playful' with 'giant' and the imagery of crossing thresholds. I felt the quote captured the historical restraining of drama in the classroom and the sense that if unleashed, all kinds of subversive behavior could result. Isn't that why totalitarian governments always lock up the playwrights and the poets?

I chose to open my proposal document with this quote because it gave context to the struggle that the arts, and specifically drama, have faced in being accepted as a teaching tool. But the quote soon came to represent the actual struggle that I had in trying, and failing, to get my study about drama across the threshold of two public school districts. While neither a political

poet nor playwright - access to conducting the research had been most definitely denied - until a charter school welcomed me over their threshold.

After the warm up, we reviewed what we had done a week ago and I made a suggestion about the chairs. Could we try breaking through the chairs differently? Could one person be 'brave' enough to go first and then in turn help us all through? We tried it and it 'felt' good and from my position in the group it 'looked' good too. Once through the chairs, we practiced the movements that we do in unison, and I found it a challenge to remember what comes next. Is that because I don't have a dancer's muscle memory (yet?) Then I shared some of the quotes from the students when they were asked if the tableau had helped them understand the main idea. It is important to me for the students' voices to be present in this presentation and some of them are so evocative they need to be shared, particularly the one about the tableau work 'giving more energy to the brain' – what a fantastic endorsement of drama in the classroom! Narrating the quotes also gave me the opportunity to step out of the group and watch Marion, Calandre, Eric and Katie use their knowledge of movement to create and transition from one tableau to another. Marion guided them with suggestions about filling in "negative and positive spaces" and it was intriguing to watch them respond intuitively to these words. We were out of time but decided that next week we would continue to focus on embodying the quotes. I am happy with how things are going. We need to do more creating and embodying in our lives – all of us!

02/04/15

No class tonight – Marion has family in town. So I sat at my computer for hours instead – active mind and active fingers and a stationary, aching body…

02/11/15

I arrived at the dance studio in a very bad mood. I had been to Staples on the way to pick up my bound and color printed copy of the draft dissertation and when I got back into my car and flicked proudly through the document I noticed that NONE of the #$@&%*! page numbers matched the table of contents. I was mortified. I had been on such a high today having finished the document and sent it out to my committee and now - how embarrassing. There's a line in one of my asides, "I was getting too proud, something had to humble me" and that was how I felt again. And like before, I wasn't sure at what or at whom to direct my frustration – my incompetence at combining documents or the technology of combining documents? I decided it was a good thing that I had a rehearsal tonight as it might take my 'mind' off page-numbers and instead focus my attention on what my body could do to embody the dissertation. The body soothing the mortified, humbled spirit!

We reviewed what we had done two weeks ago and 'the dancers' practiced more tableaux as I read out quotes. I decided to use a variety of quotes from the kids, not just the same ones as before. And then we started to think about where we could go from here – I said I would like to make more of the chairs because their symbolism was so powerful. So we practiced each picking up a chair and moving around slowly with them held above our heads. Looked nice. The sight of us all dancing with chairs made me think of a contrasting image at the beginning - what if we began the presentation sitting down I suggested – quite literally chair bound? We tried it and then I had another suggestion, what if we began our 'individual movements' while seated? Marion complimented me on my choreographic choices and I felt really pleased. What did it matter if I messed up page numbers – at least I could have creative ideas! I felt that Marion was really getting into this. Calandre and Eric are very flexible and respond positively to all the ideas.

Marion started to play with the 'boundedness' of our situation while we were seated. What if we all had backpacks to weigh us down? Backpacks full of printed texts as opposed to embodied texts that we escape to on the 'other side' of the chairs. Why do the ideas always seem to start flowing just before I have to leave to get back home to relieve the babysitter? Does this not show that the more we think representationally, the better we get at it? Think of all those ways of representing that are not being developed in children, second by second, hour by hour, time sat at desks, still bodies, aching to move…

02/18/15

I had received a text from Marion yesterday - she would not be able to make dance class because she had a rehearsal for a show she was doing, but she did not want to cancel the practice (phew!) She said that Eric, Katie and Calandre were happy to still meet. This will be interesting I thought. Marion is 'our leader' and the others are great to work with but quiet in terms of contributing ideas. However I was glad that we would still meet and hey – isn't that what the creative process is all about – 'going with the flow' and adaptation? Who knows what might come out of this?

It was a cold night and the dance studio was freezing so, as a perpetually cold person, I was relieved that Calandre was quick to start the warm up. Katie was not there so it was just Calandre, Eric and myself but I felt relaxed and Calandre took us through some routines that we had been learning with Marion. Towards the end of the warm up Jada arrived. I had met her back in November when I had first approached the group about working with me on this project. I was glad that we had another 'body' in the group but also a little concerned as to how that would affect what we had created so far…

I took a moment to explain to Jada that in the movement piece we were contrasting individualized, 'seat bound' learning with collaborative, active learning. We showed her what we had devised up to this point and then she practiced with us. Jada had an idea for the part when we break through the chairs – could we go through them like a tunnel? So we practiced pulling each other through the chairs. I asked Jada if I could hang on to her feet while she went through. Eric, who is in a wheelchair, was obviously not able to crawl through the chairs but kicked them out of his way before pulling the rest of us through.

After rehearsing what we had so far, the question became how do we end this piece? I had an idea that I thought might be a bit 'cheesy' but decided to share it anyway. After we have picked up the chairs and are dancing around with them, we could mirror what we did at the beginning but the 'tone' should be different. This time we could be very aware of each other, and look at each other as we pass by. Jada made an interesting comment – "I want to use the chairs but not as chairs" – I love that. It recognizes that objects may suggest a certain affordance – but that doesn't mean we have to use them that way. If, as Vygotsky believed, tools mediate our thinking then the more open we are as to how we use tools, the more expansive will be our experiences…we don't have to be limited to the obvious. So this time I made a conscious effort to move with the chairs in a way that negated their designed affordance for sitting. Finally, we ended up in a collective heap, making eye contact with each other, straddled across chairs rather than sitting in them.

I had learned a lesson - my concern about Marion not being present represented a bounded view of rehearsal. But tonight we had a different 'director' in Calandre and a new group member in Jada and both had brought different affordances to the creative process.

02/25/15

I had asked my friend Anne to come and video/photograph the session tonight and as I was getting in the car to go and pick her up, my phone pinged – a text. It was Marion, she was running late. That was ok, I was relieved to know she was coming. When we arrived, Calandre and Eric were already in the studio. Calandre led us in a warm up and I invited Anne to join in. When Marion got there we discussed what we had done last week in her absence. I asked if we could rehearse this week with the positioning of the 'audience' in mind. Marion suggested we perform 'in the round' and I loved that idea. Why not do the entire defense 'in the round' – after all it is all a ritualized performance.

The knowledge that we would be performing in the round meant some adjustments to the movement piece. When we sit on chairs at the beginning, we should face in different directions and when we do the movements in unison, we should repeat them four times as we turn to face a different 'section' of the audience. Another adjustment was that this week I had brought backpacks with me – stuffed full of my daughters' belongings and school materials. So we practiced moving while wearing them and when we got to the point of going *through* the chairs like last week, we really did have something holding us back – the backpacks. The only solution was to discard the backpacks, an act which we made more 'theatrical' by slowly dumping the contents on the floor. Leaving the traditional symbols of learning behind, we were then free to pass through the chairs and into the 'collaboration zone.' When we rehearsed the end, we decided it was important to return to the discarded backpack objects but this time, we 'bounded' them (see Figure 35).

Figure 35. 'Bounding' the backpacks and their contents

It was 8:30, time to leave. Anne and I said our goodbyes and left. I couldn't wait to ask her what she thought, so once we were in the car, almost my first words were "So, was it alright?" She said it was and that she had really enjoyed seeing what we had been working on. She inquired as to how much context I was going to give the piece before we performed it. Her question led to us discussing the perils of being so involved in a project that you can miss the obvious and she's right, I need to remember that although I have been living with this study for over a year now, there may be people at the defense who know nothing about what the performance piece is all about. But still… after all the 'talking' that the defense was surely going to involve, did I want to do more talking to introduce this piece? Not really. To be honest, I don't know if I care whether the audience 'gets it' or not. I just want them to witness an event that reformulates the traditional dissertation defense and embodies those powerful words spoken by Bill T. Jones at the beginning of this chapter. I find those words so compelling that I want to share them as an introduction to the presentation, but beyond that and introducing the dancers, I want to discard the necessity of words – like we discarded the textbooks and pencil cases on the floor. Enough of words, let's see embodied representations of experiences…

03/04/15

What a day! It was one of those days when my shoulders were constantly in a state of tension and my jaw kept gripping in frustration at every task that turned out to be more problematic or time consuming than anticipated. At 1 o'clock I decide to unbind myself from my chair and venture outside into the backyard. It is a beautiful day and I momentarily relax and let the warmth of the sun s-o-a-k into my taut body. I go back inside and resume working, but not for long as I have to go and meet my older daughter at a loud, dark, crowded roller skating rink. She has been so excited about this PTA event but me, not so much. I stand at the edge and watch her inch around the rink very slowly using a frame. Most of the other kids zoom pass her but that doesn't seem to bother her and I am relieved because it bothers me. Due to traffic on US 19 it takes us almost an hour to get home and while driving my phone pings. A text from Marion. She cannot make it tonight but Calandre and Eric will be there. I say that is fine and inwardly hope that she will be there next week because it will be our last rehearsal. Ella and I arrive home and then there is supper and homework and dishes gathering in wait by the kitchen sink. My friend arrives to look after the girls and I have to admit that I am looking forward to the opportunity to drop my shoulders, unclench my jaw and just move.

My mood continued to improve on my drive to the dance studio because of a full moon that was clearly visible through my pollen-smeared windscreen (see Figure 35). It was really beautiful and its constant presence ahead of me helped put the accretions of the day's frustrations in perspective.

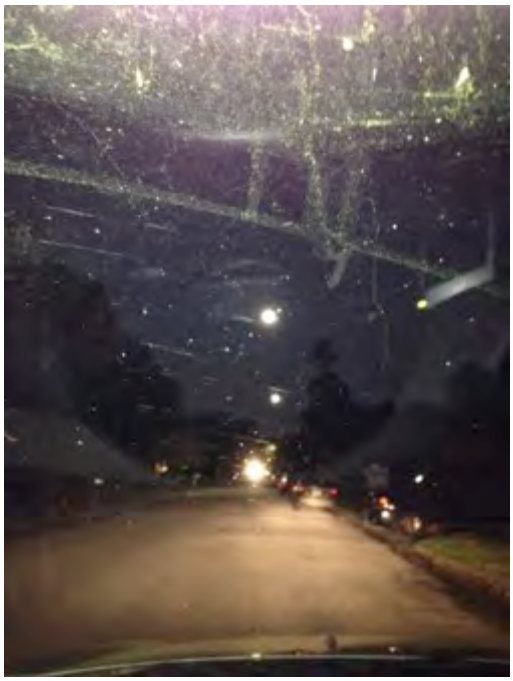


Figure 36. Car light, street light, moonlight as seen through my car windscreen

In my aside of 01/28/14 I wrote, "Today's lesson was about the solar eclipse – the moon coming between the Earth and the Sun and blocking the light. I love that – so mystical – I wish I could go with that. It's also made me realize how interested I am in the solar system and how little I know." I have to admit that learning about the solar system for this study has made me very aware of my smallness in relation to what is going on 'up there' and this awareness is proving a useful antidote to being totally absorbed by my own concerns. I have started to track the phases of the moon (see Figure 37) and love the full moon around the start of a new month (that's been the pattern so far). Most nights now I go outside and look to see where the moon is in the sky and what phase it is in and in the morning when I am waiting for the school bus with my daughters I look again. If it can be seen, I angle my younger daughter's head towards it and ask, "Can you see the moon?" Although she is considered blind, she is able to see light and I get excited when she says she can. She seems to like that she can see it too.

Figure 37. The phases of the moon for March 2015. (Image retrieved from: http://www.moonconnection.com/moon_phases_calendar.phtml)

Calandre led the warm up and yes, it was good to do intentional, slow movements that brought focus to the expressive capabilities of my body rather than its reactive tendencies. We placed the chairs in the middle of the room and ran through the performance piece. We didn't change or add anything this week and it is definitely coming together. With the thought of the final defense in mind, I talked about the logistics of parking at USF as it is those kinds of details that worry me. (What if everyone is waiting in the TECO room for the presentation and none of the dancers arrive?) I feel my shoulders rising and my jaw clenching. 8:30 p.m. - time to leave. The moon is not ahead of me going home, but when I pull into the driveway and get out of the car, I take a moment to look up at the sky for a final glimpse before going into the house and again I am transfixed. I go into the house. My friend has accomplished homework with both the girls, put the younger one to bed and washed the dishes. My shoulders drop and my jaw relaxes.

03/11/18 – The Final Rehearsal and the Problem with Words

For the first time I drove to the dance studio in the light due to the clocks changing. No moon to wax lyrical about this time but I love these lighter evenings and my body relaxes into the warmth. I was quite relieved that this was to be the last rehearsal because I felt we had got as

far as we could with the piece. I sensed that if we had faced more weeks of practice, the presentation would get stale. I remember having similar feelings towards the end of the study with the students and in my last aside I had written, "Quality didn't feel so good today – I think they have 'peaked'! I don't know." I want us to peak next week, not tonight!

As I drove along 580, I mentally recalled the list of things to go over with the group – again all logistical stuff mainly related to parking and how to contact each other if there are any issues next week. I felt organized but I had a feeling that all would not go as planned tonight and that something would have to humble me! I decided not to stress over this feeling, and reminded myself that a few weeks ago I had confidently stated that accepting the unplanned for events was part of the creative process.

When I arrived at the dance studio with the four heavily packed backpacks to be used as props, unusually Eric was not there. Calandre and Marion expressed surprise too and Marion wondered whether the notice that was stuck to the door of the dance studio had made the driver of the community bus think that the class was canceled (see Figure 38). So she called the bus service and yes, her instincts were right. The driver had taken Eric back home to Tampa when he had seen the sign. I was disappointed and felt bad for Eric. He had been at every rehearsal and seemed very committed to the project. I really hope that he will be there next week…

Figure 38. Sign stuck to dance studio door

The sign had been meant for the dance class that meets before us. Words – intended to be helpful for some had proved misleading for others. I mused on the 'problem with words' on my way home and how this connects with the themes of this study. As a silent expressive form, tableau presents as an alternative to our verbocentic education system *and* this dance presentation was meant to offer an embodied alternative to defending a dissertation through words alone. I felt rather smug that I was able to appropriate disappointing circumstances and turn them into affordances for my reflexive thinking! Then I felt guilty that I was not more concerned about the wasted ride that Eric had taken to the dance studio.

Marion led the warm up and I enjoyed the music as much as the movement. Towards the end of the warm up, Jada arrived. I was happy to see her but just like last time concerned that her presence this late in the rehearsal process might upset the dynamics. Maybe I wasn't as open to the unexpected as I had thought I was. Anyway, we reviewed the presentation and she was able to remember enough from the time before to slip right in to the movements. The rehearsal focused on the part where I narrate the student quotes and they respond with different tableaux. We made some changes and decided it best if they stand in neutral position while I read out the questions. (I hope Marion remembers to tell Eric about this). We also made more of the three collective breaths that we take – Marion described them as our 'motifs.' The first breath we take collectively is when we gather with the heavy backpacks at the beginning – it is a breath of tension. The second collective breath is when we reach the 'collaboration zone' – it a breath of relief. And the third breath we take is at the end – when we have 'bounded' the backpacks and their belongings - it is a breath of relaxation. Will the audience even notice these 'breath motifs' and if so how will they interpret them? We talked about this and the ability of art to evoke different interpretations depending on what an observer brings to the creative event. Isn't that

what Rosenblatt was basically saying about an aesthetic reading stance? We actively engage with text when we let our memory and our senses become involved with the words. I'm not sure if that will happen next week but it would be exciting if it did…

I drive home feeling peaceful and I realize that I am always more forgiving towards other drivers after dance class! Now that would make for an interesting study! I have really enjoyed working on this dance/movement piece and I want to continue to be involved in creative projects. Writing isn't enough for me, I need to do and be with others in the doing. As Bill T. Jones says, "there is strength there." I have no idea how it will go next week. I am excited and nervous. We have planned and practiced our movements but that doesn't mean the 'unplanned for' won't happen and perhaps that's the greatest risk about art. But I believe it is a risk worth taking.

03/18/15

Yes, there is strength 'there.' Strength in being told not to apologize for drama, strength in being encouraged to show what drama does and strength in being supported to share my data through movement. And that was the best part. Marion, Jada, Calandre and Eric all came and I loved them for it! Back on 01/07/15 I said they were people I hardly knew but expected much from. I don't know them much better now but I feel that we have shared something of significance between us and I will remember the experience of working with them for a long time. And now the pictures are on Facebook and the really nice comments are coming in and I am hearing from people I haven't heard from in a long time. But what does that have to do with the kids in that third grade classroom? Dr. King was right, this was never about main idea and no, I didn't really care whether they 'got' main idea or not. This was about me and drama. A subject that I love and feel I am good at teaching. No apologies. I have seen magic happen in the drama room. March 2000. Damian struggled in every subject and was often in trouble. His mom

would tell me in front of him that she couldn't understand why he did so poorly in school because she had done so well. He would just stand there in silence but probably not listening as he had heard it all before. As well as being in my class, he was also in the drama club and our devised piece was selected for performance at a regional arts festival. This meant the drama club got to spend the whole day at the Symphony Hall in Birmingham, rehearsing our piece for the evening. Damian was so excited. He didn't have to go to school that day and he wasn't going to fail at anything. I saw him smiling a lot. But then so was I – as in equally excited not to be in school that day. Instead I had the opportunity to watch 'my' 10 and 11 year olds perform scenes that we had worked on for months, one of which had actually made a teacher cry when we shared it in the school assembly. We didn't win the regional competition but I remember having similar feelings to what I felt last night. We had shared something really special through the creative process and I loved them for it. It didn't change Damian's behavior in school or improve his academic performance but he had a memorable day. And maybe that's the main idea about drama – the opportunity to create and represent important ideas alongside others – stays with you.

Figure 39. Revolutions Dance group dancing the data

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Appendix A

Session 1 Text, Participants, Main Idea Sentences and Tableau Presentations

<table>
<tr><td colspan="3">Session 1 Text

The sun is just one of millions of stars in the sky. Why does it look bigger and brighter than any other stars? The sun looks so large and bright because it is the nearest star to Earth. It is about 150 million kilometers (93 million miles) away. If you could drive to the sun in a car, it would take you about 177 years! That is much closer than the next nearest star system, Alpha Centauri. (National Geographic, 2011, p. 126) *</td></tr>
<tr><td>Participants</td><td>Group's Main Idea Sentence</td><td>Tableau Presentation</td></tr>
<tr><td>Group 1

Student 1
Student 2
Student 3
Student 4
Student 5</td><td>"The sun and the stars"</td><td>  </td></tr>
<tr><td>Group 2

Student 6
Student 7
Student 8
Student 9</td><td>"Is the sun"</td><td>  </td></tr>
</table>

Group 3 Student 10 Student 11 Student 12 Student 13	"The distance from the Earth to the sun"	
AGroup 4 Student 14 Student 15 Student 16 Student 17	"About the sun"	
Group 5 Student 18 Student 19 Student 20 Student 21	"The sun and the stars! And how you get to the sun. It takes 177 years to get to the sun"	

* From National Geographic. *National Geographic Science Grade 3 Teachers Edition Earth Science - Florida,* 1E. © 2011
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Appendix B

Session 2 Text, Participants, Main Idea Sentences and Tableau Presentations

<table>
<tr><td colspan="3">Session 2 Text

The sun gives out different kinds of energy. One of these forms of energy is light. We can see light all around us. Sunlight has the ability to warm things. Do you like the feeling of the sun on your skin? Energy leaves the sun and travels throughout the solar system. This means that other planets as well as Earth benefit from the sun's light.

(National Geographic, 2011, adapted from pp. 129-130) *</td></tr>
<tr><td>Participants</td><td>Group's Main Idea Sentence</td><td>Tableau Presentation</td></tr>
<tr><td>Group 1

Student 1
Student 2
Student 3
Student 4
Student 5</td><td>"The sun and energy"</td><td>  </td></tr>
<tr><td>Group 2

Student 6
Student 7
Student 8
Student 9</td><td>"An ice-cream truck on a hot day"</td><td>  </td></tr>
</table>

Group 3 Student 10 Student 11 Student 12 Student 13	"The energy the sun gives off"	
Group 4 Student 14 Student 15 Student 16 Student 17	"The sunlight's energy"	
Group 5 Student 18 Student 19 Student 20 Student 21	"That the sun is very important to our solar system. If we didn't have the sun Earth would be dark and ice cold."	

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Appendix C

Session 3 Text, Participants, Main Idea Sentences and Tableau Presentations

<table>
<tr><td colspan="3">Session 3 Text

Gravity is a force that pulls objects towards each other. Gravity between the sun and Earth pulls Earth towards the sun. Then why doesn't Earth fall into the sun? Think about twirling a ball connected to a string. You start the ball moving by throwing it out in a straight line. Then right away you pull on the string and the ball. That pull keeps the ball moving in a circle around you.

(National Geographic, 2011, p. 136) *</td></tr>
<tr><td>Participants</td><td>Group's Main Idea Sentence</td><td>Tableau Presentation</td></tr>
<tr><td>Group 1

Student 1
Student 2
Student 3
Student 4
Student 5</td><td>"Gravity"</td><td>  </td></tr>
<tr><td>Group 2

Student 6
Student 7
Student 8
Student 9</td><td>"Gravity from the sun"</td><td>  </td></tr>
</table>

Group 3 Student 10 Student 11 Student 12 Student 13	"What gravity is"	
Group 4 Student 14 Student 15 Student 16 Student 17	"Gravity's force"	
Group 5 Student 18 Student 19 Student 20 Student 21	"Gravity and how the sun pulls gravity from earth to the sun."	

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Appendix D

Session 4 Text, Participants, Main Idea Sentences and Tableau Presentations

<table>
<tr><td colspan="3">Session 4 Text

A solar eclipse happens when the moon passes between the sun and the Earth. When this happens, the moon blocks the light from the sun and the sky becomes dark. This darkness usually lasts for a few minutes. Birds think it is nighttime and stop singing! During an eclipse only the sun's atmosphere can be seen shining around the dark circle of the moon. The next solar eclipse visible from the United States will be Monday August 21, 2017.

(Simon, 1996, p. 17) **</td></tr>
<tr><td>Participants</td><td>Group's Main Idea Sentence</td><td>Tableau Presentation</td></tr>
<tr><td>Group 1

Student 1
Student 2
Student 3
Student 4
Student 5</td><td>"Solar eclipse and when the next solar eclipse will happen"</td><td>  </td></tr>
<tr><td>Group 2

Student 6
Student 7
Student 8
Student 9</td><td>"Our main idea is solar eclipse"</td><td>  </td></tr>
</table>

Group 3 Student 10 Student 11 Student 12 Student 13	"Solar eclipse"	
Group 4 Student 14 Student 15 Student 16 Student 17	"The solar eclipse"	
Group 5 Student 18 Student 19 Student 20 Student 21	"The moon blocking the sun, sun, moon, Earth"	

** Simon, S. (1996). *The sun.* New York, NY: HarperCollins.
Permission to reprint received in an email from HarperCollins on 10/13/14.

Appendix E

Session 5 Text, Participants, Main Idea Sentences and Tableau Presentations

<table>
<tr><td colspan="3">Session 5 Text

Have you ever walked on a blacktop surface on a sunny summer afternoon? It's hot! Light energy from the sun has transformed to heat energy and warmed the blacktop. If you walk on the blacktop in the evening it is much cooler. This is because the sun is no longer shining on it. The blacktop has lost heat energy. When sunlight hits an object, the heat energy from the light energy causes the object's temperature to go up.

(National Geographic, 2011, adapted from pp. 132-133) *</td></tr>
<tr><td>Participants</td><td>Group's Main Idea Sentence</td><td>Tableau Presentation</td></tr>
<tr><td>Group 1

Student 1
Student 2
Student 3
Student 4
Student 5</td><td>"The sun gets the heat to the blacktop"</td><td>  </td></tr>
<tr><td>Group 2

Student 6
Student 7
Student 8
Student 9</td><td>"Sun shining things"</td><td>  </td></tr>
</table>

Group 3 Student 10 Student 11 Student 12 Student 13	"The blacktop"	
Group 4 Student 14 Student 15 Student 16 Student 17	"Light energy"	
Group 5 Student 18 Student 19 Student 20 Student 21	"The heat"	

Appendix F

Session 6 Text, Participants, Main Idea Sentences and Tableau Presentations

<table>
<tr><td colspan="3">Session 6 Text

The sun is very important to life on earth. It gives off energy in the form of light and heat. Plants need the light energy to grow. Animals, including humans, need plants for food. Without the sun's energy, plants would not grow and animals would have nothing to feed on and we would go hungry! Without the sun there would be no light, no heat and no living thing would survive on the earth. We depend on the sun for our life!

(National Geographic, 2011, adapted from p. T152g) *</td></tr>
<tr><td>Participants</td><td>Group's Main Idea Sentence</td><td>Tableau Presentation</td></tr>
<tr><td>Group 1

Student 1
Student 2
Student 3
Student 4
Student 5</td><td>"What Earth will be like without the sun"</td><td>  </td></tr>
<tr><td>Group 2

Student 6
Student 7
Student 8
Student 9</td><td>"No sun so everything's dying out"</td><td>  </td></tr>
</table>

Group 3 Student 10 Student 11 Student 12 Student 13	"How life would be if the sun wasn't there"	
Group 4 Student 14 Student 15 Student 16 Student 17	"Why the sun is so important"	
Group 5 Student 18 Student 19 Student 20 Student 21	"The sun keeps people alive and is very important to the solar system."	

Appendix G

Semi-Structured Interview: Ms. Kay

1. Tell me about your teaching background.
2. What do you enjoy about being a teacher?
3. What are the challenges?
4. How do you feel about incorporating the arts into the classroom?
5. Tell me about some experiences when you have done this.
6. What is your opinion of the drama work that has been done with your class?
7. Have you seen a different side to some of the students?
8. Has anything about the way that the students have responded surprised you?
9. In what ways do you feel that incorporating the arts in education is beneficial?
10. Do you have any reservations about the place of the arts in education?

Appendix H

IRB Approval Letter

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX(813) 974-7091

2/16/2015

Margaret Branscombe, M.A.
Teaching and Learning
4202 East Fowler Ave
Tampa, FL 33620-5650

RE: **Expedited Approval for Amendment**
IRB#: Ame6_Pro00014032
Title: "I want to be the sun": Tableau as an Embodied Representation of Main Ideas in Science Information Texts.

Dear Dr. Branscombe:

On 2/16/2015, the Institutional Review Board (IRB) reviewed and **APPROVED** your Amendment. The submitted request has been approved for the following:

Revised Protocol, version 7

Approved Item(s):
Protocol Document(s):
clean version 7

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John A Schinka, Ph.D.

John Schinka, Ph.D., Chairperson
USF Institutional Review Board

Appendix I

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University of South Florida
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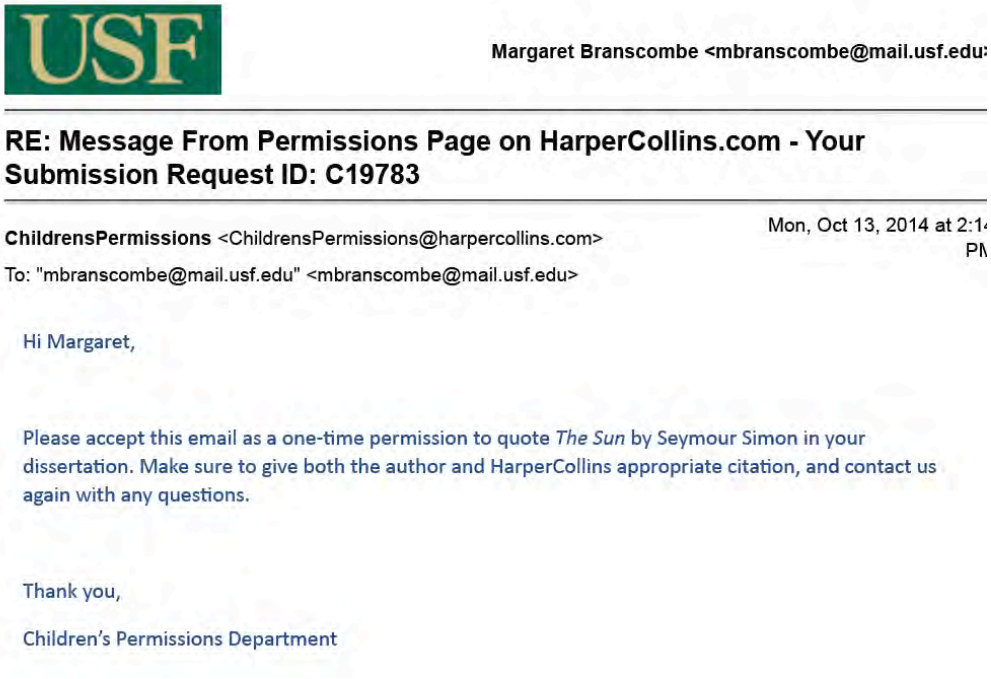

Margaret Branscombe <mbranscombe@mail.usf.edu>

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